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THE MENTAL MUSINGS

The Psychological Research Newsletter

Have you ever found yourself embarrassed after pulling a 'push' door? Gotten stuck trying to find the button to close a pop-up advert? Well, you're not alone. Overlooking how people interact with functional designs can cause frustration for those using it. In this issue, we explore how psychology and design interact as we learn about human limitations, intuitive design, and ways good human design can be implemented in our workplace.

DESIGNING WITH PEOPLE IN MIND

Wait! Before you start this month's issue, I'm not in a design team, what does this have to do with me?

The 'design' we're referring to here is not about what is aesthetically pleasing in a design sense. Instead, we're looking to understand how people make decisions and navigate their environment.

When creating new products, systems, or spaces, it's important to keep in mind the target users and desired outcomes you hope to achieve.

Human Design looks at designing with an understanding of human needs, abilities, and behaviours. Through understanding how humans see and interact with the world, we can then go on to design in ways that are intuitive, accessible, and comfortable for people to use.

So... what are some of the things that contribute to how people see the world?

Let's look at three ways we may struggl with navigating our environment together!

1 Cognitive Load

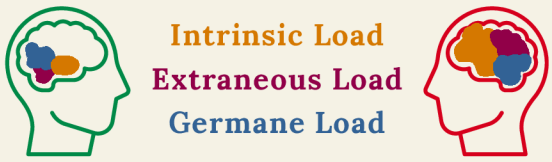
In psychology, cognitive load theory suggests that humans have a limited capacity in processing new information.

Here, the brain accounts for different types of cognitive load:

- Intrinsic Load: how difficult a task is
- Extraneous Load: distractions from task
- Germane Load: effort put into making sense of a task

When cognitive load is too high, individuals will experience mental overload. This adversely affects their attention, memory, learning, and decision-making skills, making it difficult for them to continue in their tasks.

To lessen the load, good design should strive to simplify tasks and reduce distractions.



2 Working Memory

Working memory is the part of the brain that holds information for a short time, allowing it to be used. It is widely believed that its capacity is 7 ± 2 chunks of information.

When too many pieces of information need to be processed at once, cognitive strain increases and can hinder decision-making.

For example, remembering a string of numbers can be hard. However it can be made easier when we chunk certain numbers together. Try it yourself!

83829674074 ~~VS~~ **838 296 74 0 74**

To reduce strain, designers should consider memory constraints through chunking information and minimising the need for users to remember multiple steps or details.

3 Heuristics

Heuristics are cognitive shortcuts that people use to make quick decisions. You may be thinking, "what's wrong with that?". While heuristics greatly help us in navigating our world, it can also lead to biases*. Biases can adversely affect our understanding of the world, leading to inappropriate responses in emergency situations.

For example, in a panic, people often follow others without thinking (a kind of social bias), assuming that the crowd knows the safest way. This can result in everyone rushing to the same exit, even if there are safer or less crowded alternatives, increasing the risk of a stampede.

When crafting an environment for others, it is important to consider our biases to use them for good.

*read our second issue to find out more about biases in border security!

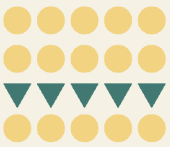
Oh, that's really interesting. You mention reducing distractions, considering memory constraints, and using biases to our advantage. How do I do all of that?

INTUITIVE DESIGN

1) Perceptual Fluency

Perceptual fluency looks at how easily our environment (e.g., buildings, trees, people) is processed by the brain. This can be affected by visual clarity and contrast.

We can increase perceptual fluency by using the ways people group and understand what they see, also known as gestalt principles. Some examples include:



Similarity
Objects that similar tend to be grouped together

Proximity
Objects that are close together tend to be perceived as a group

2) Affordances

Affordances are clear cues about how to interact with the environment. It can help to mitigate limitations by reducing mental load.

An example of an affordance is having a handle on a pull door, but not one on a push door.

3) Nudging Behaviours

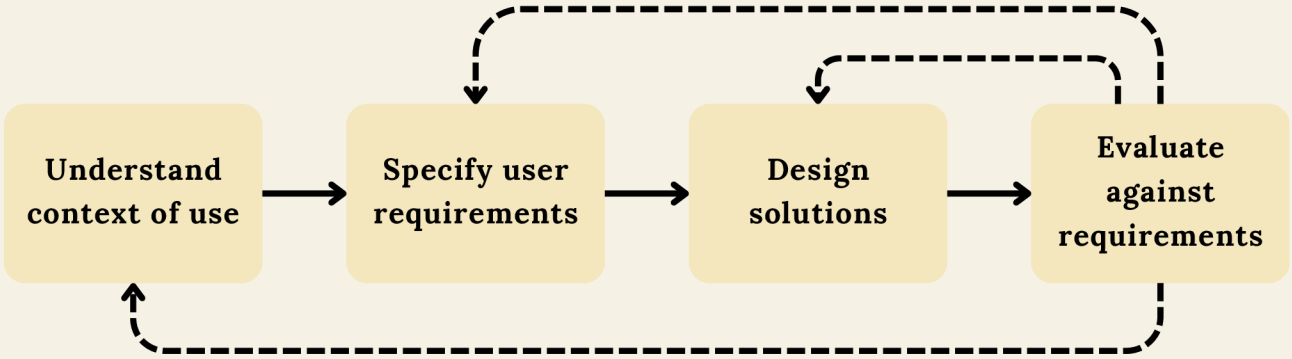
Nudging uses human bias to lead people to desired decision-making outcomes. This uses heuristics to reduce mental load.

For example, ***default bias*** occurs when people stick with the default option rather than changing it. In policy, utilising the knowledge of a default bias for good can look like having people automatically enrolled as an organ donor (opt-out system). Here, organ donation rates are much higher while still maintaining autonomy through choice.

Now that we know some of the ways we can help mitigate human limitations, let's explore the User Centered Design framework to understand how we can design for people.

The ***User Centered Design Framework*** is a 4-step iterative process.
1) Understand context of use
2) Specify user requirements
3) Design solutions
4) Evaluate against requirements

At the last step, we evaluate whether our design solutions match our context and meet our needs. If it does not, we return to any of the previous 3 steps till a satisfactory result is reached.



Oh I see! When we understand the context of use, we set clear outcomes that we want to see achieved. Specifying the user requirements then help us to set the boundaries of the product, system, or space that we hope to design!

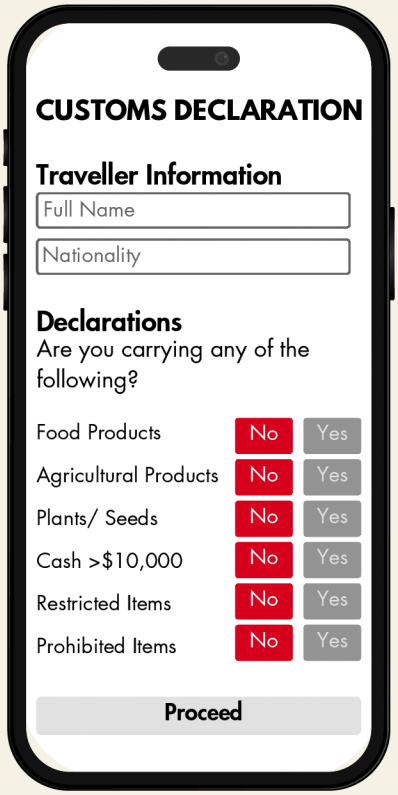
That's right! Now that we have some basic concepts down, let's take a look at how we can use human design to improve usability.

Consider this example of a customs declaration form. At first glance, it doesn't look too bad. However, let's consider a simple 'who, what, where, when' of its usage:

- **Who**: travellers coming into Singapore
- **What**: submission of customs declaration
- **Where**: travel transit areas
- **When**: any time of day (whenever they enter the country)

From this basic set of information, we are able to understand certain user wants or requirements:

- Clear and accurate form submission (for border security) to reduce potential errors and double work
- Quick, easy, and simple usage (for travellers) to get out of transit areas quick



Keeping these things in mind, let's rework how the form looks. While they look similar, key design changes improve navigation and usability:

- **Clearer grouping**
  - Spacing between different types of fields
- **Simplified input**
  - Text fields placed within clearly defined boxes
- **Improved readability**
  - Higher contrast between text and background
- **Intuitive responses**
  - Use of buttons instead of text entries
- **Guided defaults**
  - Pre-selected "no" option

With these changes, we are able to improve the usability of the declaration form based on user wants.

Wow! It's amazing how seemingly simple concepts can make such a big difference in how we interact with the world. I'll be keeping these in mind whenever I next have to craft something for others in the future!

LEARNING POINT!

Where else have you seen good design being used in the workplace? What about it is effective in attaining its desired outcome?

Can the above concepts be applied to how we compose emails that contain a lot of information? Are these concepts also applicable to our ICMs? How so?

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