

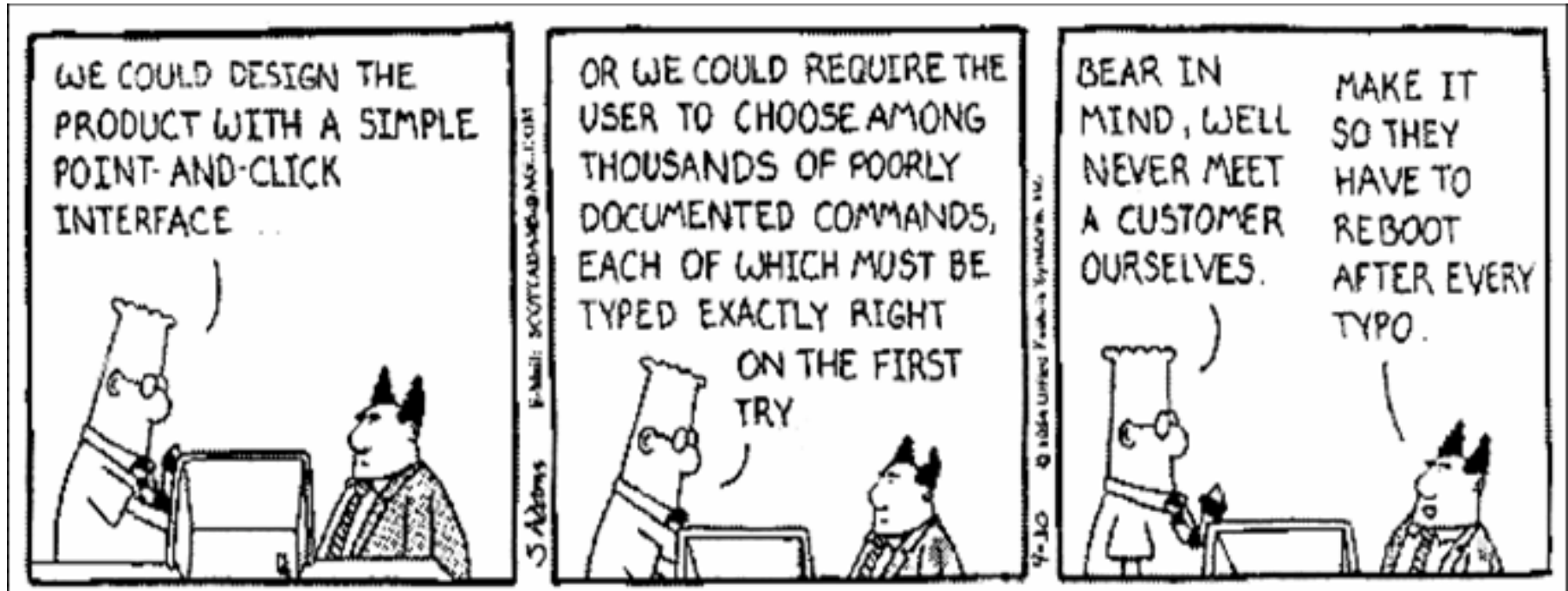


COMP1710/6780

Web Development and Design

Introduction to HCI
and
Report writing for COMP1710 and beyond

Human-Computer Interaction



Human Computer Interaction

‘Computer’

- Large scale computing systems
- Tablets,
- PCs,
- Smart phone
- Embedded computers

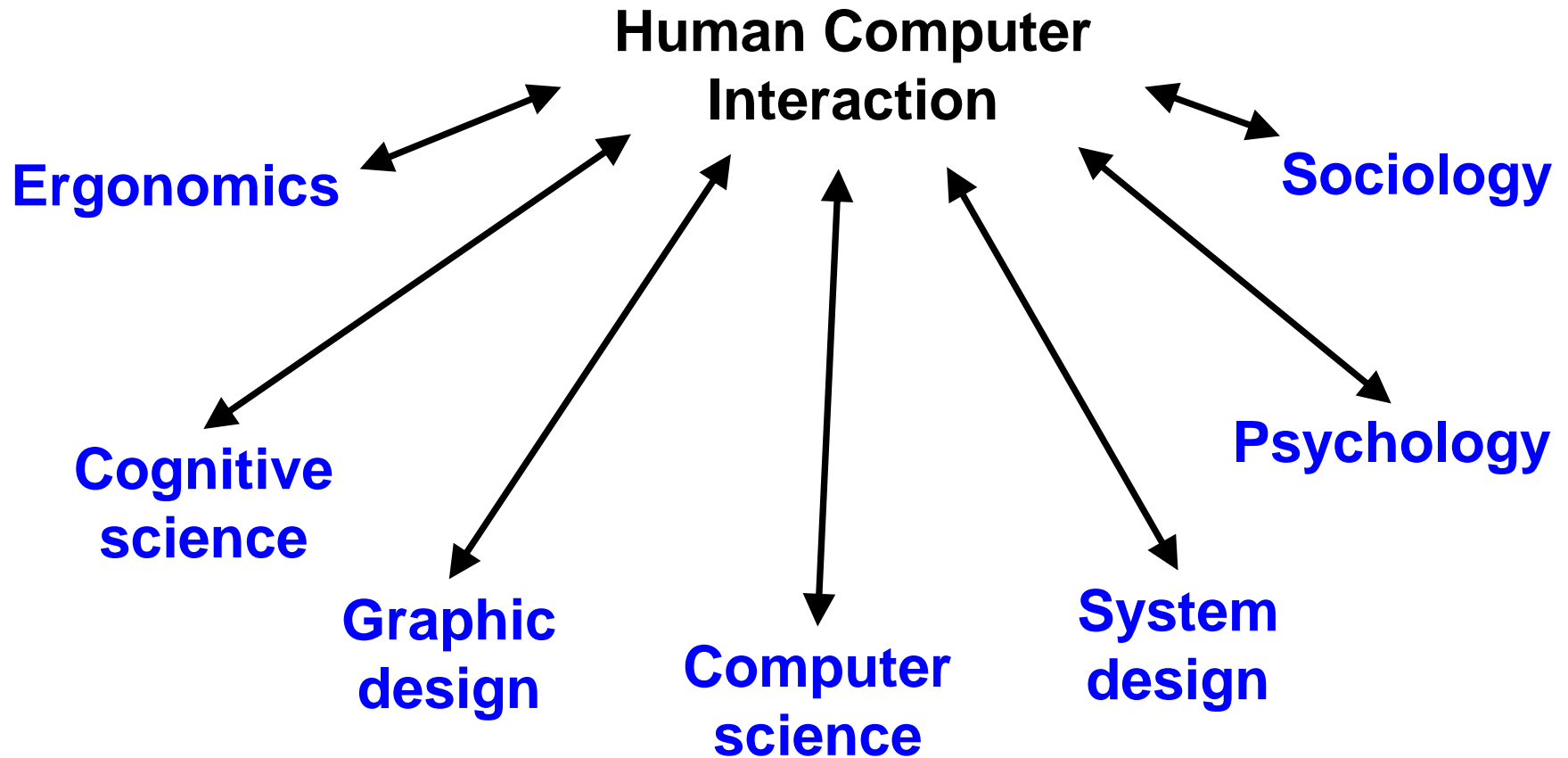
Interaction

- Mission: transactions, information searches
- Technique: interface devices (mouse, electronic pencil, fingerprint, voice commands, hand gestures)
- ... and much much more!

Human

- Individuals
- Groups (In-person, virtual, hybrid)

HCI informed by many disciplines



Human Computer Interaction

Usability as seen through the HCI lens:

- Easy to learn to use
- Easy to remember how to use
- Effective to use
- Efficient to use
- Safe to use
- Enjoyable to use

If your website doesn't meet these usability criteria, your visitors may be few and seldom.

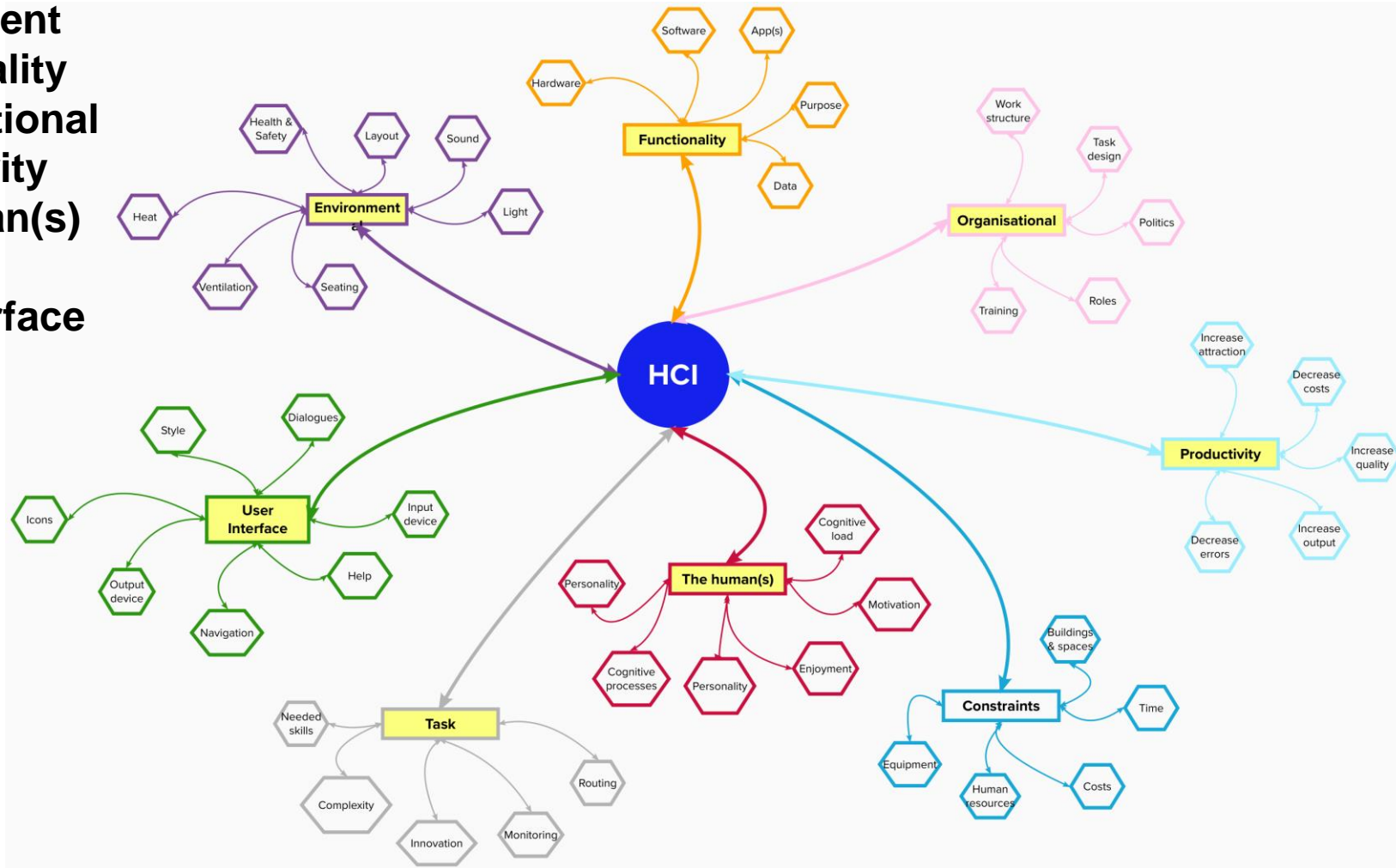
Human Computer Interaction

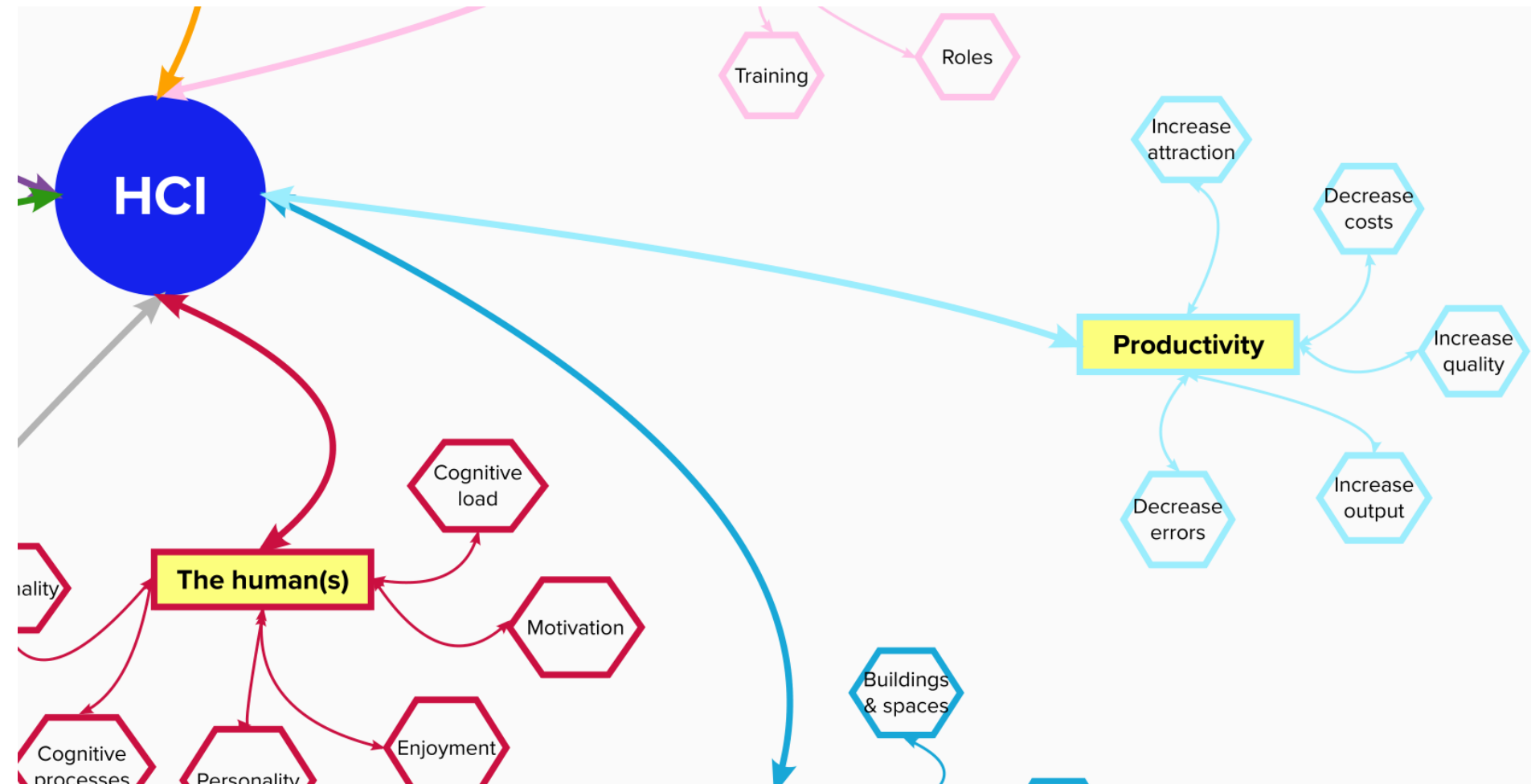
HCI focusses on:

- **People** as the overriding element of the HCI nexus
- Enabling **tools** and **techniques**
- Creating efficient and safe **interaction modes**
- Understanding the **factors that impact** upon humans' use of technologies

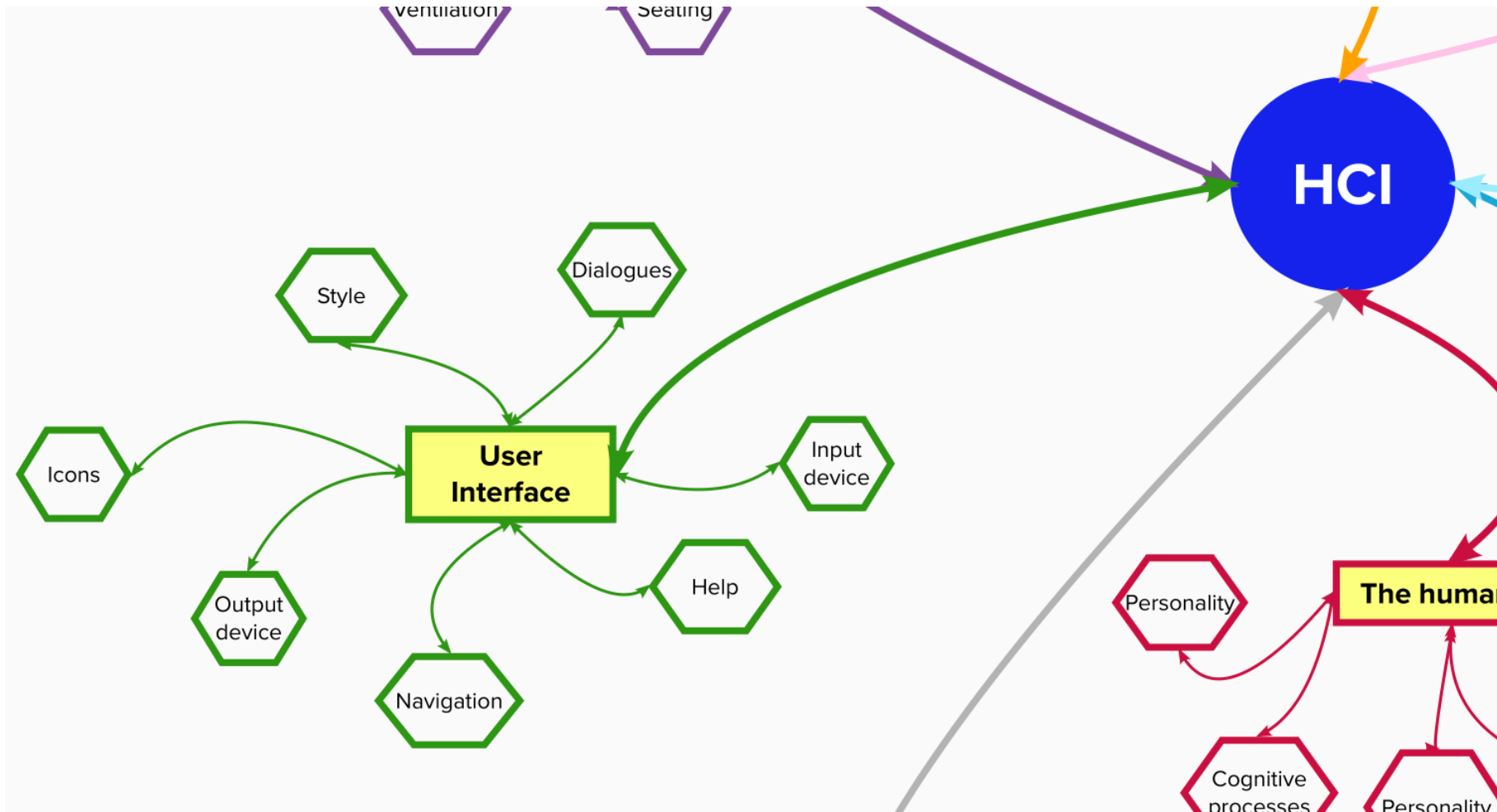
So what are the factors?

Environment
 Functionality
 Organisational
 Productivity
 The human(s)
 Task(s)
 User Interface





Increase attraction, Decrease costs, Increase quality, Increase output, Decrease errors



Style, Dialogues, Input devices, Help, Navigation, Output device, Icons

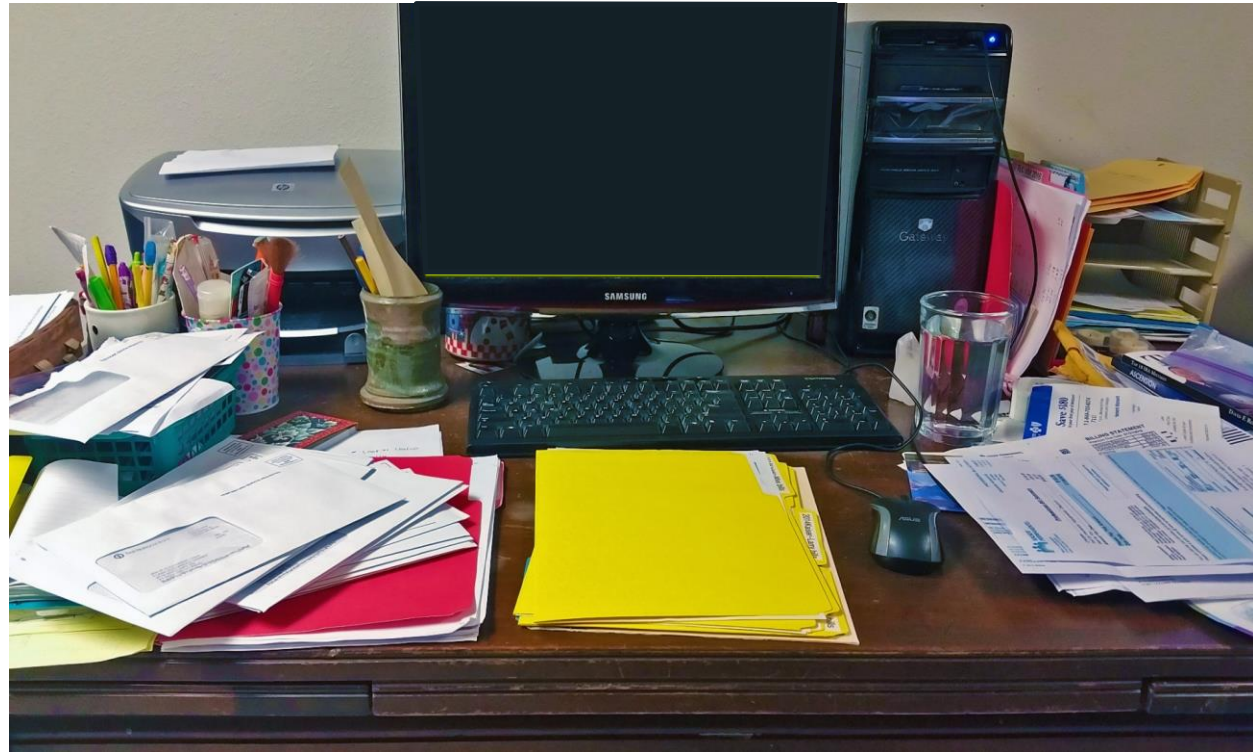
Can we learn from other projects?



66
dropdown
menu
items!

Learning from example:

Why do
computer mice
use RF
instead of IR?



Flash Alexander, Public Domain Pictures.net

Learning from example

Think of the worst website that you have used recently.

Ask yourself:

- Why was my experience of that website so bad?
- How did I react?

Worst website

Some common reactions:

- Why was my experience of that website so bad?
 - Could not find what I wanted/do what I wanted to do
 - The actions were too complicated
 - Too much unnecessary or irrelevant information
 - The website did not make sense to me
- How did I react?
 - Frustration, anger, ...
 - Laughter at the website/at the web designer
 - Destructive criticism

Worst website

Possible reasons:

- Why was my experience of that website so bad?
 - Multiple target audiences (for example, ANU websites serve students, who consume teaching products, academics, who create those products and administrators, who manage the campus)
 - Web designer did not understand what the users want
 - Design focuses on internal workings (“prod site”) instead of how the users want to see the processes
 - Website not evaluated with real data or real users [Wattle ‘editing on’ example]
 - Nobody with any authority cares about the quality of the website, or there are not enough resources to maintain that quality.

Worst website

- How did I react?
 - It is easy to have strong personal reactions to a bad website, but those reactions are about you.
Interactive design (websites, software, ...) is never about you, the designer/developer; it is always about the intended users.
 - Therefore, your reaction needs to become:
What might be the cause of these problems and, if I were the designer/developer, how would I fix them?
 - This leads to the concept of “critique” or “constructive criticism”.
Just imagine if you were the developer and someone was directing harsh judgements at you.
 - “Soft” ethical behaviour. You are dealing with humans – colleagues, people you study or interview for requirements, participants in evaluations of the system you are developing

Requirements

Verbal and written requirements from the client and users are just the start of the conversation because:

Users sometimes don't know what they want until they see what they don't want.
What they say and what they think may not be the same thing.
What they say and what you understand may not be the same thing.
There may be a lot of assumptions that are not communicated.

To address this:

- Clarify everything you don't understand.
- Understand the content
- Create sketches and/or prototypes of what you propose – it is easier to change a drawing than a complex aspect of the website!

A design principle is a rule or guide that you plan to use in your website development. Design principles can apply to **function** and to **appearance**. There are many standard design principles. Don't forget they should be tailored to suit your project!



Function

- Describe the design situation
- State what you will do
- State why you will do it
- Any variations to accommodate anomalies

Appearance

- Balance
- Movement
- Contrast
- Pattern
- Consistency
- Emphasis

Evaluating your website

‘Evaluation’ in its broadest sense refers to any systematic process to judge merit, worth or significance by combining evidence and values.

You are only one person, with your own pre-existing assumptions.

To learn if your website works for others, you need to evaluate it.

- When you gather requirements you can summarise what you think the requirements are and present them back to your target users, using words, pictures, storyboards, mockups, early-stage prototypes.
- You can build simple prototypes of parts of those requirements and let your target users experience what they had said they wanted.

I can't tell you
how valuable
your program is



Researcher

I can



Evaluator

freshspectrum.com

Evaluating your website

You are only one person, with your own pre-existing assumptions.
To learn if your website works for others, you need to evaluate it.

- When you have implemented important parts of the system you can isolate them and make a working version that your target users can evaluate, preferably with real data.
- When you have a version of your system that can do useful work, you can arrange for selected users to work with it in their workplace
- When you release version 1.0 of your system you can track its use over the following months.

I can't tell you
how valuable
your program is



Researcher

I can



Evaluator

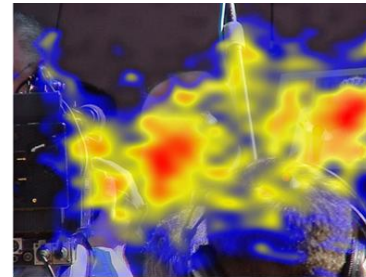
freshspectrum.com

Advanced HCI Approaches

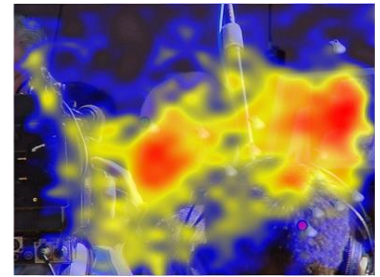
Remember this?



A



B



C

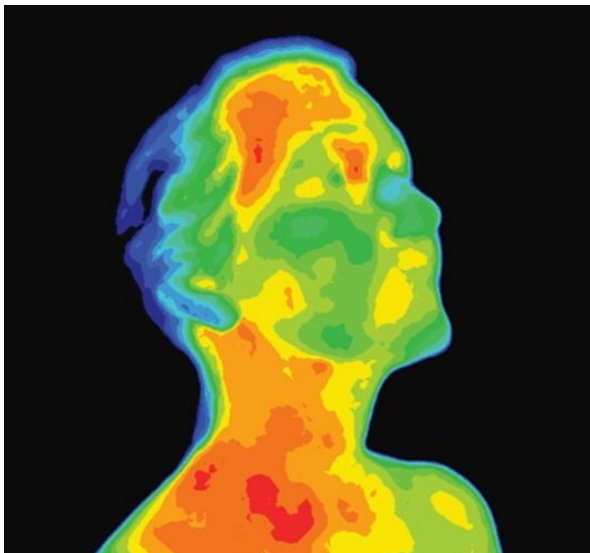
Key: Red - most viewed, yellow - less viewed, blue - least viewed.

While we can learn a lot from people's conscious expression of their thoughts, we can also learn from their non-conscious expressions. These non-conscious expressions are captured through physiological signal tracking

In this case, the physiological signals being captured are eye movements and fixations, called eye-gaze tracking. But wait there's more!

Advanced HCI

While we can learn a lot from people's conscious expression of their thoughts, we can also learn from their non-conscious expressions. These non-conscious expressions are captured through physiological signal tracking.



Thermal variations



Heartbeat
Blood volume pulse
Skin conductance

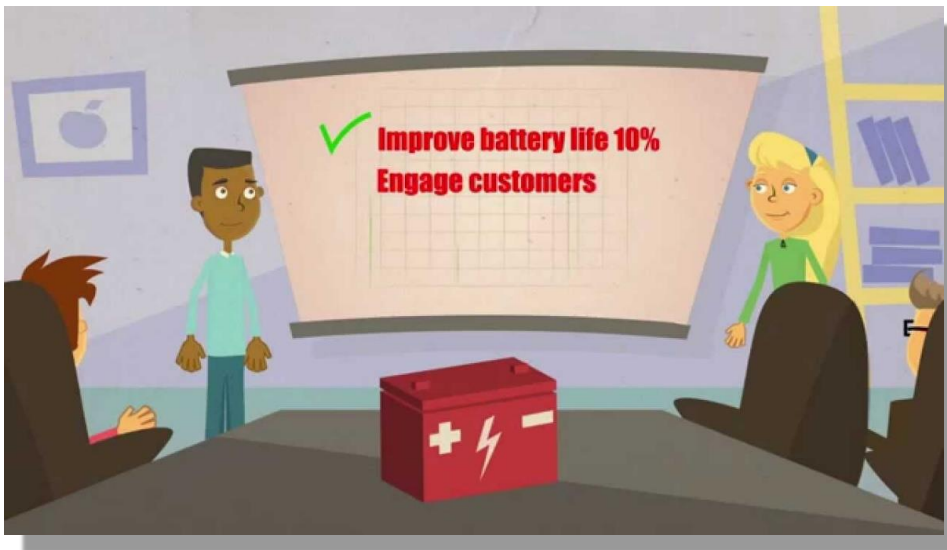
Last but definitely not least: 'end-to-end experience'



© marketoonist.com

Plan end-to-end **experiences** NOT **features**

Engineers and software developers think in features but customers/clients and users do not. Users/customers/clients don't care about technology. All they want is a smooth seamless solution.



End-to-end experience is what the customer sees, feels, and does when he or she uses your product, device, or service in a real-life situation - from the very beginning to the very end.

And now for something completely different! Report writing or COMP1710/6780 and beyond

- Report writing
- Your COMP1710 assessment
- Abstracts, Introductions and Conclusions
- Paragraphing
- Reading and note-taking (both experiments and research)
- Using sources



From:
<https://www.comingsoon.net/movies/news/1011867-will-ferrell-and-john-c-reilly-search-for-clues-on-holmes-watson-poster>

With great appreciation to ANU Academic Skills Centre!

Activity: Fill in the blanks

- The first stage of essay writing is to read and understand the _____ and to prepare a _____ of work for the time available. Then the topic should be brainstormed and a rough _____ prepared. Next, possible _____ have to be evaluated and the most relevant selected, after which you can start _____ notes, paraphrasing and summarising the _____. When you have collected enough material to answer the question, the first _____ of the main body can be written from the notes, taking care to avoid any _____ of your sources. Subsequently, you can write the first draft of the introduction and _____. After this, the whole draft must be reread and _____ for clarity and accuracy. The penultimate stage is to generate your _____ list and any appendices and diagrams needed. Finally, the whole paper should be thoroughly _____ before handing in the assignment on time.

Answers

- The first stage of essay writing is to read and understand the *task/question* and to prepare a *plan/schedule* of work for the time available. Then the topic should be brainstormed and a rough *outline* prepared. Next, possible *sources* have to be evaluated and the most relevant selected, after which you can start *taking/writing* notes, paraphrasing and summarising the *research*. When you have collected enough material to answer the question, the first *draft* of the main body can be written from the notes, taking care to avoid any *copying/plagiarism* of your sources. Subsequently, you can write the first draft of the introduction and *conclusion*. After this, the whole draft must be reread and *edited* for clarity and accuracy. The penultimate stage is to generate your *reference* list and any appendices and diagrams needed. Finally, the whole paper should be thoroughly *proofread* before handing in the assignment on time.

What is a report?

- Product of research and analysis
- Professional document designed for circulation within workplaces
- “Reporting” on an issue or topic of interest within that organisation
- Not continuous piece of writing like an essay, but divided into sections for convenience and functionality of reading
- Each section has a purpose that ties it to the overall message
- Each paragraph has a point that ties it to the purpose of the section

Core sections of a report: IMRD

Introduction

Why you investigated this topic/issue



Method

How you investigated this topic/issue



Results

What you found about this topic/issue



Discussion

Why it is meaningful



Core sections of a report: IMRD

Introduction

Method

Results

Discussion



Your COMP1710 assessment

- The Report task involves COMP1710 students taking part in two or more Human-Computer Interaction research experiments which add up to 3 hours, and then writing a report on their experiences as experiment participants. In this report the students will (i) describe the purpose of each experiment and their personal experience of taking part in the experiment, (ii) compare their experiences across the different experiments and (iii) write what they have learned about the relevance of participant-focused experiments like these to the overall process of designing and building a set of web pages.



- Abstract
 - One paragraph that says what the report is, why it is written, and what it is about
- Introduction
 - Will be slightly more detailed than the abstract. It will explain what the report is about, it will list the experiments in which you took part, and it will summarise the contents of the report
- First Experiment
 - Summarise the experiment
 - Describe your experience of taking part in the experiment
 - Comment on the strengths and weaknesses of the experiment
- Second Experiment
 - Same three sub-sections

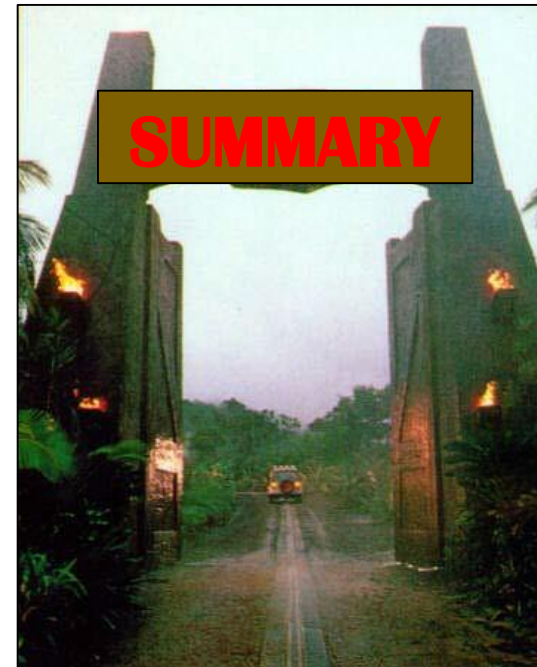
- Comparison of the two experiments
 - Describe in what ways the two experiments were similar or different
 - Compare how you felt taking part in each of the experiments
 - Compare how well you thought the two experiments were run
- Relevance of user-participation experiments to web design and development
 - Discuss what your experience of taking part in these experiments implies for the relevance of user-participation experiments in web design
 - You might like to look for material about user-evaluation in HCI on the web or in textbooks. Be sure to cite any material you refer to

Key instructional words

- **Comment on:** Make critical observations, even if they are fairly open-ended. Your texts, learning guide, lecture and discussion notes should provide sufficient guidelines and your own common sense should prevail
- **Compare:** Find similarities and differences between two or more ideas, events, interpretations, etc. Ensure you understand exactly what you are being asked to compare
- **Describe:** Recall facts, processes or events. You are not asked to explain or interpret. Try to provide a thorough description, emphasising the most important points
- **Discuss:** Present a point of view. This is likely to need both description and interpretation. Your opinion must be supported by carefully chosen and authoritative evidence
- **Summarise:** Provide a brief statement or an account covering the main points; omit details

Abstract

- A reader's gateway into your document
- Typically a single paragraph
- Provides a concise and accurate snapshot of your report
 - Introduces your topic
 - Flags key contents and findings
 - Conveys key message



From: https://jurassicpark.fandom.com/wiki/Park_Gate

Sample abstract

- Taken from a journal article by ANU student Qianyu Zhang (2015)

Abstract

The emergence of social media sharing communities has led to the need for accurate context-based image retrieval methods, which can be accomplished by an automatic annotation system. The ability to annotate high-level context-based words is necessary for such a system; however, it is not well researched due to the inherent difficulty caused by the semantic gap. This thesis identifies a set of high-level words that are frequently used by users to describe images, with a baseline system constructed using linear classifiers. The concept of ‘generalised attributes’ is then proposed and used to improve prediction by bridging the gap between image features and high-level words. The generalised attribute ‘anchor feature’ proposed, together with the ‘total distance’ feature selection method, leads to optimal performance. The resulting system yields not only an improvement in statistical accuracy over the baseline, but also a huge improvement in the quality and relevance of images retrieved in image retrieval and tags predicted in tag recommendation.

Introduction

- Broad background and context
 - Relevance of Human-Computer Interaction research experiments to web design and testing
- Identify topic/main idea
 - This report explores ...
- Identify the two experiments
- Signal structure/key content of report
 - Firstly, the report describes ...
 - Following this, it compares ...
 - Finally, it discusses ...



Conclusion

- Typically reverses/mirrors the introduction
- Reinforces key message of your paper
 - This report has discussed ...
 - It has been shown ...
 - Ultimately, it is evident ...
- Not in assessment instructions, but worth including to formally close report



Paragraphing: TEEEL



Topic sentence: States the theme, idea or argument of the paragraph

Explanation, evidence, examples:
Supporting sentences to elaborate on and support the theme

Linking sentence: Links back to topic sentence, summarises key points and/or sets up next paragraph

Topic sentence

- Establishes the key theme for each paragraph upfront
- A useful test:
 - If you give someone only the topic sentences from a document, they should be able to figure out the shape and thrust of the whole report.

Activity: What's the topic?



- A newspaper is better than a magazine. A seashore is a better place than the street. At first it is better to run than to walk. You may have to try several times. It takes some skill but it's easy to learn. Once successful, complications are minimal. Birds seldom get too close. Rain, however, soaks in very fast. Too many people doing the same thing can also cause problems. One needs plenty of room.
- ***What is this paragraph about?***

With a topic sentence



- **Flying a kite is fun, but there are certain steps necessary to do this successfully.** A newspaper is better than a magazine. A seashore is a better place than the street. At first it is better to run than to walk. You may have to try several times. It takes some skill but it's easy to learn. Once successful, complications are minimal. Birds seldom get too close. Rain, however, soaks in very fast. Too many people doing the same thing can also cause problems. One needs plenty of room.

Linking and transitional words/phrases

Function	Vocabulary
Add information	In addition, Furthermore, Moreover, Firstly, Secondly
Comparative language: Expressing similarity	Similarly, Likewise, Equally
Comparative language: Expressing difference/contrast	In contrast, However, Meanwhile, On the other hand
Demonstrate cause and effect	Therefore, Consequently, As a result, As a consequence, Due to
Introduce evidence/examples	For example, For instance, To illustrate
Finish discussion	In conclusion, To conclude, Finally, Ultimately, In summary

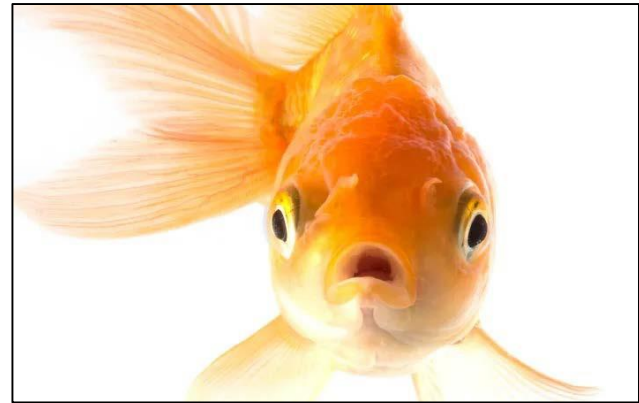


First person or Third person?

- You can use first person when describing your participation, but you do not always need to...
- The faces shown were predominantly white Caucasian actors, musicians and celebrities, and I recall around 70% were male.
- Ultimately, I think it would have been useful for the researchers to have collected demographic information.




Clarity of communication

- We eat fish on Fridays only
- We only eat fish on Fridays
- We eat fish only on Fridays
- Only we eat fish on Fridays



From: <https://thetakeout.com/fish-feel-pain-more-fish-more-breaking-1826291787>

Be formal, but not too formal

- I had lots of fun being in the experiment 
- My experience of participating in the experiment was positive. 
- Partaking in the experiment was a personally enriching and highly illuminating experience 



From: <https://www.fancydressvip.com/adults/mens/historical-eras/adult-mens-old-fashioned-edwardian-gent-suit-costume/> & <https://www.pinterest.com.au/pin/467881848766671202/>

Finding sources

- Does a source pass the CRAAP test?



- Journal articles
- Reports
- Academic books and book chapters
- .Org, .Edu. and .Gov sites



- Wikipedia pages
- Newspaper and magazine articles
- Lecture notes
- Personal and .Com sites

Reading sources: 4S system

Search

- How is the article laid out?
- What are the sections?

Skim

- Look at the abstract, intro, headings, topic sentences, key words

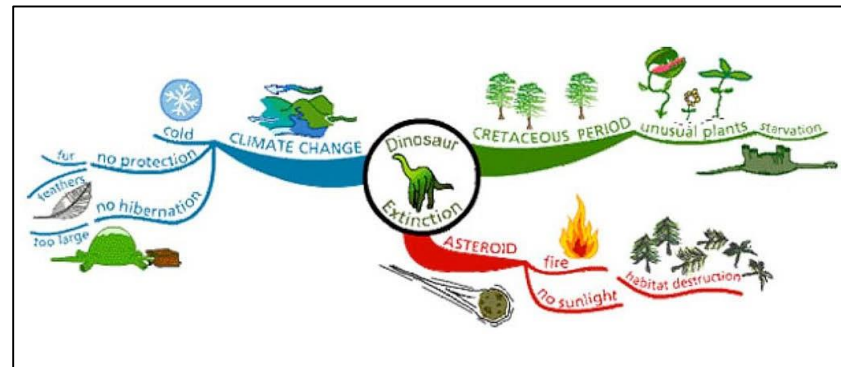
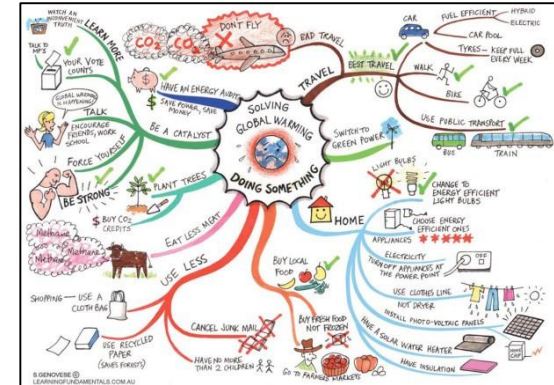
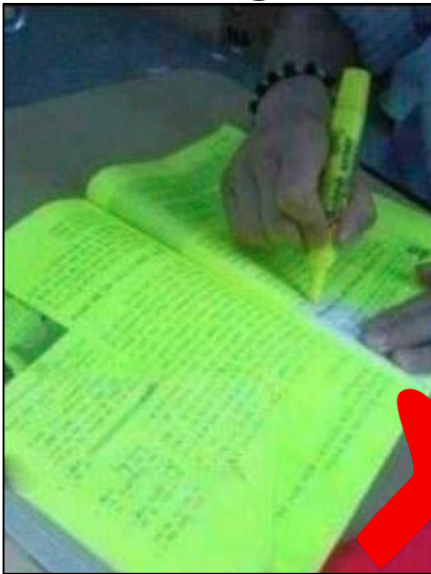
Select

- Which sections or paragraphs are relevant to me?

Study

- Closely read the relevant parts and take notes

Note-taking while reading



From: <http://bloggingamongteachersa.blogspot.com/2013/12/the-mind-game.html>



Notes: Mark key
points/ideas/themes/
theories/theorists

Highlight, underline,
circle, whatever!

Use bottom and top
margins for summary
section and longer
notes.

Fredericks

"We don't leave our identities at the city limits"

Understanding connections to place
Moreton-Robinson (2007) articulates how Indigenous peoples' sense of place, home and belonging is configured differently to that of migrants in terms of knowing. She asserts that 'there is no other homeland that provides a point of origin, or place for multiple identities. Instead our rendering of place, home and country through our ontological relation to country is the basis for our ownership' (Moreton-Robinson 2007:37). Sally Morgan (2008:263) describes this in part when she explains that:

When we experience that deep longing inside ourselves, then we know our country is calling us back. It is time to go home, even if only for a short while. This is because my country is far more than what can be seen with physical eyes. Our country is the home of our ancestral spirits, the place of our belonging. The core of our humanity.

The realities of Indigenous place and Indigenous ownership of place remain unchanged, even though the processes of colonisation in Australia have dispossessed and displaced Indigenous peoples and may have altered Indigenous connections, access and control within and of place. In urban localities, as in other geographic localities, Aboriginal peoples still have Indigenous belonging and Indigenous ownership of place. This exists regardless of whether multi-storey buildings, freeways, sports grounds, houses and places of worship have been built within that geographic locality. It exists regardless of whether individual Australians claim ownership.

Non-Indigenous territorialisation of sites and land holdings is only possible through the dispossession and de-territorialisation of Aboriginal people from that land.

Within urban localities, a multiple of realities **and connections to place can exist**. This includes the Aboriginal ownership of place and the non-Indigenous attachment and connections to place – which may be varied depending on that urban centre's history and economic situation.

Sommerville (2010) contends there are a mixture of complex political realities of Indigenous/non-Indigenous relationships in place and that some places offer multiple and contested stories of experiences of that place. Sometimes, the experiences

of place contain deeply held beliefs and emotions, and people may display emotional behaviour in relation to place – such as **defencelessness** or **outrage** (Memmott and Long 2002). Furthermore, as emotions and behaviours develop, they may also then be 'maintained by groups of people having collective experiences at those parts of the environment and reinforced through feedback from ongoing experiences at such places' (Memmott and Long 2002:40). Through this process, it is possible that places can enact the politics of inclusion and allow for multiple identities and marginalised groups (Sibley 1995) or enact 'a place-based politics which is reactionary, exclusionary and blatantly supportive of dominant regimes' (Oakes 1997:526). That is, places can enact feelings of 'welcome', belonging and inclusion, or feelings of being unrecognised and excluded.

De Certeau (1984) book *The Practice of Everyday Life* constructs the notion of belonging as a sentiment that develops over time through everyday activities. For De Certeau, simple everyday activities are part of the process of appropriation and territorialisation. He suggests that, over time, belonging and attachment are established and built on memory, knowledge and the experiences of everyday activities. This is seen in the experiences of non-Indigenous Australians, who have developed attachment and belonging to places based on the dispossession of Aboriginal people and on their everyday activities over the past 200 years. During this time, non-Indigenous people have marked their appropriation and territorialisation with signs, symbols, representations and images. In marking their attachment, they also define how they position Indigenous people – both by our presence and our absence.

The concepts of **place and space are closely related**. Sommerville (2010:327) argues that place and space are so 'deeply implicated in one another it is difficult to consider one without the other'. Mills (2006) explains that 'space is a question of relations: perceptions of and actual relations between the individual, the group, institutions and architecture, with forces being perceived as restricting or enabling movement or access'. **Crane and Peggins (1992:8)** state that 'an identity of a place emerges by the interaction of its specific involvement in a system of hierarchically organised spaces with its cultural construction

not neutral
political
not neutral
follow up

built with our past-culture place?
Indigenous people also?
define both?

Summary: Big places = spaces hold and enact some many emotions both positive + negative, they can never be neutral. For Aboriginal people, these emotions are strongly belonging + dispossession, making their relationship to space political.

Australian Aboriginal Studies 2013/1 7

Cue column: for
comments/definitions/
connections/items to
follow up.

Record keeping

Author	Title	Year	Purpose	Study design	Relevant topics

Note-taking during your experiments

- Don't postpone taking notes about the experiment. Take notes:
 - Before it begins: On the location, experiment space, first impressions etc.
 - Immediately after: On the process, the researcher, equipment used, likes and dislikes, questions and concerns
- Flesh out the notes later, adding detail and ensuring you have all the information needed



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