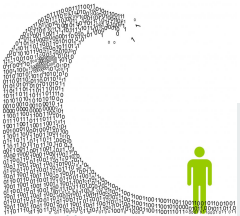


<http://ethnographymatters.net/blog/2013/05/13/big-data-needs-thick-data/>

INFO3315 - HCI

Human-Computer Interaction

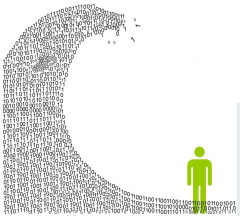
Judy Kay, Drew Cosgrove



<http://ethnographymatters.net/blog/2013/05/13/big-data-needs-thick-data/>

Semester theme

Big personal data for lifelong and life-wide learning.



<http://ethnographymatters.net/blog/2013/05/13/big-data-needs-thick-data/>

Mission

Create IT graduates who are **aware of**
and use **systematic** methods to assess
and improve usability.

Overview

- Introductions
 - What makes HCI hard?
 - Case study
 - Concept mapping - introduction to week 2
- Mini-Assignment

Surveys, quizzes, interactive class modelling

Lecturers

Judy Kay

Research: personalisation, surface computing, ed tech, lifelong learning, health and wellness

Room 307, School of IT Building, J12

Phone: 9351-4502, email: judy.kay@sydney.edu.au

Drew Cosgrove, drew.cosgrove@sydney.edu.au

Interests: Full Stack Web Development, UX, Usability and Accessibility

Background: 10 years of experience in Web Development, 3 years at a leadership level. Focus on the Drupal CMS, focussing on complex back-end integration.

Involvement with project management and architecture.

Pragmatics

Labs start week 2

Changing classes next week, come and discuss in mid-tute break. If there is room, you may move in and we will broker swaps.

Resources - on Canvas

Reference book

Hartson and Pyla

Useful as reference

Designer perspective

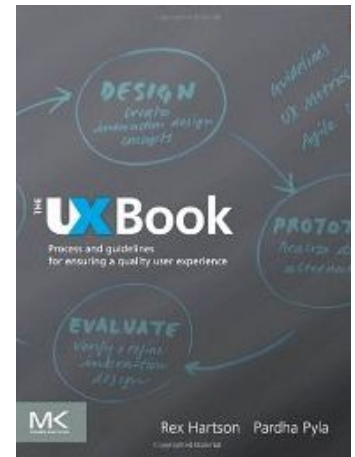
Extensive, big with room to grow

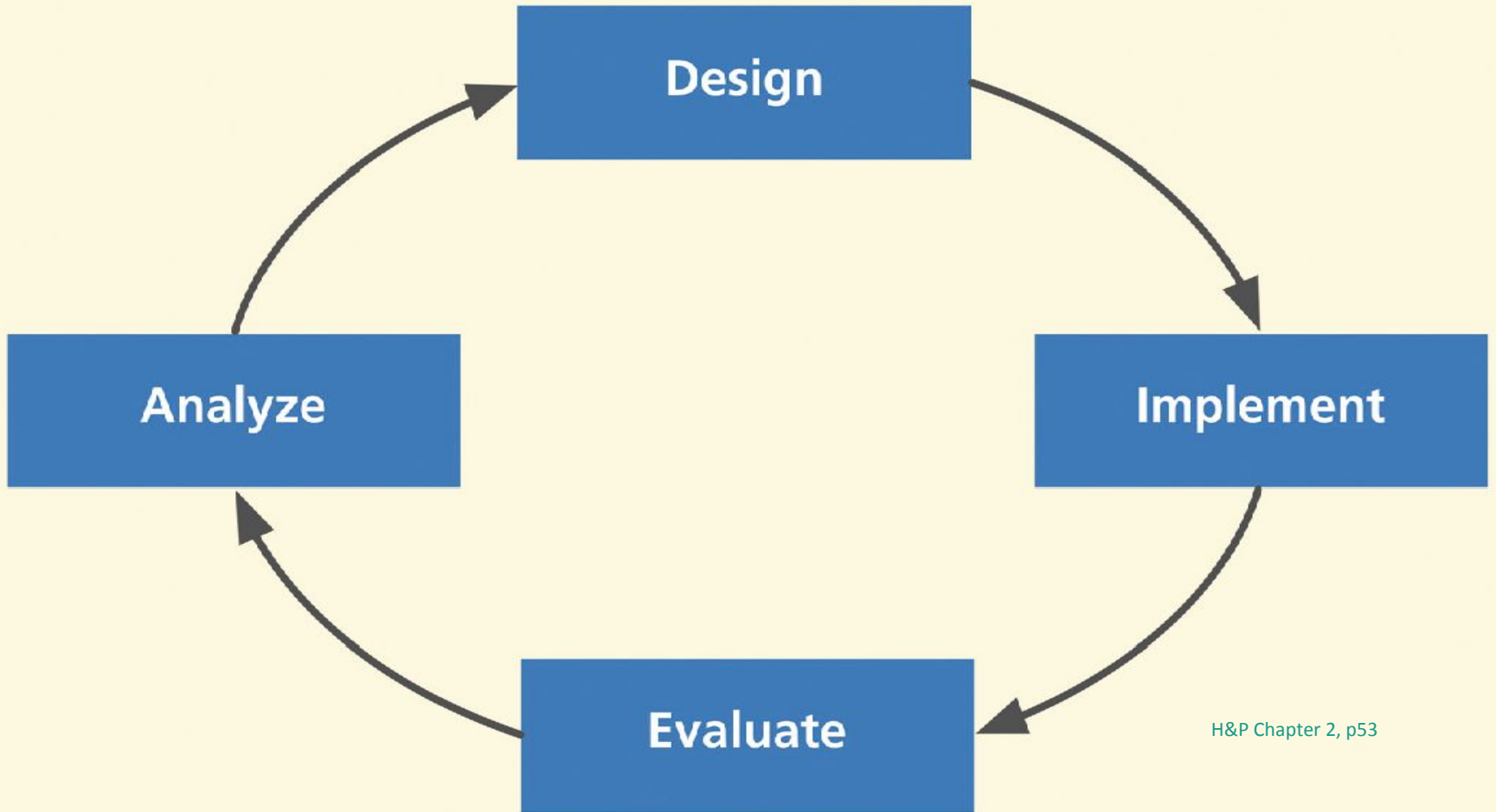
Electronic at library

<https://tinyurl.com/UXBook>

We also take a broader HCI perspective

Focus on required readings





Analyse

Design

Implement

Evaluate

Theory

People, Context...

Breadth topics

Learning activities

2-hour tute/lecture

2-hour labs

Weekly mini-assignments each week - different weights on different assignments

Major assignments (2)

Learning Resources

Readings for the mini-assignments

Your own notes from the tute/lecture and the labs

Student version of slides for these (why a student version?)

Online resources used in classes

Reference text

Online discussion board, questions answered, resources you find shared



About me...

One strand of my lab's HCI research... and
introducing some terms

human centred technology



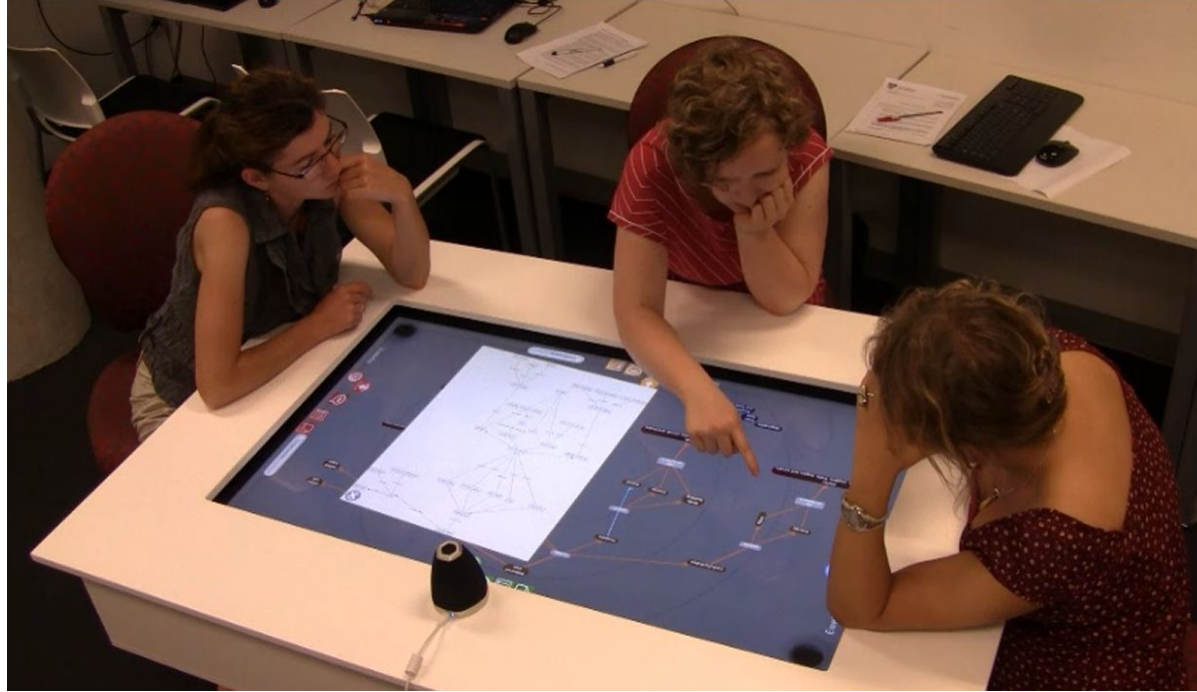
— Surface Computing





Case study:

tabletop **affordance** for
capturing group interaction
and making that data visible
In a useful form

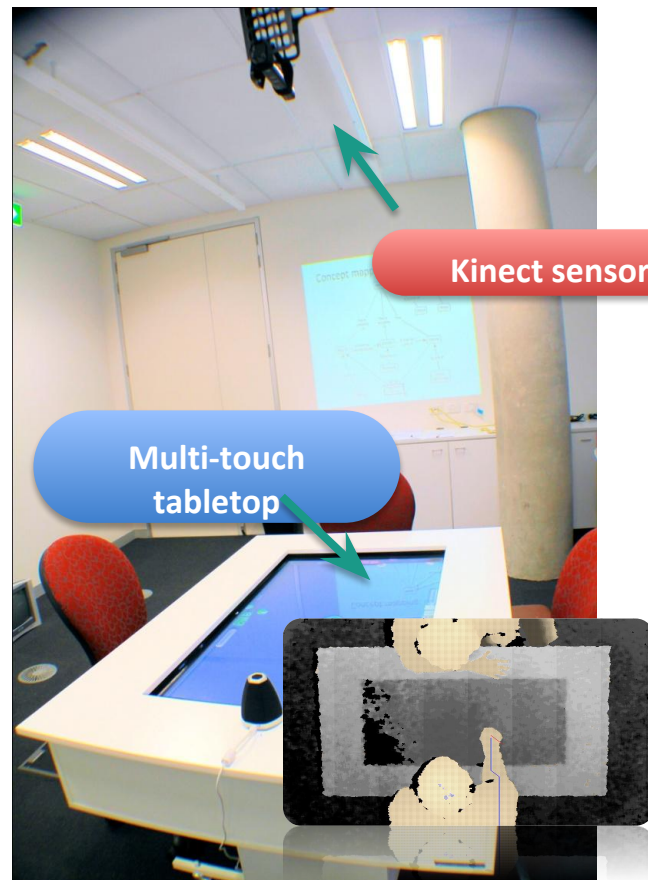
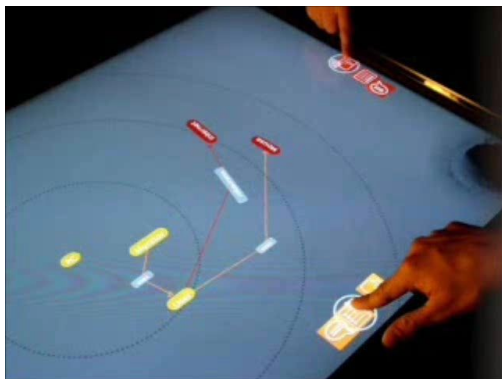


Tabletops for collaborative problem solving
and knowledge creation



Identifying the user

How important is it to identify who does each task?



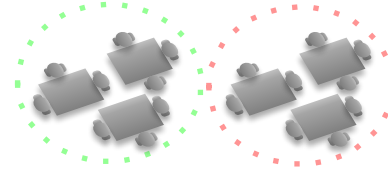
Our gear 2



Cmate

Concept Mapping at the Tabletop

Automatically distinguish high from low collaboration



Low collaboration group



Highly collaborative group







Can tabletops automatically help a teacher determine the group most in need of attention?





..... lots more, to be shared
during the semester



End of introductions




What makes HCI hard?


Tutorial 1 – Week 1 Part 2



Class activity

Focus: What makes HCI hard?

- 
1. Form groups of ~3 (move if need be)
 2. Select a keyboard/paper scribe
 3. Brainstorm about your “user experience” and “usability” of the LMSs (Blackboard or Canvas)
 - Everyone in the group should call out things positives for scribe to capture
 - Then the negatives
 4. Review –
 - Identify **causes** of problems and best aspects
 - group Stage 3 aspects under the causes (duplicate as needed)
 5. Take a photo for later use



What makes it hard to create usable
interfaces that provide a delightful
user experience?



Reason #1

It is hard for designers to think like the users

- May need to understand the domain
- And the context of use
- And what the user knows
- And what they have experienced
- And how they will interpret the interface elements, what they will “see”

Other reasons

Challenges of creating **specifications**

Some interfaces need to support **complex** processes

- even though most people do not need all the functionality

Design is a matter of **trade-offs**

- Tension between utility and beauty, fun marketing
- How to make them fit for different purposes and people in different contexts, cultures with different devices....

Evolution of purposes ... and of software

Legal IP issues may restrict options

Existing how-to **theories** and **guidelines** are weak



Time for some definitions



User experience - UX

Usability

Usefulness

Affect, satisfaction, emotional impact, fun



Usability - ISO standard till recently

“Learnability: How easy is it for users to accomplish basic tasks the first time they encounter the design?

Efficiency: Once users have learned the design, how quickly can they perform tasks?

Memorability: When users return to the design after a period of not using it, how easily can they reestablish proficiency?

Errors: How many errors do users make, how severe are these errors, and how easily can they recover from the errors?

Satisfaction: How pleasant is it to use the design?”

Usability 101: Introduction to Usability

by [Jakob Nielsen](#) on January 4, 2012

<http://www.nngroup.com/articles/usability-101-introduction-to-usability/>



Utility and usefulness

“Definition: Utility = whether it provides the **features you need**.

Definition: Usability = how **easy & pleasant** these features are to use.

Definition: **Useful** = **usability + utility**.”

Usability 101: Introduction to Usability

by [Jakob Nielsen](#) on January 4, 2012

<http://www.nngroup.com/articles/usability-101-introduction-to-usability/>

“Usability and utility are equally important and together determine whether something is useful”

- Easy but useless?
- Hard and useless?
- Hard, but potentially valuable?
- Easy and useful



User experience - UX

User Experience (UX)

Moving the “user satisfaction” to the centre

Includes many aspects:

- Emotional and **visceral** response
- Fun (**hedonic** response), exciting
- Artistic appeal
- Match to fashions and user expectations (or not): surprising, boring
- **gestalt**

Many disciplines care about this: usability/software engineers, marketing, designers



Recent definition of usability

Recent - as in 2018 ISO standard

Usability is:

the extent to which a system, product or service can be used by *specified users* to *achieve specified goals* with *effectiveness, efficiency* and *satisfaction* in a *specified context* of use

<https://www.iso.org/obp/ui/#iso:std:iso:9241:-11:ed-2:v1:en>

ISO 9241-11:2018

Defining usability

Usability is relevant to:

- **regular ongoing use**, to enable users to achieve their goals effectively, efficiently and with satisfaction;
- **learning**, to enable new users to become effective, efficient and satisfied when starting to use a system, product or service;
- **infrequent use**, to enable users to be effective, efficient and satisfied, with the system on each reuse;
- use by people with the widest **range of capabilities**;
- minimizing the risk and the undesirable consequences of use **errors**; and
- maintenance, in that it enables maintenance tasks to be completed effectively, efficiently and with satisfaction.

<https://www.iso.org/obp/ui/#iso:std:iso:9241:-11:ed-2:v1:en>

Usability is relevant when designing or evaluating interactions with a system, product or service for the purposes of:

- development;
- procurement;
- review or comparison; and
- marketing and market research.

<https://www.iso.org/obp/ui/#iso:std:iso:9241:-11:ed-2:v1:en>

Class activity

Form groups of 2-3 to discuss the two definitions of usability:

- identify the similarities
- Identify the differences
- Discuss why the definition has been changed

“Learnability: How easy is it for users to accomplish basic tasks the first time they encounter the design?

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Misconceptions about usability

Misconception 1

Usability as an after-thought at the end ...

- In terms of testing only then
- In terms of adding some glitz

Misconception 2

Usability as only about colours and visual effect ... artistic aspects

As opposed to enabling people to complete the tasks they want to and to do so quickly and easily

Misconception 3

Expect to learn some rigid rules, like the syntax of a programming language and follow them to create usable interfaces


As opposed to formal syntax of programming languages



Case Study to get started on HCI

Tutorial 1 – Week 1 Part 3

Introducing concept mapping - affordances



Suppose you want to work out how
many kilojoules you should be
eating for a healthy weight.

What would you do?



Go to an authoritative website:
Australian Dietary Guidelines

<https://www.eatforhealth.gov.au/>



Class activity

Groups of ~3 as before

One student will do a **Think-Aloud** while the rest of your group **observe** and **record** all problems and comments the user makes

Please write them neatly to photograph and use in later labs

But first an example of thinking aloud for a person exploring the website of a charity “Ambassadors for life” with the task to find ways to support a good cause

<https://www.nngroup.com/articles/thinking-aloud-demo-video/>



What the observers do...

0 seconds

"I am looking for ways to support a good cause

I want to find what this organisation does"

#3 catches my eye ... unsure what it is for

Takes a look at the topics

20 seconds

"They do not help indicate what the organisation does" ... guessing on "The Need"

25 Goes to About

40 The image .. Reads ... *"is about feeding children"* ... reads further

50 Likes 2 short paragraphs, but first not helpful,

1:01: Ok second paragraph



Now that you are at the website, we are ready for:

The task

Suppose you want to work out how many kilojoules you should be eating for a healthy weight.

EAT FOR HEALTH CALCULATORS

IN THIS SECTION

[Calculate your daily energy needs](#)

[Calculate your daily nutrient requirements](#)

[Average recommended number of serves calculator](#)

[Food Balance](#)

The Eat for Health Program provides up-to-date advice about the amounts and kinds of foods that we need to eat for health and wellbeing. The recommendations are based on the latest scientific evidence, developed after looking at all the good quality research.

These calculators can estimate your energy (kilojoule) needs, nutrient requirements and the number of serves from the Five Food Groups you need daily.



CALCULATE YOUR DAILY ENERGY NEEDS

The Energy Requirements Calculator estimates your daily energy requirements for good health based on what your body needs for breathing, circulating blood, digesting food and physical activity.

CALCULATE YOUR DAILY NUTRIENT REQUIREMENTS

The Nutrients Calculator helps estimate how much of each nutrient is needed per day by healthy individuals to maintain their health and wellbeing.

AVERAGE RECOMMENDED NUMBER OF SERVES CALCULATOR

By eating the recommended amounts from the Five Food Groups, you will get enough of the nutrients essential for health and wellbeing, including a reduced risk of chronic diseases such as heart disease, type 2 diabetes, obesity and some cancers. The Average Recommended Number of Serves Calculator will guide you with this.

FOOD BALANCE

A game designed to help children aged between 4 and 13 years to learn about healthy eating.

Page Updated: 27-07-2015

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Page Updated: 27-07-2015

Task:
Suppose you want to work out how many kilojoules you should be eating for a healthy weight.

What was the problem?

Why is it there?

How can we do better?



Introduction to concept mapping

Tutorial 1 – Week 1 Part 4

Introducing concept mapping - affordances



Learning goals:

1. Prepare for Week 2 mini-assignment
2. Understand format and assessment of info3315

Mini-Assignment 1 - Task 1

Create a concept map that is based on your careful reading of ... to answer the focus question:

What does the term affordance mean?

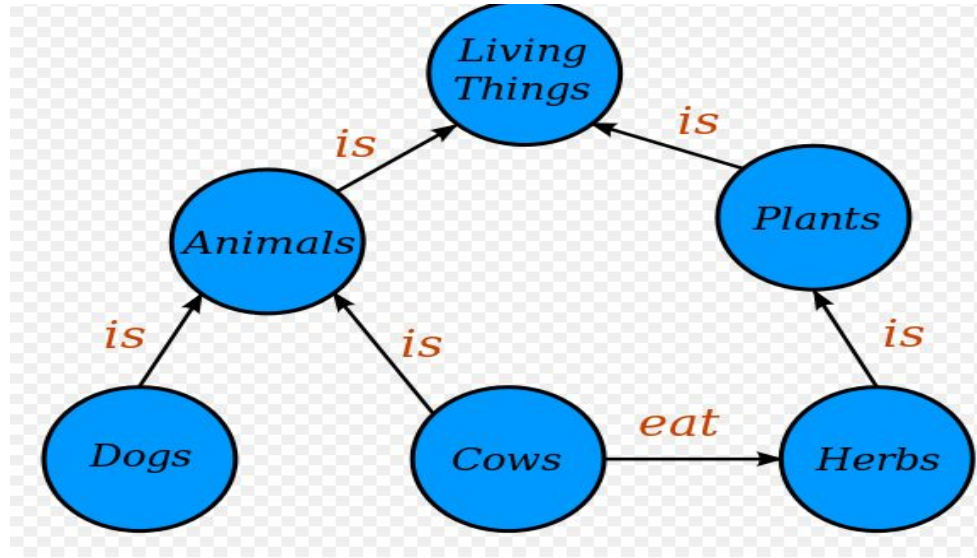
Mini-Assignment 1 - Task 2

Create a concept mapping that answer the focus question:

How much activity is recommended for a young adult (18-35)?

Your concept map should have at most 15 of the most important concepts, based on the following readings.

You should carefully read



https://en.wikipedia.org/wiki/Concept_map

What is concept mapping

<http://cmap.ihmc.us/docs/theory-of-concept-maps>

Concept maps are a way to show ***your understanding***, showing the key ideas relevant to a focus question

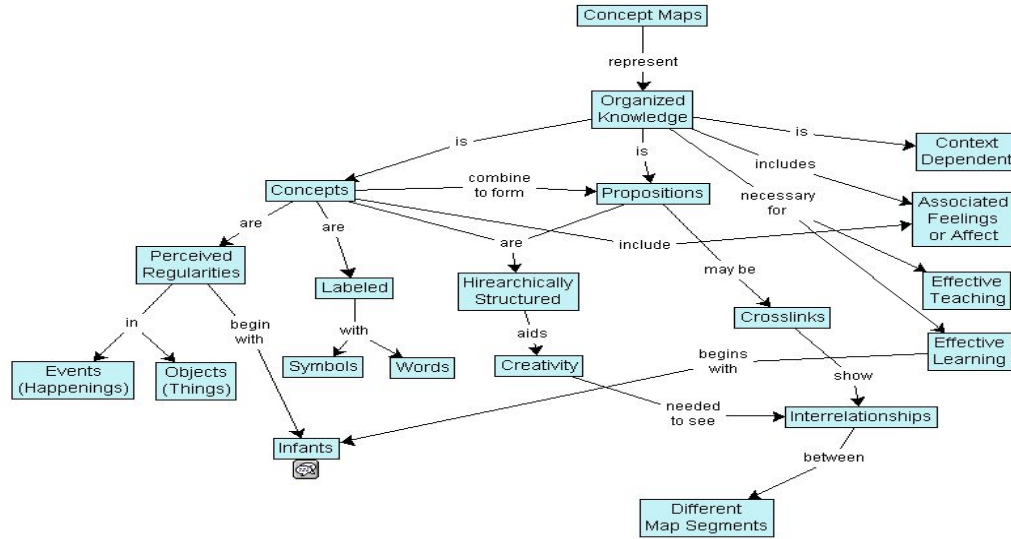
- **Concepts**
- **Propositions** contain two or more concepts connected using linking words or phrases to form a meaningful statement. eg

Dogs – is – Animals

Animals – is – Living Things



Figure 5. One representation of the knowledge structure required required for understanding why we have seasons.



https://en.wikipedia.org/wiki/Concept_map

What is a concept map and how is it used?



Class activity



Your task:

Go to the INFO3315 entry on CUSP

<https://cusp.sydney.edu.au/students/view-unit-page/alpha/INFO3315>

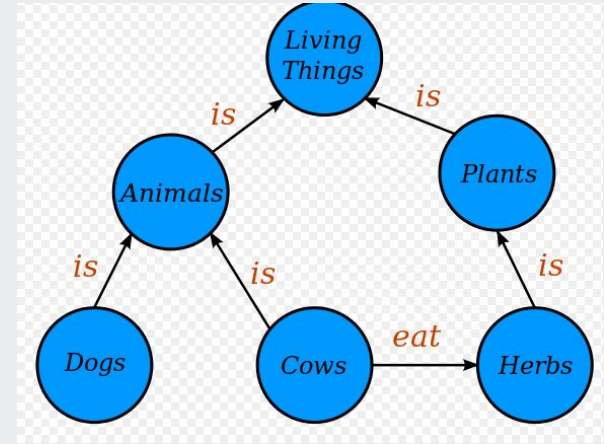
In your group, on paper, create a concept map to answer the focus question

How is INFO3315 assessed?



How to....

Advice on concept mapping



Identify the key concepts first and write them in a list

Place them on the paper

Put the most general/central concept at the **top**

Use **vertical** position to show level of detail (general at top, detailed at bottom)

Similar things should be placed near each other (eg dogs, cows)

Then draw linking lines, each with a label, to **form the propositions**.

Use links like: is-a; has-part; contributes %-age



Summary of this tute/lecture

You are **familiar** with:

- ***Think-aloud*** protocol to study people using a computer system
- ***Tasks*** are what a person does in the think-aloud
- That tasks + think-aloud are central to ***learning the user view*** an interface
- ***What makes it HCI hard*** – when the goal is to create effective and pleasing interfaces for all
- Definitions of usability, utility and user experience
- The pragmatics: people, assessment, ...

Coming up next

- Mini-assignment for Week 2
- Assignment 1 introduced next week
- Create a portfolio to hold all your individual homework and class work, so you can share this with your class members and tutor etc – eg Google Drive Folder