METAL PRESSIONS

USABILITY TEST REPORT

INFO90004 - Evaluating the User Experience
Group 5
Tutorial 1, 5:15 Tuesday

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Executive Summary

This report presents an evaluation of the usability of *Metal Pressions*, a website that allows users to design and purchase custom jewellery products. The evaluation aims to understand how well users can navigate the customisation system and create custom products on the website. The study measures this with six key usability objectives: effectiveness, efficiency, utility, learnability, memorability and safety. We generated data through a series of user tests using online tools. Seventeen participants completed these tests either in-person or online, each with one facilitator. We used three platforms to test the six usability goals:

Optimal Sort: Users sorted a selection of images from the customisation menu into logical categories. This task measured the efficiency and learnability of the menu organisation.

Chalkmark: Users completed five 'first-click' tasks on screenshots of the website to evaluate the content visibility of the website layout. These tasks also measured the efficiency and learnability of the interface.

Loop 11: Users completed five tasks embedded in the website, involving designing, measuring, and sharing jewellery. These tasks covered all six of the usability objectives.

The user tests highlighted issues in six major categories:

- A mismatch of mental models, where what the site displayed did not match what the user expected;
- Loss of control, where the site took control away from the user or caused them to lose their work;
- Disappointment in customisability, where users were underwhelmed by the level of customisation available;
- Redundant actions and interface inefficiency, where the interface slowed users down;
- A 'where is the ring?' problem, where users had difficulty recognising products in the customisation tool;
- And a lack of relevant information, where users were left guessing about important parts of the product instead of being assisted by the tool.

We offer a number of prioritised recommendations to address these issues and to help the website better meet the outlined usability goals, including clearly distinguishing between the text editor and tool editor, ensuring users know which page they are on, and improving the way the tool provides contextual information. This study will help to improve the *Metal Pressions* website so that it can offer better customisation functionality to its users and therefore improve its conversion rate. Following the recommendations outlined in this report will allow users to more easily make customised jewellery that they like, and allow the site to provide them with a unique experience and a personal, meaningful product.

Video Presentation Link

www.youtube.com/watch?v=PfmIMO4IYtI

Introduction

The usability of websites, primarily for companies with an online presence only, is key to attracting and retaining customers (Churm, 2012). A well-known technique of usability testing caters to an evaluation of websites (or any other product for that matter) where users are asked to perform pre-designed task scenarios and observers aim to capture the actions of the users for further analysis. Therefore, usability testing is an essential component to ensure the usability of any design and is appropriate for evaluating this website (Barnum, 2011).

The scope of this study focuses on the customisation functionality of the website for novice users. This is attributed to the fact that it involves users as early as the jewellery designing phase, making it essential to ensure the good usability of its customisation tool (Roden, 2019). The evaluation is targeted in terms of 6 usability goals defined by Preece et. al as depicted in Table 1 and based on a pilot test for the study.

The study used three usability testing tools including Chalkmark, Optimal Sort and Loop 11. Chalkmark was used to capture first clicks by users for any given task, mainly targeting the learnability objective. Optimal Sort was used to evaluate the mental model of the users against the categories on the website which also targeted learnability in terms of grouping similarities. Both of these tools produced quantitative data to evaluate the learnability of the website. Loop 11, on the other hand, was used to design more complex tasks that users performed on the website and generated extensive qualitative data in addition to quantitative data through task-related surveys.

We recruited a total of seventeen participants who completed a combination of simple and complex tasks that were designed to generate data for analysis. The usability testing was conducted online as well as in-person in the period of 5th to 10th May 2022. As part of the analysis, data is coded into themes reflecting key findings. Each key finding is then supported with evidence from quantitative data and mainly using qualitative data from Loop11 interviews. Finally, the study provides recommendations corresponding to the findings to improve the customisation usability of the website.

Objective	Evaluation Points
Effectiveness	· How effective is the website in allowing personalisation at various stages of the purchase journey? · Is the interface effective in helping users locate the option/information they are looking for? · Can the users successfully customise certain products to fit a brief given in a task?
Efficiency	· How easily can users locate a particular option/information or certain decorations within the customisation menu, and how easily can they customise a whole product? · Do users struggle with repeated actions?
Utility	· Does the website provide appropriate customisation options in the customisation journey? · Does the customisation canvas provide comprehensible views of the items related to customisation?
Learnability	· Do the available options on the website match with the expectations that users have? · How difficult is it for users to comprehend the features/functionality/options? · Do the users sort the symbol options in the same way that the tool does?
Memorability	· How consistent is the website in terms of the customisation process across the range of products that it offers? · To what extent do users remember and make use of the actions they performed in any of the previous tasks?
Safety	· How well does the website provide actionable options during customization to prevent or resolve errors and accidents (saving the design, undoing a move, clearing the design)? · Do users recover from errors, or do errors cause them to fail tasks? · Do users display uncertainty about their final customisation results?

Table 1: The usability objectives.

Method

The usability test conducted for the *Metal Pressions* website used three tools – Optimal Sort, Chalkmark and Loop11 to evaluate the jewellery customisation capability of the website. Tasks were designed for all three tools to gain different perspectives on the users' experience. A pilot study was conducted to formulate task-oriented objectives defined in Table 1 as well as to ensure the ethical conformity of the tasks. All the researchers involved in this usability study had signed the ethics approval form before recruiting and engaging participants. Furthermore, the study was carefully explained to all of the participants and they were provided with the plain language statement and consent form before commencing the study.

The study involved a combination of eleven participants remotely over Zoom and six participants in person. In both cases, the tests were moderated where the facilitators encouraged participants to think out loud so as to gain qualitative insights (Moran, 2019). Table 2 showcases the success rate of the study as a metric for Chalkmark and Optimal Sort which can be evaluated to be above the average benchmark of 78% highlighted by Suaro (2011). Each of the tools catered to the analysis in terms of the objectives in Table 1. A brief discussion of the tools and corresponding tasks are discussed as follows. Please see Appendices B, E, F, and G for detailed information on the tasks.

	Study Completion & Time Taken	Success Rate
Chalkmark		82.6%
Optimal Sort		80%

Table 2: Brief Optimal Workshop Overview.

Chalkmark

Optimal Workshop (2022a) highlights Chalkmark to be an unmoderated tool, primarily used for “first-click” testing to evaluate where a user would click on the interface when prompted for a task. It mainly provides insights for creating an intuitive interface for easy understanding for the users to perform correct clicks which in turn can improve customer conversion rates on a website (Optimal Workshop, 2022a).

This study incorporated 5 tasks (listed in Table 3), each of which included screenshots from the *Metal Pressions* website. Although it's an unmoderated tool, the study used it in a moderated setting to gain additional insights. The aim was to capture the “first click” of the users on these tasks and evaluate against correct clicks which were already fed into the tasks. The tool provided quantitative data such as an overview of the number of participants who completed the study and the individual time taken (Table 2). As part of the analysis of task results, the tool provided a task-wise number of successes and failures and the average time spent on each task. In addition, it provided Clickmaps for showcasing the distribution of the clicks made by the participants for each of the tasks in the form of heatmaps/grids/selection. Such first-click data mainly helped in identifying the effectiveness (O1) of the interface in enabling users to locate the item they were looking for. It also helped in identifying the memorability (O5) in a few tasks that used the same interface as in any of the previous tasks.

Task No	Task Question	Addressing Objective
Task 1	To customise this ring, where would you click first?	Effectiveness
Task 2	To add a symbol or gemstone to the ring, where would you click first?	Effectiveness
Task 3	To change the font style, where would you click first?	Effectiveness Memorability
Task 4	To change the size of this bracelet before adding it to the canvas, where would you click first?	Effectiveness
Task 5	To save your design, where would you click first?	Effectiveness Memorability

Table 3: Chalkmark tasks and target objectives.

Optimal Sort

Optimal Sort uses a card sorting technique where users are given several items to be grouped or labelled. It generates insights that can be used for organising items on a website to match the most common mental models of the users and therefore create "easily discoverable" categories for effective user experience (Optimal Workshop, 2022b).

This study used card sorting for 26 randomly selected images from the *Metal Pressions* website from categories of Animals & Nature, Religious, Shapes and Hobbies & Activities. We chose cards in this way so that there were not so many cards that they overwhelmed participants, and so that the cards were related enough that participants could meaningfully categorise them. The aim was to capture the mental model of the participants in grouping the pictures and evaluating the match against the existing categories on the website using the quantitative data generated by the tool. In addition to the number of participants who completed the study and the median time taken by each participant (Table 2), the tool indicates the total number of categories created by the participants. As part of the analysis, the tool also provides a similarity matrix to indicate the percentage of participants who grouped any two particular cards together. Such data mainly helped in identifying the Learnability (O4) of the interface i.e. match to user's mental model in terms of grouping similarities to the categories on the website (Nomat, 2022).

Loop11

Loop11 is a platform that provides an online moderated or unmoderated user testing tool wherein tasks can be designed for any specific website in order to study its usability (Loop11, 2020). The tool allows audio, video and screen recording which generates qualitative data for analysis. For this study, a combination of five simple and complex task scenarios along with survey questions was designed for the *Metal Pressions* website. Users had popups for task descriptions and could perform tasks as if they were using the actual website. The recordings enabled by the tool generated qualitative data such as thought processes, actions, likes and dislikes of the users about the website components involved in the tasks. Moreover, in addition to the analysis provided by the tool through heatmaps and clickstreams, survey questions generated other quantitative data about the difficulty level of the tasks and the user's confidence level in completing the tasks. The collective data was then studied to analyse in terms of the defined objectives as depicted in Table 4.

Task #	Task Description	Addressing Objective
Task 1	You like personalised accessories but you have never ordered such products online. Before going ahead with your purchase, you want to check out the return policy to see what your options are if you don't like the product. How would you do that?	Learnability (general familiarity of where the "return policy" is generally located (footer/product page etc)) Efficiency (of the Search function to locate return policy)
Task 2	You have customised a ring, but can't remember what size it is. You know the measurement around your fiancé's finger is 7cm. How would you decide if this ring is the right size?	Effectiveness (of the website in allowing the user to locate the size option)
Task 3	It is the birthday of one of your family members and you would like to purchase them a bracelet. You want to customise this bracelet with roman numerals 'LXIX' on the outside and the text 'FLOWER POWER' on the inside. The bracelet should fit a wearer with a wrist measurement of 19cm. How would you do this?	Effectiveness (in allowing users to find "Customise" option/sizing option) Learnability (in having an interface similar to general customisation interfaces) Utility (of the customisation functionality) Safety (Can users return back to the product page without losing their design in the Canvas?)
Task 4	You are very picky about bracelets and will only wear bracelets with rubies on them. You want to add five rubies to this bracelet in a line. How would you do that? You also want to share the design with your sister to get her opinion. How would you do that?	Memorability (of navigating to customisation page from previous tasks) Effectiveness (of allowing users to find rubies; share option) Efficiency (of allowing users to have multiple copies of a single item (rubies in this case); of aligning the rubies as desired by the users) Efficiency (of the email/URL option)
Task 5	You want a new piece of jewellery. Customise a piece of jewellery in any way you like. You want it to be the most elegant piece of jewellery you have ever worn. What would you do?	Memorability (of navigating to customisation page from previous tasks) Utility (variety of options, enough pictures) Safety (of not losing the design in case trying to save it) Learnability (Is customisation functionality similar to general customisation websites?)

Table 4: Loop11 Tasks.

Participants

The study required participants to complete at least one test from Chalkmark and Optimal Sort in addition to the Loop11 tasks. Seventeen participants were recruited based on two criteria:

- Their confidence in the English language to ensure their competence in taking the tests, mainly reading and comprehending the tasks because the website is based on the English language. It was also so that they generate qualitative data by conversing that can be understood by all the team members.
- They have not used the *Metal Pressions* website before because the study focuses on the usability of the website for novice users as they represent potential users of the website in the future.

All participants were introduced to the full test protocol and plain language statement and were provided a consent form to decide to proceed with the test. They were also requested to use laptop browsers, Google Chrome in particular, (to avoid mobile versions) so as to maintain consistency across participants. Furthermore, the Participants' demographic can be illustrated in Tables 5 and 6 which showcase fair distribution across the factors and therefore is not biased.

No. of participants	Gender		Age Group
	Male	Female	
17	9	8	18-30

Table 5: Participant demographic based on Gender & Age Group

Chalkmark		OptimalSort	
Location	No. of participants	Location	No. of participants
Australia	17	Australia	10
Pakistan	4	Pakistan	3
Hong Kong	2	Hong Kong	2

Table 6: Chalkmark and OptimalSort - Participant demographic based on location

Findings

1: *Mismatch of Mental Model*

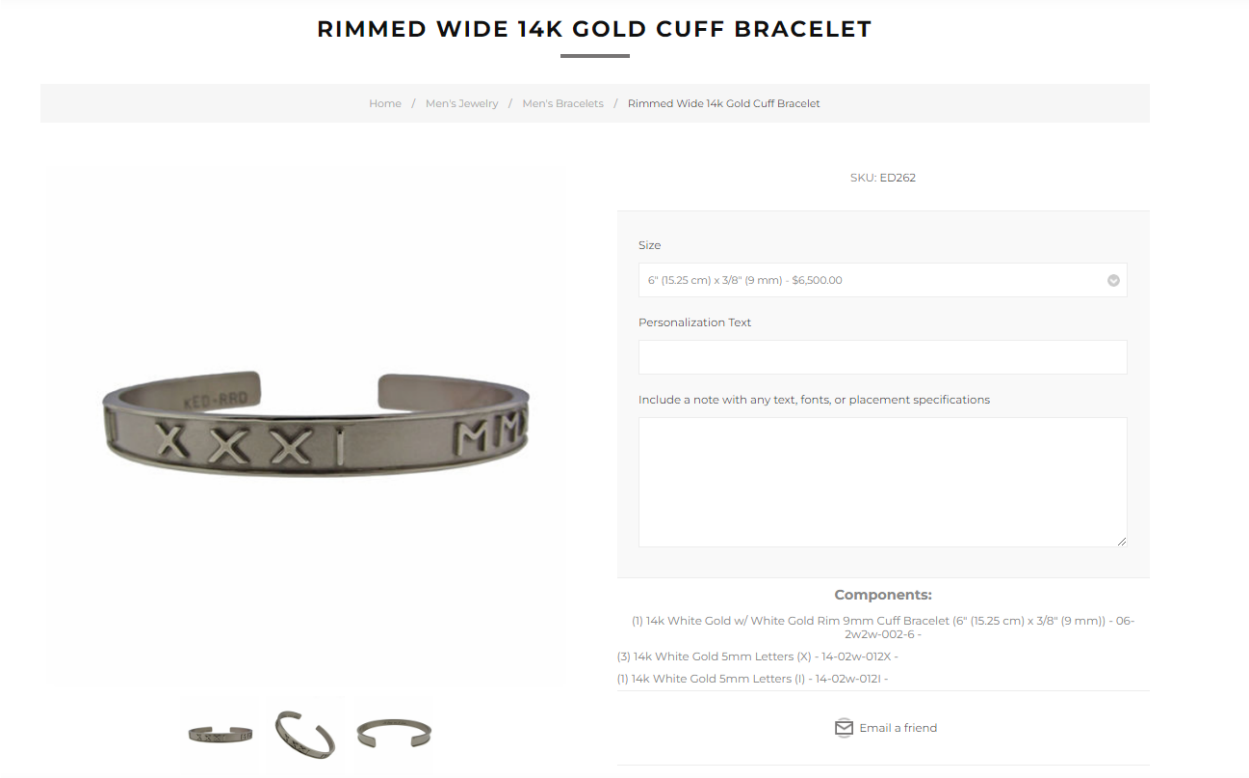
Users frequently get confused by the options presented to them or find that features behave differently from how they expected. This suggests that the website does not adequately adhere to standard industry conventions and therefore barely meets the Learnability or Memorability goals (Krause, 2021).

In Task D2, upon clicking on the "Share Design" button, when users were given options of email and URL, they displayed annoyance with the options. For instance, Participant 11 mentioned that the email option initially looked like a form to be filled and they did not want to fill a form to share a design. When they tried the URL option, they expected the 'Copy URL' button to copy the URL, not to just display it for manual copying. Furthermore, for Participant 12, the screen was small, so the textbox part of the email option was hidden. The user did not realise that they had to scroll up or whether there were related actions above. They directly clicked on the "Email" button and got an error because the textboxes weren't filled up. Consequently, all such annoyance depicted in the examples showcases learnability issues with the sharing design functionality where the given options do not match the mental model of the users (Krause, 2021).

Participant 1 entered a giggling fit when they discovered that the product size drop-down menu was not sorted by a numerical value. Other issues were less benign, though. Product pages on many of the items included text fields for users to add customised text to their jewellery. Participants found this very confusing, however. In Task C, participants were asked to add custom text to both sides of a solid gold bracelet.

<table>
<tr><th colspan="5">Task C: Text Customisation</th></tr>
<tr><td rowspan="2">It is the birthday of one of your family members and you would like to purchase them a bracelet.
You want to customise this bracelet with roman numerals 'LXIX' on the outside and the text 'FLOWER POWER' on the inside. The bracelet should fit a wearer with a wrist measurement of 19cm.

How would you do this?</td><td>Completed</td><td>15</td><td rowspan="2">Average Time Taken</td><td rowspan="2">3:04</td></tr>
<tr><td>Abandoned</td><td>2</td></tr>
</table>



The landing page for Task C with text field customisation [top navigation bar cropped].

Participants typically filled in the 'Personalisation Text' with both the internal and external text, and left a note explaining that they wanted one on the inside and one on the outside. Some (such as Participant 5) felt that a single customisation field was insufficient for a product with two customisable text areas. While entering their text, Participant 1 did not appear impressed:

> *P1*: "*Is this a real website*?"
> *[Facilitator*: "Yes."*]*
> *P1*: "*Oh my Jesus*."

Participants 3 and 16 asked the exact same question. When participants were finished entering their text, some tried to add it to their cart. There was no button provided — instead, they had to click the 'customise' button. This took them into the true customisation tool, where their entered text was displayed on the bracelet in a different way than they expected. Participant 17, who had put both front and back text in the customisation field, believed they were done - until they entered the customiser: "Oh. Oh… no, I'm not done. It's showing up like this".

Participant 17's first look at the customisation tool.

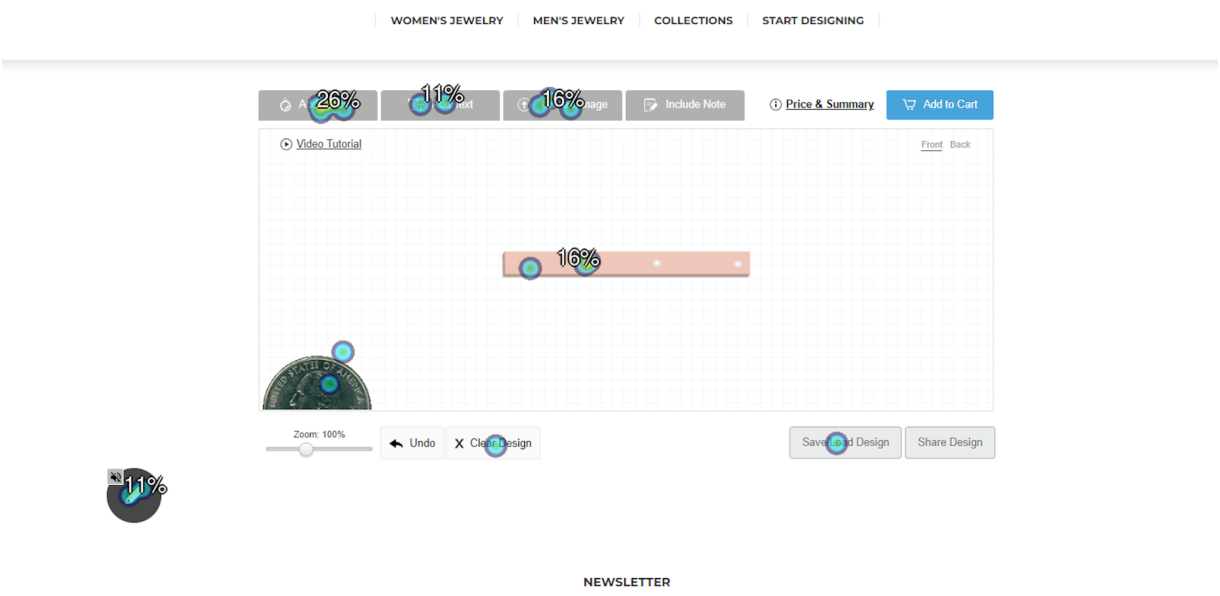
The text field problems leaked into the next task, too. When asked to add rubies to a bracelet in Task D2, Participant 3 stated: "That's not text. You can't do that". They were unable to complete the task.

Task A uncovered inadequate learnability wherein Participant 10 attempted the search functionality to look for the return policy but could not get relevant results. The user also tried going to product pages to look for it but couldn't find it there either. They assumed these as general places to find the return policy thereby reflecting learnability. When participants' mental models matched the model of the website like they did in Task A, they completed tasks easily. Participant 1 described the return policy as 'exactly where [they] would expect it to be'. Eighty-three percent of participants said that Task A was either 'easy' or 'very easy', compared to only fifty-eight percent in Task C — or none in Task B.

Task A: Find Return Policy				
You like personalised accessories but you have never ordered such products online. Before going ahead with your purchase, you want to check out the return policy to see what your options are if you don't like the product. How would you do that?	Completed	16	Average Time Taken	1:37
	Abandoned	1		

Furthermore, in Task 2 of Chalkmark when users are asked to add a symbol or a ring, only 26% of the participants click the right section “Add Product”. The context in this section could be confusing for those who consider the symbol is not a product, or they consider the ring is not an independent product.

Chalkmark Task 2		
To add a symbol or gemstone to the ring, where would you click first?	Success	5
	Fail	14



Heatmap for Chalkmark Task 2

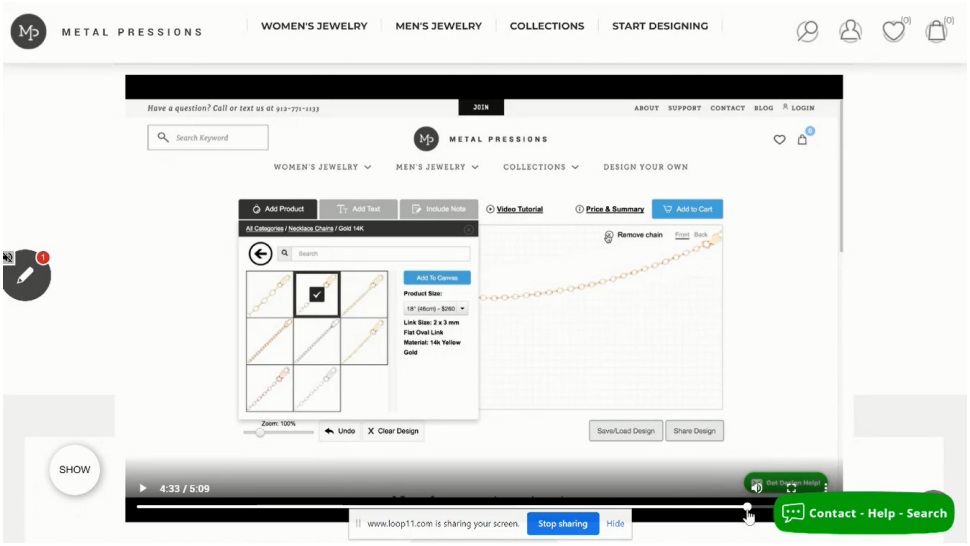
Finally, the Optimal Sort task used images from four symbol categories from the website - Animals & Nature, Religious, Shapes and Hobbies & Activities. Whereas, participants ended up creating 71 different categories in total. The drastic difference in the number of categories in both contexts reflects a very high deviation of the website categories to the mental model of the users and therefore, suggests low learnability of the website in categorising engraving symbols.

2: *Loss of Control*

Users easily make incorrect actions that cause them to lose data or get stuck, suggesting the website does not adequately meet the Safety goal while also highlighting the lack of user control usability heuristic explained by Rosala (2020).

A number of users lost progress in their customisations while trying to complete the tasks. Sometimes, navigating away from the page would destroy edits to the jewellery without warning. Participant 12 tried to save a design but was asked to sign up to do so. When they chose not to sign up and returned to the customiser, the design was not preserved as an archive safely. Similarly, two participants navigated off the customisation page to locate the ring size chart, and could not find their way back to the customised ring to see what size it was. It was as though the website was trying to drag the user *away* from the customisation tool.

In Task C, Participant 15 customised the bracelet using the text fields. After realising that there was another customisation page (see Findings 1 & 4), they navigated to it but decided not to use it. When they returned to the product page for text-based customisation, the information they had filled in was gone.



The offending video tutorial stuck on the screen.

In another case, Participants 3 and 15 attempted to use the video tutorials to get accustomed to the customisation tool. They were not rewarded, though, as after opening the tutorial video they were rendered unable to close it. After panicked scrolling up and down the page, both participants had to reload the website completely to regain control. One also lost their customisation progress. As a result of this lack of safety, some participants felt like they had made mistakes: "Did I do something wrong?". Others, however, felt betrayed by the interface, suggesting that it has 'not given them the right direction', or that the interface was 'not friendly'.

3: *Disappointment in Customisability*

Users are unsure about or disappointed by the available customisation options, suggesting the website does not adequately provide users with the appropriate features they would need to complete their tasks and therefore fails to meet the Utility goal (Nielsen, 2012).

It was unclear to users which items were customisable. Participants 5 and 10 were not sure that some customisable items had any reason to be customisable, while several participants (2, 8, & 15) started in the earring section for Task E (the free customisation task) and only realised that earrings could not be customised after they had chosen a pair and were unable to find the customise button on the product page. Participant 2 then used the customisation tool to browse customisable items:

> *"I'm just going to 'start designing' instead because I can't tell which ones I can and can't customise."*

In the customisation tool, users also had trouble finding embellishment options that they found sufficiently attractive to include in their design. Users often made utterances about the customisation options that implied they were underwhelmed by them. Participant 12 mentioned that there were 'limited options to change the design'. Participant 2 searched for opals and found only a cabochon, deciding: "Hmm… can't do that". Other participants were more forward in their criticism. "Oh my gosh, I don't like these", said Participant 8 when entering the Chains menu. Viewing the diamond-encrusted lettering caused a similar response: "Ew… no thank you". Participant 1 said "Get rid of that — don't like that" while removing a pre-existing symbol from a bracelet. Every participant who entered the symbols menu left it immediately.

A number of users only added a gemstone to their design — typically a diamond. Participants generally seemed to steer clear of most of the customisation options in the final free design task, with one participant opting for a plain rectangular necklace charm with nothing on it. In general, they disfavoured the embellishment options — "Maybe I don't like customised".

Although none of the participants said they were 'very unhappy' about their customised piece, only three of the seventeen said they were 'very happy'. Most simply said they were 'happy', and often said so with some hesitation.

> *"Would I buy it, realistically — no — was I happy with it? Yes."*

Task E: Free Design				
You want a new piece of jewellery. Customise a piece of jewellery in any way you like. You want it to be the most elegant piece of jewellery you have ever worn. What would you do?	Average Pageviews	8	Average Time Taken	4:52

4: *Redundant Actions and Interface Inefficiency*

Users often have to perform more actions than necessary or fight the user interface to complete a task, suggesting the website does not adequately meet the Efficiency goal (Laubheimer, 2020).

Issues arose for some participants in the customisation tool when they tried to perform actions repeatedly or tried to perform precise actions. Participants 8 and 11 attempted to edit roman numerals with their keyboards before discovering that each character was an individual object and that they had to add new characters individually. Participant 11 also described the sharing interface as 'inefficient', 'confusing', and 'frustrating'.

Participant 16 began realigning eighteen diamonds on a bracelet, but gave up after moving only four, one by one. Participant 1 had the same experience:

> "*I would probably put more diamonds on... but it would take forever with this website.*"

Participants were disappointed by the lack of standard quality-of-life shortcuts to speed up the editing process. These issues were most apparent in task D1, in which the participants added multiple rubies to a piece of jewellery. Every participant had to click five times on the 'add product' button, often counting out loud to ensure they had the right amount. Most had previously tried to drag and drop directly onto the canvas or copy and paste the first ruby. Aligning the rubies was also troublesome, as no objects snap to grid points and no alignment tools are provided. Some participants seemed uncertain about their customisation, and had to rely on whoever made the bracelet to understand that the rubies were intended to be in a straight line.

<table>
<tr><th colspan="5">Task D1: Design</th></tr>
<tr><td rowspan="2">You are very picky about bracelets and will only wear bracelets with rubies on them. You want to add five rubies to this bracelet in a line.

How would you do that?</td><td>Completed</td><td>16</td><td rowspan="2">Average Time Taken</td><td rowspan="2">3:07</td></tr>
<tr><td>Abandoned</td><td>1</td></tr>
<tr><th colspan="5">Task D2: Share</th></tr>
<tr><td>You also want to share the design with your sister to get her opinion.

How would you do that?</td><td>Completed</td><td>17</td><td>Average Time Taken</td><td>1:02</td></tr>
</table>

5: "*Where is the Ring?*"

Users have trouble visualising products - or sometimes even spotting products - suggesting the website does not adequately meet the Effectiveness and Learnability goals.

The website often failed to present its products recognisably and intuitively. In Task B, Participant 12 was unable to locate the ring as the user could not perceive the object in the customisation canvas to be a ring. When asked by the facilitator about their opinion of the item in the canvas, their reaction included "Not sure… does not look like a ring though, it's a bit 2D, it's difficult to interpret". In addition to the learnability of such products, the scenario also reflects inadequacy in the effectiveness of the customisation interface to showcase the product in its correct form.

Upon first entering the customisation tool, participants gave a variety of responses demonstrating the unintuitive representation of the jewellery:

> P12: "*Where is the ring*?"
> P1: "*This is the ring? No that's… that's… this* <u>is</u> *the ring?!*"
> P15, *scrolling up and down the page*: "*I'm assuming this is the design…*"

Later, Participant 1 expressed the same sentiment again. After selecting a bracelet in the free design task, they remarked that after entering the customisation tool the bracelet was "now … just a flat line".

Another learnability issue is reflected by Participant 12 in Task E when they were trying to choose a product that they would like to customise. The user pointed out that there were too few pictures of the products to help them decide whether they like the product. The scenario aligns with one of the topmost elements of user expectations in online shopping which is confirmed by 87.6% of the participants in the research highlighted by Ergonode (2021).

6: *Relevant Information Not Displayed*

Users have difficulty locating important customisation information, suggesting the website does not adequately meet the Learnability, Memorability, and Efficiency goals. In some cases, this causes them to fail the task such that the tool fails the Effectiveness goal too.

The website often failed to display relevant information to the user, forcing them to go off looking for it or just miss it completely. For example, when participants entered customisations into the text-field customiser on the product page (see Finding 1), the 'customise' button was below the fold and not visible.

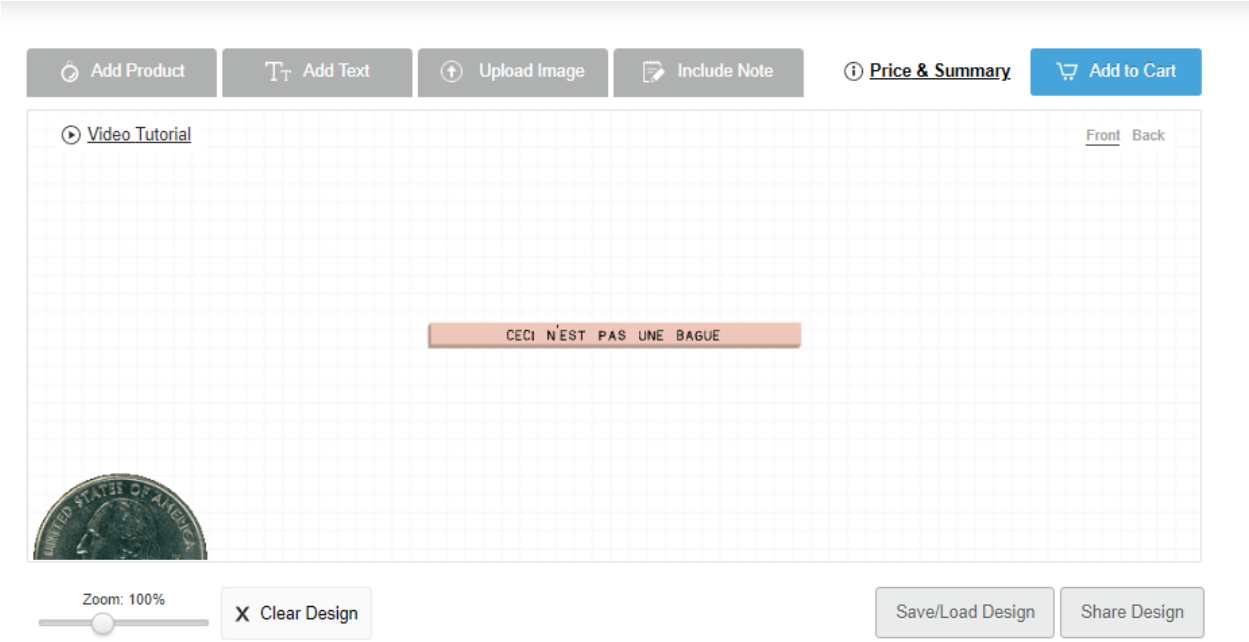
A handful of participants (P (1, 3, 11, 15, 16)) mentioned concerns about the "Add Product" option in the customisation canvas in Task D1 and E. By default, the location in "Add Product" remains the location of one of the main products which created confusion when users were asked to add rubies in Task D1. They couldn't locate the position of Rubies, so they had to attempt the search function which helped them navigate to rubies. However, they were not satisfied because the interface did not cater to an ***efficient*** display of items to be added to the main product, therefore, aligning with Sweor's (2022) argument that nested content has a high potential to frustrate users. For example one of the participants mentioned that the "quality of the Add Product option is not good" and that it would be better if they could see all the categories available to be added to the main product and browse through them.

Task B was certainly the most difficult, and the most indicative of the missing information. Fifty-eight percent of participants found it 'difficult' or 'very difficult', and the remainder found it 'average'. Participants struggled both to locate the size of the ring, and also to determine the correct size for a finger circumference of seven centimetres. Such inadequacy in displaying relevant information reflects the ***inefficiency*** of the interface which may very well slow down users and lead them to abandon the website altogether (Interaction Design Foundation, 2016). Participant 16 spoke for (nearly) all participants when they said:

> "*I don't fricking kno- I don't know how- … I don't know how to check that.*"

<table>
<tr><th colspan="5">Task B: Find Measurements</th></tr>
<tr><td rowspan="2">You have customised a ring, but can't remember what size it is. You know the measurement around your fiancé's finger is 7cm.

How would you decide if this ring is the right size?</td><td>Completed</td><td>1</td><td rowspan="2">Average Time Taken</td><td rowspan="2">2:48</td></tr>
<tr><td>Abandoned</td><td>16</td></tr>
</table>



The interface and ring as displayed to participants in Task B.

Participant 1's experience is mostly representative. Firstly, they scrolled and clicked on elements on the page in an exploratory phase. Eventually, they found the size in the 'Add Product' menu. They had only a simple comment: "Oh, that's stupid". Users cannot modify the size of an item already on the canvas, so Participant 1 had to add a new ring to the canvas — one that had none of the customisations. Ring sizes were arbitrary, too. Most users assumed that a finger measuring seven centimetres around would require a ring of size seven. Really, it required one of about size thirteen. Participant 2 found the ring's details meaningless:

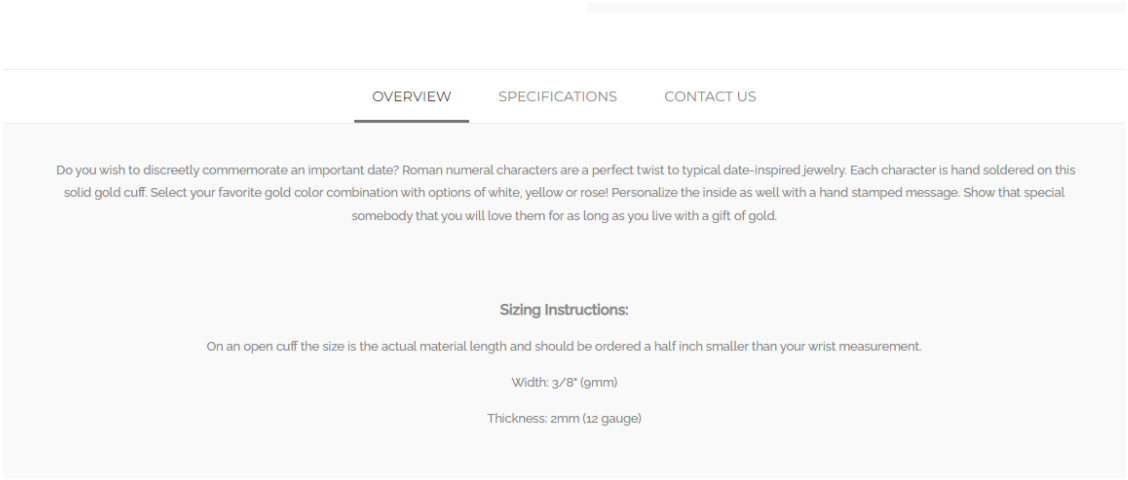
> " *'3mm Satin 6'... don't know what that means.*"

Participants 2, 10, 15, and 16 tried a different approach, measuring the ring directly on the canvas. Participant 10 noted that "there isn't like... any ruler" on the canvas to gauge an objects' scale. Participant 16 tried to use the grid as a measuring tool: "Is that one centimetre? Why is there no scale? This is difficult". The only other tool left was a coin (a quarter) in the bottom left of the canvas. This very regional scale indicator was not too helpful for any participant, but that did not stop Participant 15 from trying:

> "*Maybe I'll just use this coin as like a measurement, I guess? ... and I don't know how big that coin is...*"

One participant, Participant 8, did manage to identify the correct size for the ring by navigating to the 'Ring Size' chart in the site footer and scrolling through it for measurement of seven centimetres. But the lack of clarity in sizing information was not constrained to the rings. Every single participant selected the wrong size for the bracelet in Task B, a six-thousand-dollar product that only indicated that it should be ordered half an inch smaller than the wrist measurement in small font below the fold.

The reclusive sizing instructions.

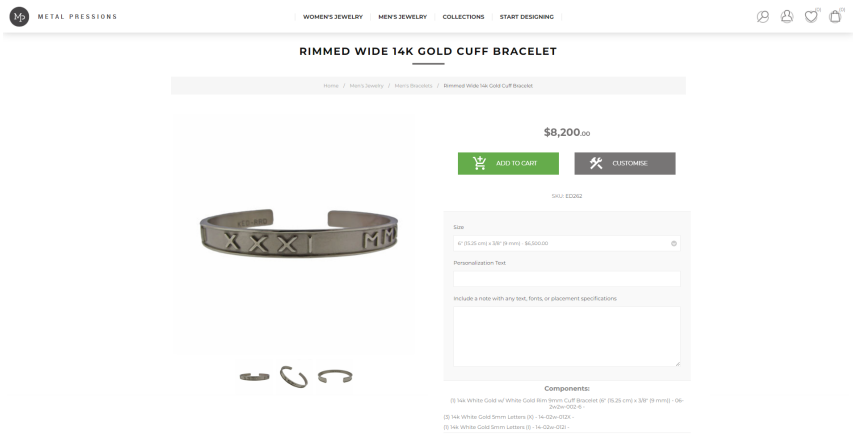


Recommendations

The following section presents recommendations to address each of the issue themes. These recommendations are intended to directly address the problems raised in the Findings section. Within each theme, recommendations are sorted by priority.

1: *Mismatch of Mental Model*

1.1: *The 'Customise' button should be moved, 'Add to Cart' button added, and the two customisation systems made distinct.*



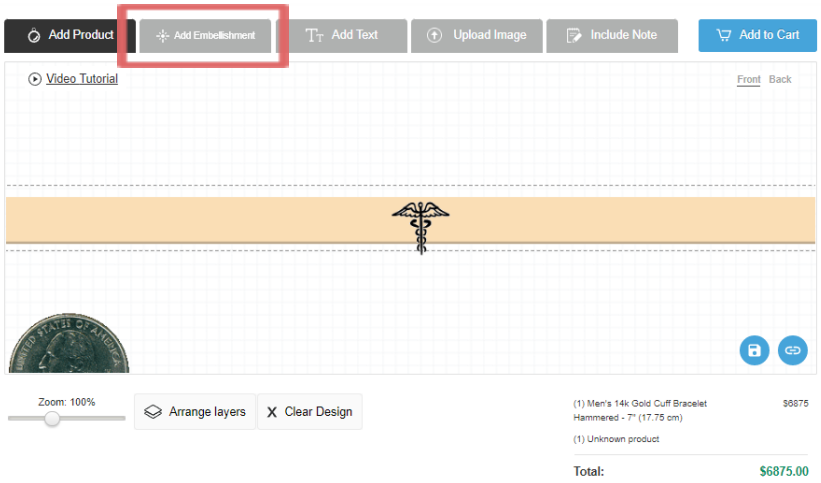
A mockup of the new button alongside a relocated 'Customise' button.

These recommendations are presented together because they are closely intertwined. During the studies, it was found that the product page was misunderstood as the customisation page by almost all of the participants for multiple reasons.

Firstly, the 'Customise' button was below the fold of the site and therefore not obvious. Sometimes even upon scrolling down users were unable to spot it. Moving it to the top of the right-hand column draws the user's attention to the button.

Secondly, an 'Add to Cart' button allows users to add the product to their cart with just the text customisations made on the product page. Users got confused and lost confidence when they had to click the customise button first to be able to add the item to their cart - because they first had to view the item on the customisation canvas displayed in a different way from how they had imagined the design. Allowing a direct way to add the product to the cart (and ensuring that the customisation is submitted as text and not a canvas design) will greatly improve the safety, efficiency, and learnability of the tool for users making simple text customisations.

1.2: *The 'Add Product' button should be split into two menus.*



A mockup with a new 'Add Embellishment' button at the top of the canvas. The mockup makes adjustments to the save, share, and price detail sections for illustrative purposes but these are not part of the recommendation.

'Add Product' is confusing to users who are looking to add embellishments to their item (see discussion of Chalkmark Task 2 in Finding 1). Adding a separate section for all the products that are not rings, bracelets, necklaces, chains, or other base jewellery items helps users locate the embellishment items, but may also help to reduce menu clutter.

1.3: *No popup should cover the entire canvas.*

When a popup covers the entire canvas, users believe they are on a different page and navigate off the page rather than closing the popup. Reducing the size of the popup will help users align their mental models with the actual state of the site and improve learnability and safety by reducing unhelpful navigations.

1.4: *The sharing functions should do what they say.*

The options inside "Share Design" should be updated to match the mental model of the users and therefore address the learnability and efficiency goals. The "Copy URL" button should automatically copy the link to the clipboard instead of prompting users to manually copy a displayed link. The "Send Email" button should be more aligned with its related text boxes (To/From/Name/Subject/Body) so that it is clear that it is an email option.

1.5: *Sizes should be sorted in numerical ascending order.*

The sizes in the current state of the website go from 6.5 to 6 then 7.5 to 7 and so on. Product sizes should be sorted in ascending order from smallest to largest to adhere to standard convention and as a result cater to learnability (Krause, 2021).

1.6: *All pages should be included in search results.*

One participant attempted to search for the returns policy but no results were displayed. All relevant customer-facing pages should be included in the search system to increase efficiency for experienced users and learnability for new users.

2: *Loss of Control*

2.1: *No popup should be unclosable.*

The video tutorial once opened cannot be closed by the user. This is because the close icon is behind the header. The design should be modified to make the close icon visible and accessible such that users may 'always be able to go back to where they came from' to improve the safety of the interface (Rosala, 2020).

2.2: *Customisation progress should always be saved during a session.*

Navigating away from the customization page occasionally erases a user's changes without warning. To improve the tool's safety, progress should be saved whenever possible.

3: *Disappointment in Customisation*

3.1: *Improve quality of product representations.*

Most users did not seem to like the available options of items that could be added to a product or the product itself. Improving the graphical quality of these visual elements will help draw the user's attention and allow them to make more attractive designs.

3.2: *Visually distinguish between placeable products and categories.*

There is no visible distinction between the product categories and the actual products in the "Add Product" button on the canvas page. Participants sometimes perceived the product categories as products and refrained from clicking on them because they did not like the image or thought they would add an unwanted product to the canvas. There should be a clear distinction between base product and product categories on the canvas page, whether in type, colour, or another visual feature.

4: *Redundant Actions and Interface Inefficiency*

4.1: *Allow copy-paste shortcuts on the canvas.*

Canvas items cannot be duplicated by usual CTRL+C and CTRL+V commands. The canvas should provide the ability to copy-paste items with keyboard shortcuts or should allow a drag & drop feature to provide flexibility to the users and improve the efficiency of use (Nielsen, 2020).

4.2: *Add alignment tools and snapping.*

Users cannot accurately align items on the canvas. The system should allow users to align or distribute selected items along an axis with interface buttons. When moving items, the system should show guidelines from other items on the canvas. The canvas should have an

inbuilt snap to grid scales to allow items to align to position or guidelines to help users place items in proper alignment.

5: "*Where is the Ring*?"

5.1: *Add a third dimension to the canvas.*

Although difficult, this recommendation would greatly improve the tool by virtually every usability goal. Items on canvas are currently difficult to identify. The canvas should provide a three-dimensional view where the user can rotate and view the objects, or a two-dimensional top-down view.

5.2: *Product pages should have more images.*

There are too few pictures of the products which may make it difficult to select a product. The website should ensure that it has multiple pictures available for each of its products, for example, in different angles and levels of detail to facilitate efficient decision-making for the users in selecting a product (Ergonode, 2021). Such simple improvements can not only improve sales for *Metal Pressions* but can also help in building brand image and customer loyalty (Ergonode, 2021).

6: *Relevant Information Not Displayed*

6.1: *Item details (particularly size) should be displayed when hovering over an item.*

Users had difficulty finding the size of items once they were added to the canvas. Size is one of the most important aspects of buying jewellery and therefore should be displayed clearly and contextually (in a tooltip) (Interaction Design Foundation, 2016).

6.2: *The 'Add Product' page should display all items at once, separated into categories.*

The website should display all the products along with their categories in the "Add Product" section of the canvas to allow users to browse through and select items easily rather than having to navigate deep into nested categories to find items. Collins (2021) highlights over-categorisation to be one of the topmost barriers to smooth navigation in e-commerce websites. Displaying all items in a free-flowing style will increase the likelihood that users will like something and will not quit at an early stage.

6.3: *The return policy should be displayed on product pages.*

One participant looked for return policies on product pages. As relevant information to the user's purchase (particularly of customised jewellery) the return policy should be included or linked to on product pages.

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Appendices

Appendix A: Minutes of meetings:

Meeting 1

Subject:	INFO90004 Evaluating the User Experience
Group name/ identifier	Matt_Group 5
Meeting Location, Date & Time	PAR-Sidney Myer Asia Ctr-114 on 28-03-2022 at 6:15 pm
Group members present	Shalini (1193705) Muhammad Awais Ahmad(1256419) Benjamin Evans (993767) Jielin Zheng(Drax)(1018778)
Apologies	none

Items discussed and decisions made

- Getting everyone on the same page.
- Planning out scope.
- Meeting frequency, time and location.
- Planning work setting, file storage, access and sharing.

Agreed actions from this meeting

Task	**Who is responsible**	**Deadline**
Task distribution	Everyone for their own part	04/04/2022
Evaluation subject finalisation	everyone	04/04/2022

Finalisation of evaluation tools	Benjamin Evans	04/04/2022
Test plan skeleton	Shalini	04/04/2022

Next meeting

Location	PAR-Sidney Myer Asia Ctr-114
Date & Time	04-04-2022 at 2:30-3:00 pm OR 6:15-7:00 pm
Goals	Further task distribution and content reflection

Meeting 2

Subject:	INFO90004 Evaluating the User Experience
Group name/ identifier	Matt_Group 5
Meeting Location, Date & Time	PAR-Sidney Myer Asia Ctr-114 on 04-05-2022 at 5:15 pm
Group members present	Shalini (1193705) Muhammad Awais Ahmad(1256419) Benjamin Evans (993767) Jielin Zheng(1018778)
Apologies	none

Items discussed and decisions made

- Further reflection on choice of tools and tests
- Agreement on participant recruitment and demographics.

- Planning the scope.
- Setting deadlines on the tasks to leave headroom for review.

Agreed actions from this meeting

Task	**Who is responsible**	**Deadline**
Cope out test scenarios	2 per each	08/04/2022
Develop full test protocol	Muhammad, Drax	08/04/2022
Plan objectives	Shalini	08/04/2022
Plan scope	Drax	08/04/2022

Meeting 3

Subject:	INFO90004 Evaluating the User Experience
Group name/ identifier	Matt_Group 5
Meeting Location, Date & Time	Eastern Resource Center on 28-04-2022 at 6:15 pm
Group members present	Shalini (1193705) Muhammad Awais Ahmad(1256419) Benjamin Evans (993767) Jielin Zheng(Drax)(1018778)
Apologies	none

Items discussed and decisions made

- Finalised following items
    - Screening questionnaire
    - Chalkmark test
    - Optimal sort test
    - Loop11 test
- Full dress rehearsal of test

Agreed actions from this meeting

Task	**Who is responsible**	**Deadline**
Interviewing participants	At Least 3 per each group member	04/05/2022

Meeting 4

Subject:	INFO90004 Evaluating the User Experience
Group name/ identifier	Matt_Group 5
Meeting Location, Date & Time	Eastern Resource Centre on 4-05-2022 at 6:15 pm
Group members present	Shalini (1193705) Muhammad Awais Ahmad(1256419) Benjamin Evans (993767) Jielin Zheng(Drax)(1018778)
Apologies	none

Items discussed and decisions made

- Finalised themes from observation documents.
- Revisited roles and tasks.

Agreed actions from this meeting

Task	Who is responsible	Deadline
Finishing touches to report	everyone	21/05/2022

Appendix B: Full Test Protocol

Pleasantries and purpose:

- Hello, how are you doing today?
- Thank you for giving us a chance to gather valuable information by participating in this study.
- We are students from the University of Melbourne and as part of our project we are evaluating the Metal Pressions website. We want to gauge the usability of the website in order to make recommendations to improve it.
- As part of the testing we do today, we will monitor your activity and keep track of the actions and steps. We encourage you to think out loud during this exercise.
- The facilitator is here to help you with any concerns you may have.

Participant consent:

- We have incorporated a consent form which we will require each participant to review, fill and sign before participating in the test.
- The consent form confirms that you are participating voluntarily and willingly. The plain language statement also explains the project and tells you how we will use and compile the data generated.
- At any point if you no longer wish to participate, let me know and you can stop immediately.

Participant's role

- You will be asked to complete a set of tasks which will help us evaluate how usable the website is. You will be asked some questions during and after the test.
- If you can, explain what you are doing and why as you complete the tasks.

Facilitator Role

- There is a list of tasks that you will be completing - the first one will be on a separate website, and then the rest will all be on another.

- As your facilitator, I cannot provide you with any instructions on how to complete a certain task or what to do at a certain point in time. However, I might ask you to make comments on your actions or ask you to describe your thought process or motive behind certain actions.
- If you are not sure what a task is asking you to do, you can ask me.

Things to keep in mind

- We don't own this website or business, so you are welcome to critique or praise it however you want.
- Your responses will be recorded, and we will make sure they are anonymised before they are used.
- The session audio will be recorded, as will the screen – you can choose whether you want your camera recorded too (camera could also be on in a different application such as Zoom or Discord if they are happy to have it on but not recorded)
- There's no right or wrong answers.
- This test is not about testing your skills or ability, it is testing the website.
- Do you have any questions before we start?

Tests

Each participant completes only one Optimal Workshop test.

Optimal Workshop A: Symbol Sorting
You will be given a set of images. Your task is to sort those images into categories: you get to decide what those categories are, and what they are called.

Optimal Workshop B: Chalkmark First Clicks
You will be shown several screenshots of the website under analysis, Metal Pressions. For each screenshot, you will also be given a task. Click your mouse on the website screenshot at the position you think you should to achieve the goal set out by the task.

A. Find Return Policy

You like personalised accessories but you have never ordered such products online. Before going ahead with your purchase, you want to check out the return policy to see what your options are if you don't like the product.

How would you do that?

How difficult did you find this task? (1 - 5 [very easy - very difficult])

B. Find Measurements

You have customised a ring, but can't remember what size it is. You know the measurement around your fiancé's finger is 7cm.

How would you decide if this ring is the right size?

How confident are you in your answer? (1 - 5 [not at all confident - very confident])

How difficult did you find this task? (1 - 5 [very easy - very difficult])

C. Text Customisation

It is the birthday of one of your family members and you would like to purchase them a bracelet.

You want to customise this bracelet with roman numerals 'LXIX' on the outside and the text 'FLOWER POWER' on the inside. The bracelet should fit a wearer with a wrist measurement of 19cm.

How would you do this?

How difficult did you find this task? (1 - 5 [very easy - very difficult])

D. Design and Share

You are very picky about bracelets and will only wear bracelets with rubies on them. You want to add five rubies to this bracelet in a line.

You also want to share the design with your sister to get her opinion. How would you do that?

How easy is this method of sharing? (1 - 5 [very easy - very difficult])

How difficult did you find this task? (1 - 5 [very easy - very difficult])

E. Free Design
You want a new piece of jewellery. Add and customise a piece of jewellery in any way you like. You want it to be the most elegant piece of jewellery you have ever worn. What would you do?

How happy were you with the result of your customisation? (1 - 5 [not at all happy - very happy])

How difficult did you find this task? (1 - 5 [very easy - very difficult])

Post-test questionnaire:

- How would you rate your overall experience out of 5 (1 = very poor and 5 = very good)?
- Did anything on the website differ greatly from similar websites?
- How did you feel about the number of steps required to complete the tasks?
- Was there anything which you found confusing at first glance?
- Is there anything you would recommend to make the website better?

Participant Profile

Name:	Age:
Interview Time:	Gender:
Occupation:	

Questionnaire

1. How often do you shop online?

Never	sometimes	often	very frequent

2. How often do you buy jewellery?

Never	sometimes	often	Very frequent

3. Do you prefer online shopping or offline shopping?

online	offline

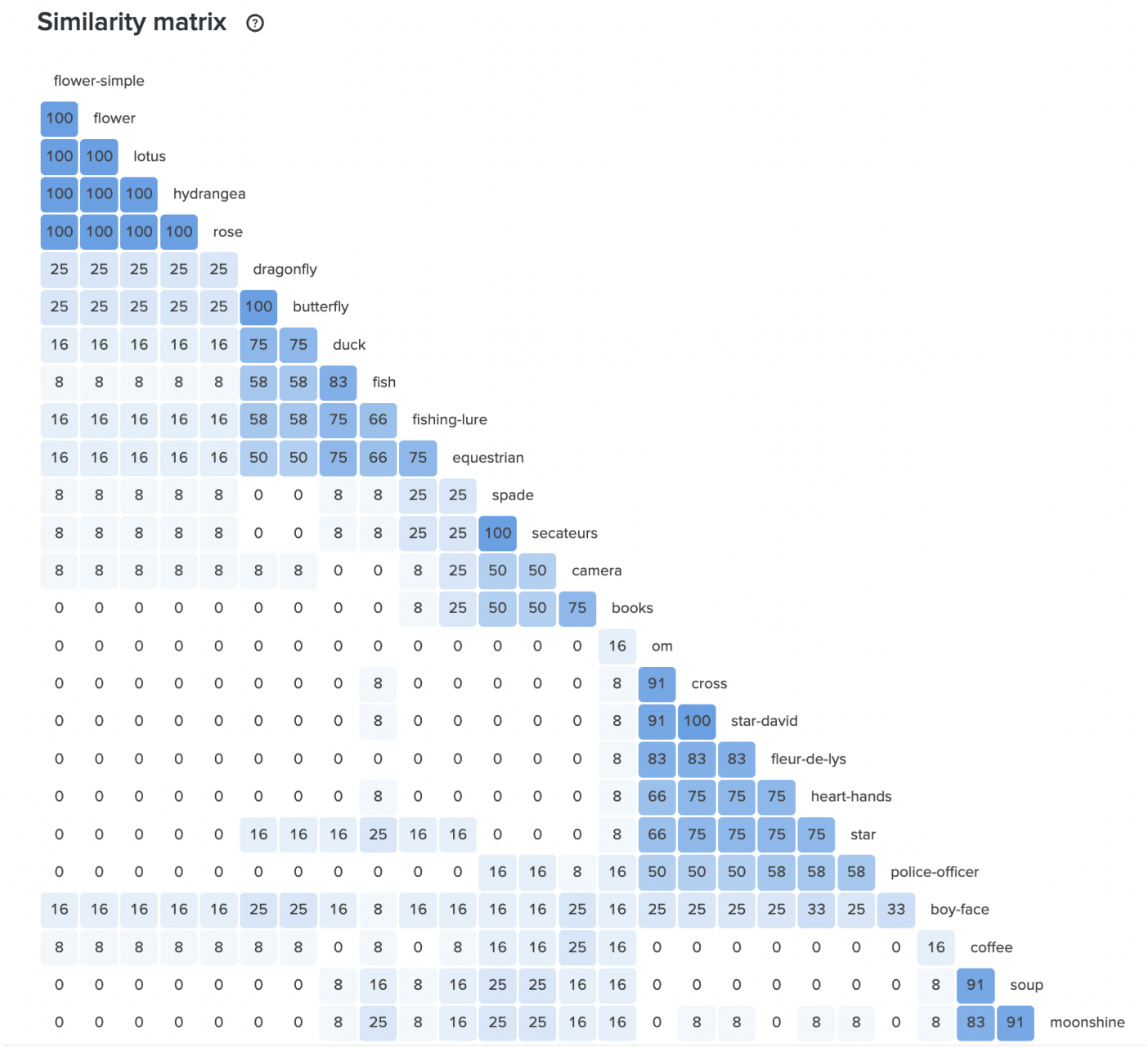
4. Have you used a jewellery design website before? Yes/No
5. Have you bought products with customization before? Yes/No
6. How much would you spend on your customised jewellery? $____

Farewell

Thank you for your participation! If you have any questions or concerns, you can contact us via the email address on the Plain Language Statement.

Appendices C & D: Consent form & Plain Language Statement:

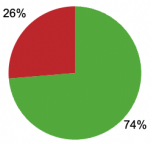
Appendix E: OptimalSort Results (similarity matrix):

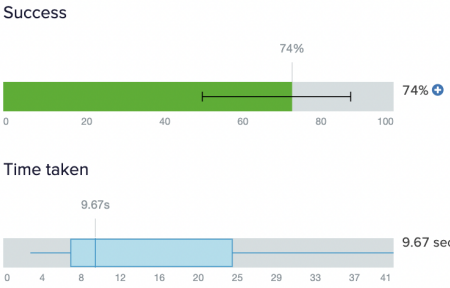


Appendix F: ChalkMark Results:

Task 1:

1. To customise this ring, where would you click first?

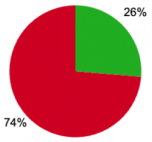


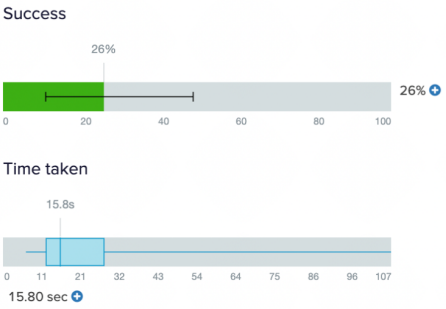


	Success	14	74%
	Customise	9	47%
	Text-based customisation	5	26%
	Failure	5	26%
	Skip	0	0%

Task 2:

2. To add a symbol or gemstone to the ring, where would you click first?

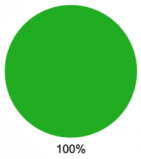




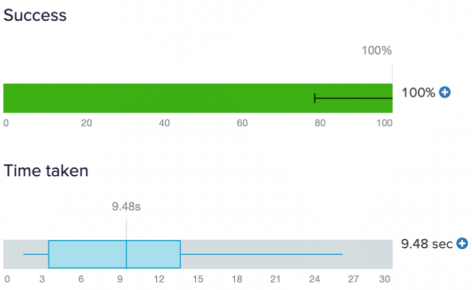
	Success	5	26%
	Add product	5	26%
	Failure	14	74%
	Skip	0	0%

Task 3:

3. To change the font style, where would you click first?

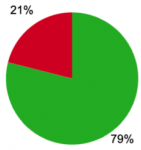


■	Success	19	100%
	Text reselect	15	79%
	Add text	4	21%
■	Failure	0	0%
■	Skip	0	0%

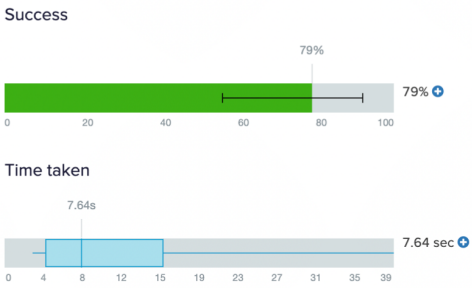


Task 4:

4. To change the size of this bracelet before adding it to the canvas, where would you click first?



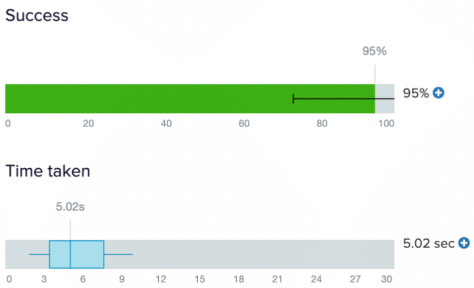
■	Success	15	79%
	Product Size	15	79%
■	Failure	4	21%
■	Skip	0	0%



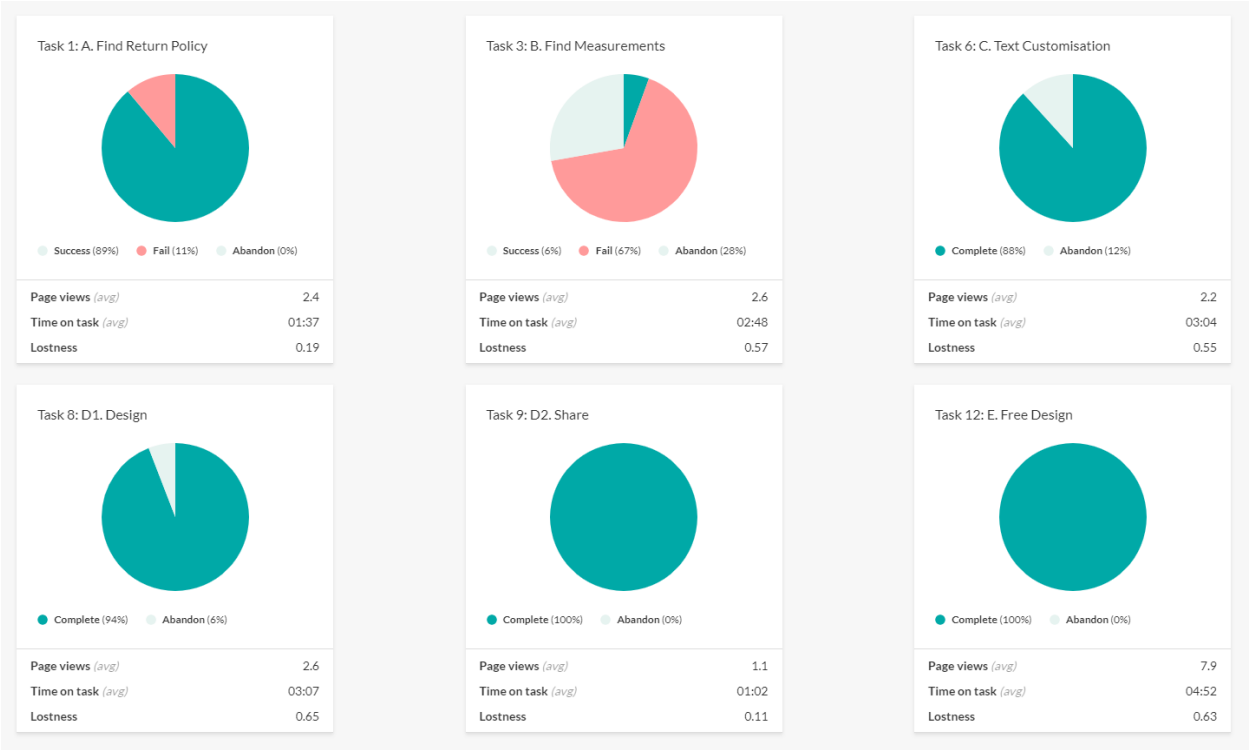
Task 5:

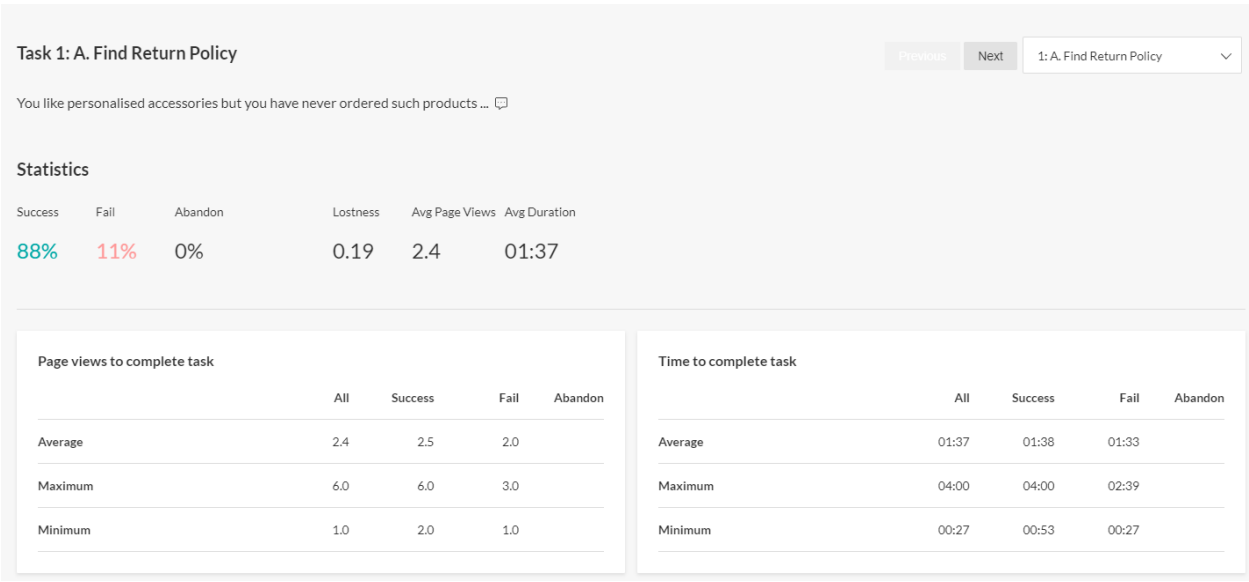
5. To save your design, where would you click first?

■	Success	18	95%
	Save/load design	18	95%
■	Failure	1	5%
■	Skip	0	0%



Appendix G: Loop11 Results:





Task 3: B. Find Measurements

Previous | Next | 3: B. Find Measurements

You have customised a ring, but can't remember what size it is. You know th ...

Statistics

Success	Fail	Abandon	Lostness	Avg Page Views	Avg Duration
5%	66%	27%	0.57	2.6	02:48

Page views to complete task

	All	Success	Fail	Abandon
Average	2.6	4.0	1.8	4.0
Maximum	8.0	4.0	6.0	8.0
Minimum	1.0	4.0	1.0	1.0

Time to complete task

	All	Success	Fail	Abandon
Average	02:48	04:24	02:31	03:14
Maximum	04:24	04:24	04:03	04:06
Minimum	00:59	04:24	00:59	02:27

Task 6: C. Text Customisation

Previous | Next | 6: C. Text Customisation

It is the birthday of one of your family members and you would like to purc ...

Statistics

Complete	Abandon	Lostness	Avg Page Views	Avg Duration
88%	11%	0.55	2.2	03:04

Page views to complete task

	All	Complete	Abandon
Average	2.2	2.3	1.5
Maximum	11	11	2
Minimum	1	1	1

Time to complete task

	All	Complete	Abandon
Average	03:04	03:18	01:23
Maximum	07:34	07:34	02:16
Minimum	00:29	01:00	00:29

Task 8: D1. Design

Previous | Next | 8: D1. Design

You are very picky about bracelets and will only wear bracelets with rubies ...

Statistics

Complete	Abandon	Lostness	Avg Page Views	Avg Duration
94%	5%	0.65	2.6	03:07

Page views to complete task

	All	Complete	Abandon
Average	2.6	2.7	2.0
Maximum	9	9	2
Minimum	1	1	2

Time to complete task

	All	Complete	Abandon
Average	03:07	03:14	01:08
Maximum	13:01	13:01	01:08
Minimum	00:40	00:40	01:08

Task 9: D2. Share

Previous | Next | 9: D2. Share

You also want to share the design with your sister to get her opinion.How w ...

Statistics

Complete	Abandon	Lostness	Avg Page Views	Avg Duration
100%	0%	0.11	1.1	01:02

Page views to complete task

	All	Complete	Abandon
Average	1.1	1.1	
Maximum	3	3	0
Minimum	1	1	0

Time to complete task

	All	Complete	Abandon
Average	01:02	01:02	
Maximum	02:31	02:31	
Minimum	00:13	00:13	

Task 12: E. Free Design

Previous | Next | 12: E. Free Design

You want a new piece of jewellery. Customise a piece of jewellery in any wa ...

Statistics

Complete	Abandon	Lostness	Avg Page Views	Avg Duration
100%	0%	0.63	7.9	04:52

Page views to complete task

	All	Complete	Abandon
Average	7.9	7.9	
Maximum	17	17	0
Minimum	3	3	0

Time to complete task

	All	Complete	Abandon
Average	04:52	04:52	
Maximum	18:51	18:51	
Minimum	01:05	01:05	