1 Analytical Evaluation

Consider the website www.ikea.com/gb/en/.

As the new User Researcher on the team, you have been asked by the product manager to evaluate the usability of the website.

1. Using the 10 usability heuristics, perform a Heuristic Evaluation. Identify what are the problems with the website and which heuristics are violated for each problem. Rate the severity of each problem and suggest UI redesigns through which the problems could be addressed.

   The ten heuristics are:

   - Visibility of system status
     –
   - Match between the system and the real world
     – Truck to symbolise postcode – pretty good match
     – camera icon to indicate image search
     – magnifying glass to indicate search (standard)
     – outline of a person for account information (standard trend)
     – heart icon for favourites
     – shopping basket for basket
     – Overall it matches really well
     – sheet of paper with a line on it and a "+" to mean "create a wish list".
     – Shopping basket with a "+" to mean add to basket. Minor inconsistency with the symbol for creating a list since it implies we are "creating a new basket" rather than adding to the one basket we have. Might be more consistent to have a picture of a basket with an arrow pointing into it.
     – Image of a shop means select store

     Viewing the page in Welsh:

     Some Welsh speakers can't speak english. Ikea should be able to support this by having an option to change language to minority languages. I couldn't find an option for this. It seems to imply you can by having a change country icon with the normal icon for changing language but it links you to worldwide ikea. If I didn't speak english I'd be unable to find a language I could use. The website did have an auto-translated version through google – however this website didn't work and didn't allow you to find products or navigate properly, saying after any search that no products with those filters were found (sometimes with the error message in english!).
   - User control and freedom
     – Pretty good overall – there are breadcrumbs if you go more than one click deep into a link.

       However, there are some routes where the breadcrumbs link to websites you didn't visit. The way in this case to go back is to click the ← button in the browser.

       This inconsistency may not be intuitive to some users who may click on the breadcrumbs and end up somewhere totally different (although I appreciate

that the breadcrumbs are for each item and the website is an arbitrary graph so having the full link would be unsuitable).

- Consistency and standards

  "+" in the bottom corner of an icon can mean either "create" or "add to"

  The icon for "Shopping Bag" is a picture of a basket

  Many links are in bubbles but some are not and don't have icons. For example if you're about to buy a product then you don't see the symbol for remove or add to wishlist – only the text.

  If you look in the bag in split screen then there is a menu which opens up to give only one more option despite the fact the menu icon takes up exactly as much space as the icon for add to wishlist and the screen is not close to being full.

- Error prevention

  In some screens (after adding to a shopping bag), icons which add to shopping bag and wishlists pop up when you hover over them.

  in some screens the "add to basket" icon is very close to other buttons (for example to see variants) of the product.

- Recognition rather than recall

  I could use the site without needing any documentation simply from the icons and recognising what they did. This was quite efficient. I decided to test this by navigating the page after translating it to Chinese – a language I do not speak. After doing this, I was unable to navigate the website at all – it was not as usable as I expected.

- Flexibility and efficiency of use

  Really liked this, found a few shortcuts which would make use faster for experienced users (although use was not slow elsewhere).

- Aesthetic and minimalist design

  Very good.

- Help users recognize and recover from errors

  Poor. Some "page not founds" link you to a text page containing normal text saying "not found" in the top left and nothing else (no links, nothing). Others link to pages which give you links to the main ikea page – not the ikea GB page. A third brings you to a page with a message

  Oops! Something went wrong :(
  The page you are looking for can't be found

  And a link to the ikea GB homepage.

- Help and documentation

  Couldn't find any – although the page was pretty intuitive. There was no information about what a shopping bag or wishlist was etc – although it's not unintuitive.

2. Do a Cognitive Walkthrough to buy something (e.g a desk lamp). Define the inputs, step through the action sequences, record the important information at each step and make a list of suggestions for revising the UI to solve the issues discovered.

   - Start on the homepage. Big cookie window opens up. I had to click on cookie settings. A pane then opened on the side. I had to look around for a bit to figure out how to disable them (the button at the bottom was not even on my screen when the panel opened). This was very inconvenient.

- I clicked on the search bar on the top and typed in desk lamp. The window then opened and a black popup came up (Hej! Add your postcode to see delivery information for our products) which covered the text saying what the results were. I had to click an "x" button.
- The screen for this is pretty good. It says all the information I need to know.
- I then see the compare button in the top right. I click on it and buttons in the top left appear which allow me to compare lamps.
- I find a lamp I like and click on compare. The screen then jolts downwards 1cm as a bar along the top appears. I find a second lamp I like and click compare.
- I reach the bottom of the page and click show more.
- At this point I start seeing less irrelevant results so decide I'll compare the two products I've already found.
- It brings me to a new page.
- I start scrolling down the page and the page starts jolting and flashing rapidly as the page reorganises itself hundreds of times per second. This is very uncomfortable and looking at it for a while gives me a mild headache.
- After scrolling back up I decide not to scroll down again.
- next I click "show only differences". Nothing changes.
- I realise the two lamps I've chosen are in fact different colour variants of the same lamp! They've got a different description but seem otherwise identical.
- I decide on the white lamp and click on it to go to the main information page about it.
- After clicking on it, I'm presented with a (very) large image (so large it can't all be displayed in my browser at once) and a slide saying 1 of 9. I'm confused as to how to see the other images.
- After slight thought I realise I should swipe right. I do so. This displays the next picture.
- I then swipe left to go back. Unfortunately this conflicts with the builtin "back" command for my browser and brings me back to the compare page. (this didn't happen consistently but it did if I was at the first picture or swiped left while the pictures were still swapping).
- I swipe through and see the images. I'm excited. It's a good lamp.
- Now I scroll down to see the product details – checking for any major flaws or cool features.
- A narrow (awkward to use) panel pops up on the right hand side of the screen. I was expecting the menu to drop-down. The product information is more technical – nothing like how bright it is or any adjustment options or buttons.
- I click off and have a look at the technical information. It's technical and not useful (except for the lifetime – 25000 hours – sounds good).
- I then look at the measurements, nothing useful.
- I've still not seen a specification saying what buttons it has or how it works. At this point I'm a bit annoyed and start to look through the reviews. As expected, pretty positive.
- Now I look back at the pictures in the hope of seeing something that'll tell me more about it. I think I see a switch on the cable. I scroll up to see the picture in full.

- Now I see a switch on a cable. I'm not sure if the angle is adjustable. I find one image in which the angle is adjusted and conclude that it must be adjustable. I'm ready to buy it.
- I now click add to shopping bag and a large blue popup covers the screen advertising lamps and similar products. I've just bought one lamp – I don't need another!
- I see the small white underlined text saying "continue to shopping bag". I scroll down and see "continue to checkout". It brings me to a new page. I scroll down and see a question. Delivery or Collection and a box inviting me to input my postcode. I do so.
- It suggests that I can collect from ikea for £0! I'm sold. I click "select a store" and it gives suggestions over 100 miles away! I then click map view and see they don't have any stores closer than that. So I decide I'll have it delivered. I click off and click delivery. It suggests tuesday. Unfortunately I'm busy then. I ask to change the date and it allows me to select a day but gives no finer grained control than 7am-7pm. Damn! I work full time and can't do these times. I relent and accept it'll be delivered when I'm out.
- I input my details and it brings me to a payment screen.

Suggestions:

- Stop the popups! Just. Don't do popups they make websites much worse.
- information on the side are award and difficult to use! Do drop-down information instead.
- Be careful about sudden jolts! I had two times where the screen jolted downwards awkwardly.
- Do careful debugging. I found a bug which could cause epileptic fits or discourage or scare users!
- Don't list different colours of products as different products.
- Use smaller images.
- Make it obvious how to do things. I was confused about how to see the next images.
- Consider interactions between the website and browser defaults – I went to the previous page when swiping an image.
- Give more product specifications – what was listed as product information was actually irrelevant! I just wanted to know if there were controls or adjustments and couldn't find that out.
- Give a guide as to how far away stores are. Displaying pick-up options 100 miles away is not helpful and I want to know how far away they are.

Compare your findings between the two evaluation methods. What differences do you observe?

Heuristic evaluation is good for finding *all* of the large problems across a whole system. However, it often misses out lots of the annoying little things.

Cognitive Walkthrough is the opposite – it's very good at finding all of the annoying things with certain parts of the website – however you're unlikely to actually visit the whole website and as a result will end up missing lots of things out!

Create a table that summarises the findings, benefits, costs and limitations of HE and CW .

I simply don't know what you want.

2 Evaluation with Users

Consider the same website.

Your team is working on a new feature for the product page: showing photos of the product or similar products in real homes. The team has now designed and implemented this feature:

You have been asked to conduct usability testing to evaluate this new feature.

Create a research plan that includes the objectives of the study, the stakeholders, the user research method(s) to be used in the study, participant recruitment, type of data collected and how it will be analysed.

Objectives

- Establish whether including photos of the product or similar products in real homes has a positive or negative effect on the website and on sales in general.
- Establish where the best place to show this information is.

Stakeholders

- Ikea customers
- People posting photos of ikea furniture in their homes
- Ikea staff
- Competitor companies
- The website provider on which the ikea website is based

User Research Methods

- Lab based observation

  We can ask some users to use the ikea website and see how the pictures affect their perception of the website and how much it made them want to buy those products compared to having the products in normal peoples homes.

- Card sorting

  We could use this to decide where to put the pictures of it in real homes – should it go in the normal pictures or in the reviews section or around the page? Do people associate it with a positive review or as product information or as part of the product itself.

Participant Recruitment

- We should choose subsets of ikea customers and prospective ikea customers at random – we must always be careful about how we select users.

Type of Data Collected

- Mass data about the users activity and purchases on the website. Compared between the version which does have the "see this in real homes" and the version which does not allow you to see the product in real homes.

How the data will be analysed

- Unsupervised learning.

3 2019 Paper 3 Question 6

https://www.cl.cam.ac.uk/teaching/exams/pastpapers/y2019p3q6.pdf

(a) During your practical session you were asked to create a working app for a chosen primary stakeholder which works on both a desktop and a laptop.

Describe the primary stakeholder the app was developed for, and describe three data gathering techniques your group used for the app to identify the user requirements. Explain the reasons behind this choice.

Our app was developed for cambridge rowers. These people have very specific requirements, things they do and don't care about the weather – and there is also a system called the CUCBC flag which currently can only be checked on a 21 year old website. We felt that incorporating that into our app would be very useful.

- Questionnaires

  We felt that we should get a broad idea of what rowers want in general. We gave them a lot of basic questions to understand the things that they care about and then had some more open-ended questions which allowed them to tell us more about the problem. This gave us a broad overview – however questionnaires are flawed and many people don't put enough effort into them. We tried to mitigate this by making our questionnaire as short as possible. From the questionnaire we established that around 80% of rowers use a weather app! This was far higher than any of us were expecting.

- Interviews

  Speaking directly to the userbase is the best way to find out more about them. So we spoke to six rowers and asked them to tell us about their last experiences, which types of weather mattered to them and had extended conversations. These gave us great insights. From the interviews, we established that wind-speed and *perceived temperature* (not the actual temperature) are the most important information for rowers.

- Competitor Research

  there are lots of existing weather apps which have already done research into the field and are very established. These apps have been operating for years and know what does and does not work for the general population. Many of these features are transferable to rowers. We decided to research them and decide which of these features we wanted to incorporate into our own app (to avoid re-inventing the wheel).

(b) Consider a website for purchasing clothing similar to that in the figure below. Would it be more appropriate to use Cognitive Walkthrough or Heuristic Evaluation to evaluate this website? Give three criteria on which to base your decision.

For this website I would recommend Cognitive Walkthrough:

- Heuristic evalauation is very good at picking up all the *big* or obvious things that are wrong with a website. However, if you can't immediately see problems then there's probably not too much to be gained from Heuristic Evaluation. Cognitive Walkthrough, however is very good at finding all the little, annoying things which will collectively annoy users to the extend of disliking the website.
- The main downside with cognitive walkthrough is that it only tests the paths which you actually test – in a large domain it can be infeasible to test every

path – leaving lots of sites unchecked. However, with shopping sites almost every interface is shared by a large number of pages. So a cognitive walkthrough to buy a rucksack will find faults with the process of buying boots or tents! So the main disadvantage of cognitive walkthrough is nonexistant in this specific case.

- Heuristic Evaluation yielded great improvements in the early days of the web, before most people knew how to design websites well. Since then, design has become much more standardised and most sites are designed by experienced professionals. As a result, the value of Heuristic Evaluation has gradually decreased since it's conception. The same has not happened to Cognitive Walkthrough.

(c) What does Gestalt theory describe and what is its implication for interaction design? Describe which principles(s) are being applied for each item in the figure below, and how, and what it tells us about the interface and the interaction.

There are severel Gestalt principles which relate items into groups. The gestalt principles are:

- similarity

  We tend to group items which are similar together. For example in google maps the dots indicate the current path – although they are not connected, we group them together because they all look the same.

- Common fate

  If the same thing happens to a group of objects then we group them together. For example in the interface o create a blog post, if we click off the profile, all the icons will disappear at the same time.

- Enclosure

  We associate things which are grouped together as being of the same type. For example the interface to create the blog post has all the icons in a bubble – this bubble encloses the group and helps us associate them as related.

- Closure

  Our brain will automatically fill in the gaps between lines. Consider the example on google maps – although none of the dots are connected, our brain fills in the gaps between them and so we view them as one contiguous line (rather than a set of dots in a certain pattern).

- Good continuation

- anomaly

  Our brains are impossibly good at spotting things that don't fit in. Consider the notification icon in the twitter interface! The notification stands out and gets our attention – as it is intended to!

- proximity

  We associate things which are nearby as being related. Consider the twitter profile photo – the tweets, following and followers information are close together and close to the persons name – so we associate them as being related to that person – simiarly we associate the profile picture as being a picture of that person.

- background and foreground split

  Our brains usually split things into the background and the foreground. Consider the twitter profile information. We split the profile into the background (the picture of the village) and the foreground (the name, photo and information).