INFO3315 Human-Computer Interaction

Lecture 5 – Requirements. Data Gathering. Data Analysis

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Recap

- Requirements and types of requirements
- Data gathering techniques:
  - Surveys
  - Interviews
  - Focus groups
  - Observations

Data gathering techniques

- ~~Survey~~
- ~~Interviews~~
- ~~Focus groups~~
- ~~Observations~~
- Contextual inquiry
- Ethnography
- Studying documentation

Contextual inquiry

- Combination of interview and observation
- Four main principles:
- **Context**: Going to the user, wherever they are, and seeing what they do as they do it
- **Partnership**: User and interviewer explore user's life together
- **Interpretation**: Observations interpreted by user and interviewer together
- **Focus**: Guide interview setup and focus of inquiry.

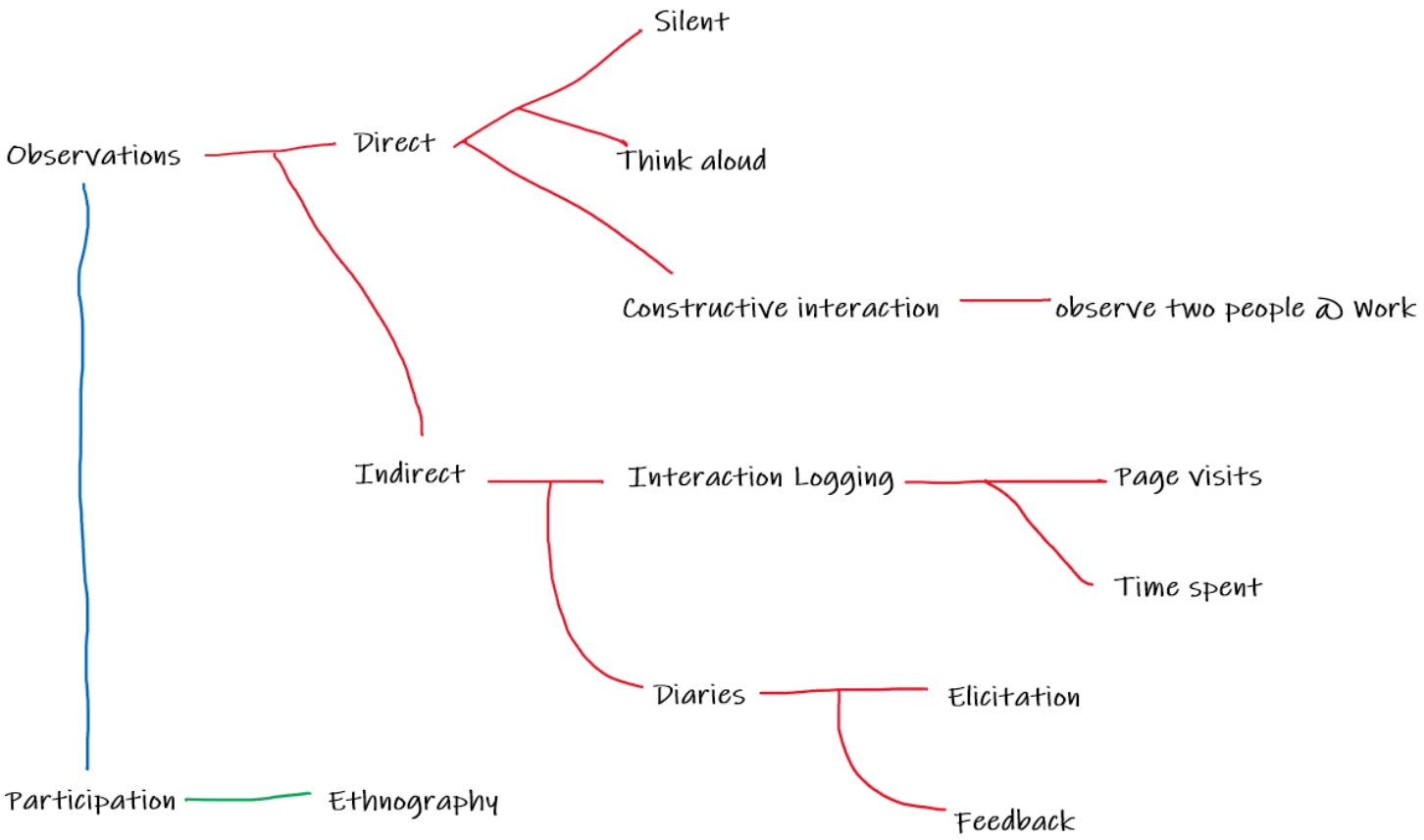
Data gathering techniques

- ~~Survey~~
- ~~Interviews~~
- ~~Focus groups~~
- ~~Observations~~
- ~~Contextual inquiry~~
- Ethnography
- Studying documentation

Ethnography

- Combination of interview and observation
- Ethnographers immerse themselves in the culture that they study
- A researcher's degree of participation can vary (full participation or full observer) and affect study
- Requires cooperation of and acceptance from people being observed
- Requires skills to conduct (simultaneous collection and analysis of data) and skills on the job (full or partial participation)
- Example Research: https://dl.acm.org/doi/abs/10.1145/3290605.3300840

Observations – Ethnography



Data gathering gechniques

- ~~Survey~~
- ~~Interviews~~
- ~~Focus groups~~
- ~~Observations~~
- ~~Contextual inquiry~~
- ~~Ethnography~~
- Studying documentation

Studying documentation

- Procedures and rules are often written down in manuals
- Good source of data about the steps involved in an activity and any regulations governing a task
- Not to be used in isolation
- Good for understanding legislation and getting background information
- No stakeholder time, which is a limiting factor for other techniques

Data gathering techniques

- ~~Survey~~
- ~~Interviews~~
- ~~Focus groups~~
- ~~Observations~~
- ~~Contextual inquiry~~
- ~~Ethnography~~
- ~~Studying documentation~~

Choosing the right technique

- Focus of the study
  - What is the purpose of the study?
  - What kind of data do you need and why?
- Participants involved
  - What are the characteristics of the target user group?
  - What type of access do you have to these people?
- Nature of technique
  - Does the technique require specialist equipment or training?
  - Do the investigators have appropriate knowledge and experience?
- Resources
  - What available resources (time, money, tools, manpower) do you have on hand?

Combining techniques

- Provide different perspectives of the situation:
- Example:
  - Observation – study context of the activity
  - Interview – views of target specific users
  - Survey – reach a wider population
  - Focus Group – consensus view

Summary

- Data gathering techniques can be used to gather requirements and feedback from users.
- All data gathering techniques have advantages and disadvantages.
- Important to select and use combination of data gathering techniques to gain different perspectives of the situation.

Data Types

- **Quantitative**
- Numbers
- E.g., years of experience, time taken to perform a task
- Analysis: Numerical methods to ascertain size, magnitude, amount or size of something
- E.g., statistical analysis

- **Qualitative**
- Words (quotes, description) and images (vignettes of activity, photos)
- E.g., "the class was interesting"
- Analysis: Expresses the nature of elements and is represented as themes, patterns, stories
- E.g.,
  - Critical incidents – focus on key events
  - Identifying themes – inductive analysis
  - Categorising data – deductive analysis

	Usual raw data	Example qualitative data	Example quantitative data	Initial processing steps
Interviews	Audio recordings. Interviewer notes. Video recordings.	Responses to open-ended questions. Video pictures. Respondent's opinions.	Age, job role, years of experience. Responses to close-ended questions.	Transcription of recordings. Expansion of notes. Entry of answers to close-ended questions into a spreadsheet
Questionnaires	Written responses. Online database.	Responses to open-ended questions. Responses in "further comments" fields. Respondent's opinions.	Age, job role, years of experience. Responses to close-ended questions.	Clean up data. Filter into different data sets. Synchronization between data recordings.
Observation	Observer's notes. Photographs. Audio and video recordings. Data logs. Think-aloud Diaries.	Records of behavior. Description of a task as it is undertaken. Copies of informal procedures.	Demographics of participants. Time spent on a task. The number of people involved in an activity. How many different types of activity are undertaken.	Expansion of notes. Transcription of recordings.

Preece et. al., Interaction Design, 5th Edition.

Statistical Analysis

- **Data Cleaning/Data Cleansing**
- Screen the data for possible errors
  - E.g., Age – '223'
- Reasonableness check – data makes sense
  - E.g., Age – '24', Technical experience – '30'
- Group data if data for same participant is collected from multiple channels
- Inappropriate formatting
  - E.g., Age – '9', 'nine'

Statistical Analysis

- **Coding data**
- Convert original data (depends on data) to numeric

Sample Demographic Data in Its Original Form

	Age	Gender	Highest Degree	Previous Experience In Software A
Participant 1	34	Male	College	Yes
Participant 2	28	Female	Graduate	No
Participant 3	21	Female	High school	No

Sample Demographic Data in Coded Form

	Age	Gender	Highest Degree	Previous Experience In Software A
Participant 1	34	1	2	1
Participant 2	28	0	3	0
Participant 3	21	0	1	0

Chapter 4 - Lazar, J., Feng, J., & Hochheiser, H. (2017). *Research Methods in Human-Computer Interaction* (pp. 105–131). Elsevier Inc.

Statistical Analysis

- **Descriptive Statistics**
- Understand nature of your dataset
- **Mean:** Add up values and divide by number of data points
- **Median:** Middle value of data when ranked
- **Mode:** Figure that appears most often in the data
- **Standard deviation:** Amount of variation in data

Statistical Analysis

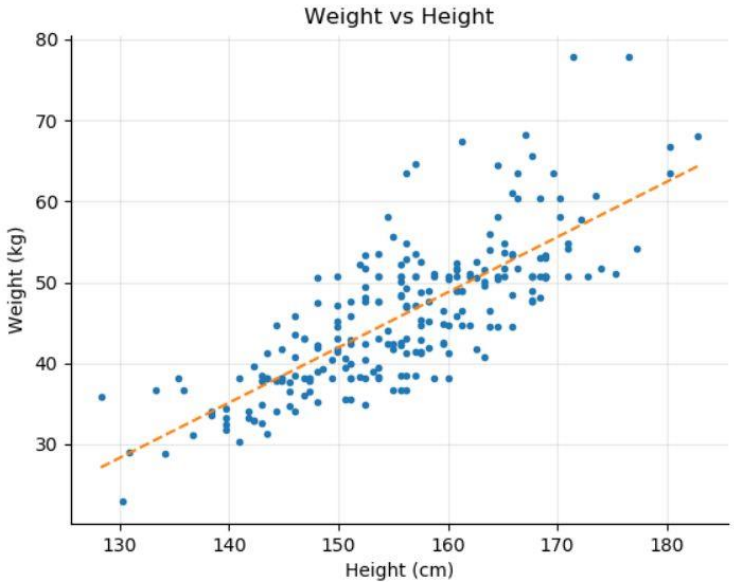
- **Statistical Testing**
- Significance test for comparing means

Commonly Used Significance Tests for Comparing Means and Their Application Context

Experiment Design	Independent Variables (IV)	Conditions for each IV	Types of Test
Between-group	1	2	Independent-samples *t* test
	1	3 or more	One-way ANOVA
	2 or more	2 or more	Factorial ANOVA
Within-group	1	2	Paired-samples *t* test
	1	3 or more	Repeated measures ANOVA
	2 or more	2 or more	Repeated measures ANOVA
Between- and within-group	2 or more	2 or more	Split-plot ANOVA

Statistical Analysis

- **Identifying relationships between factors:**
- Correlation testing e.g. Pearson's product moment correlation
- E.g., Determine relationship between age, computing experience and target selection speed.



Tools for Statistical Analysis

- **Excel**
  - Simple functionality (good for quick analysis)
- **SPSS**
  - Comprehensive with advance functions, GUI
  - Expensive
- **R**
  - Comprehensive, scriptable, free!
  - Similar to Python/MATLAB
  - Need to learn how to program in R



Question Design & Data Analysis

- Different question designs affect the kinds of analysis that can be performed and kind of conclusions that can be drawn.

  Open question: Each answer analysed separately

  Closed question: Analysed quantitatively

- Fixed alternative answers restrict what can be said in findings

Basic Qualitative Analysis

- Looking for critical incidents
  - Helps to focus on key events
  - Then analysis can process using specific techniques
- Identifying themes
  - Emergent from data, dependent on observation framework if used
  - Inductive analysis
- Categorising data
  - Categorisation scheme is pre-specified
  - Deductive analysis
- In practice, combination of inductive and deductive analysis

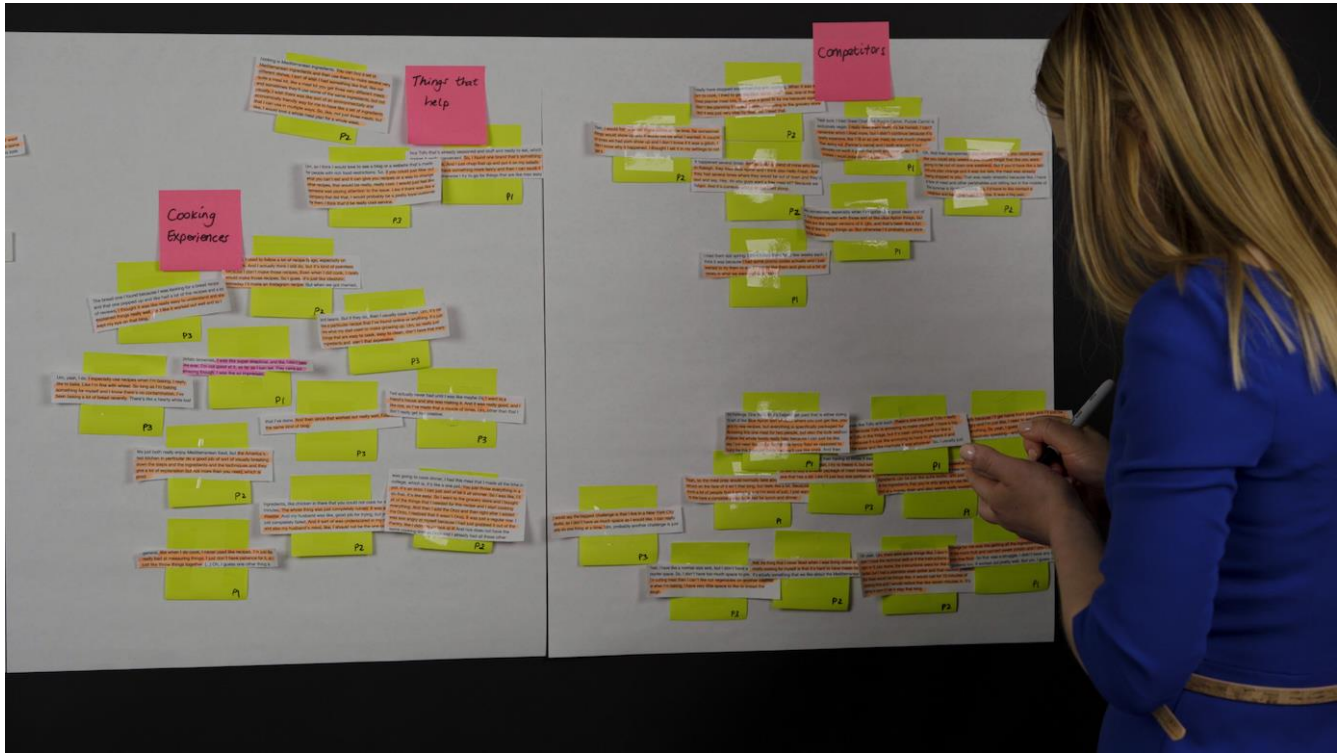
Looking for critical incidents

- Identify specific incidents that are significant.
- Focus analysis on these incidents using rest of the data collected
- E.g., – evaluation study
  - Incidents signalled by times marked by comment, silence, looks of puzzlement.
  - Further investigation depends on the severity of the problem identified.



Identifying themes

- Good for exploratory studies.
- As you become familiar with the data, possible themes or patterns will emerge.
- Tools to help identify patterns and themes – affinity diagram.



https://www.nngroup.com/articles/thematic-analysis/

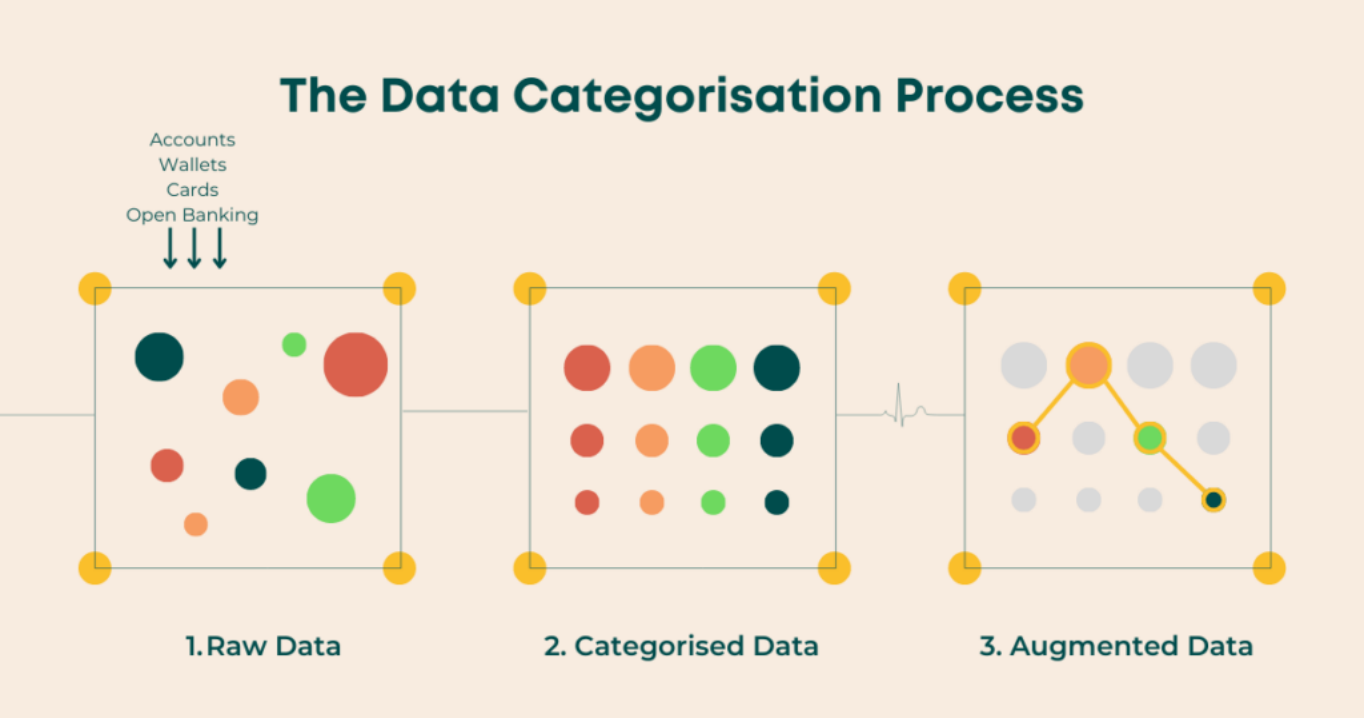
Constructing affinity diagram

1. Write each data on a Post-it note.
2. Repeat until you have converted all data onto the separate Post-it notes
3. Affinity diagram is built from bottom-up approach. Let team members define their own groups.
4. Affix Post-its to wall in groups, as the groupings emerge. During this process, it is not unusual to discard duplicate or near-duplicate requirements.
5. Record the groups and headings.

– More information: https://www.interaction-design.org/literature/article/affinity-diagrams-learn-how-to-cluster-and-bundle-ideas-and-facts

Categorising data

- Top-down approach – set of categories determined beforehand
- Data is classified according to set of categories



Analytical framework

- Frameworks to analyse and interpret data from qualitative study
- Different frameworks suitable for different data
- E.g.,
  - Interaction analysis – evaluation of prototype during usability test
  - Content analysis – identifying user preferences

Analytical framework

Framework	Data	Focus	Expected outcomes	Level of granularity
Conversation analysis	Recordings of spoken conversations	How conversations are conducted	Insights into how conversations are managed and how they progress	Word-level, or finer, for instance, pauses and inflection
Discourse analysis	Recordings of speech or writing from individuals or several participants	How words are used to convey meaning	Implicit or hidden meanings in texts	Word, phrase, or sentence-level
Content analysis	Any form of "text" including written pieces, video and audio recordings, or photographs	How often something is featured or is spoken about	Frequency of items appearing in a text	A wide range of levels from words, to feelings or attitudes, to artifacts or people
Interaction analysis	Video recordings of a naturally-occurring activity	Verbal and non-verbal interactions between people and artifacts	Insights about how knowledge and action are used within an activity	At the level of artifact, dialogue, and gesture
Grounded theory	Empirical data of any kind	Constructing a theory around the phenomenon of interest	A theory grounded in empirical data	Varying levels, depending on the phenomenon of interest
Systems-based frameworks	Large-scale and heterogeneous data	Large-scale involving people and technology, such as a hospital or airport	Insights about organizational effectiveness and efficiency	Macro-level, organizational level

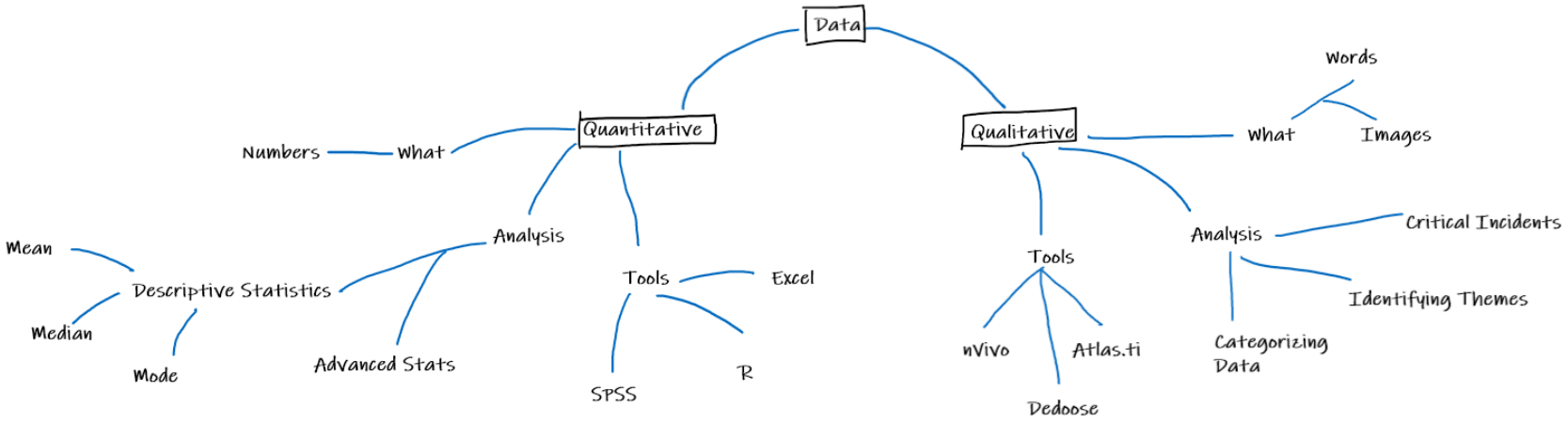
Interaction analysis

- A way to investigate and understand interactions between people and between people and artefacts
- Based on empirical observations such as videos
- Inductive process in teams, collaboratively
- Contents of the material is logged
- Materials are extracted, classified, or removed
- Instances of a salient event are assembled and played one after the other
- The team of researchers studies the assemblage together

Tools for qualitative analysis

- nVivo
  - Supports annotation and coding of data including PDF documents, photos, videos and audio files.
  - Latest version allows coding directly onto video and audio files without transcription
  - Tutorial videos from QSR Software
- Atlas.ti
  - Another software

Summary


Data
Quantitative
Numbers
What
Analysis
Mean
Descriptive Statistics
Median
Mode
Advanced Stats
Tools
Excel
SPSS
R
Qualitative
Words
What
Images
Tools
nVivo
Atlas.ti
Dedoose
Analysis
Critical Incidents
Identifying Themes
Categorizing Data

Task analysis approaches

- Logic of task
  - Sequence of steps required to achieve goal
  - Can be in textual form or diagram.
  - E.g., Hierarchical Task Analysis (HTA)

- Cognitive task analysis
  - Cognitive processes required to achieve goal
  - E.g., Cognitive Walkthrough,
    Goals-Operators-Methods-Selection (GOMS)

Task decomposition

- List of task with indentations to denote decomposition
- E.g., House cleaning

0. in order to clean the house
1. get the vacuum cleaner out
2. get the appropriate attachment
3. clean the rooms
    3.1. clean the hall
    3.2. clean the living rooms
    3.3. clean the bedrooms
4. empty the dust bag
5. put vacuum cleaner and attachments away

Plan 0: do 1 -2 -3 -5 in that order. when the dust bag gets full do 4

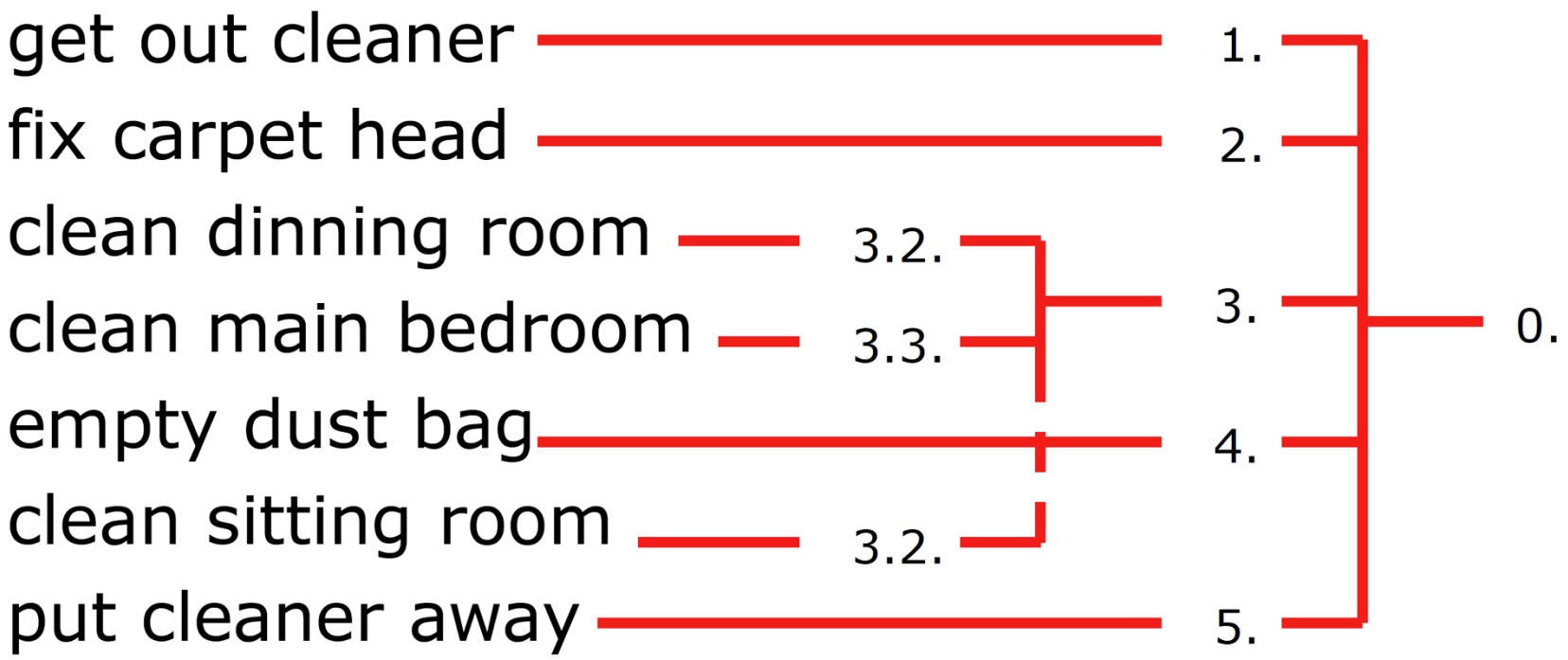
Plan 3: do any of 3.1, 3.2 or 3.3 in any order depending on which rooms need cleaning

Plans

Plan	Example
Linear.	Do 1, then 2, then 3.
Non-linear.	Do 1, 2 and 3 in any order.
Simultaneous.	Do 1, then 2 and 3 at the same time.
Branching.	Do 1; if X present, then do 2 then 3, but if X is not present, then EXIT.
Cyclical.	Do 1, then 2, then 3 and repeat until X.
Selection.	Do 1, then 2 or 3.

– Source: Stanton, N.A.; Salmon, P.M.; Walker, G.H.; Baber, C.; Jenkins, D.P. (2005). *Human factors methods: a practical guide for engineering and design*. Aldershot, UK: Ashgate.

Diagrammatical Format



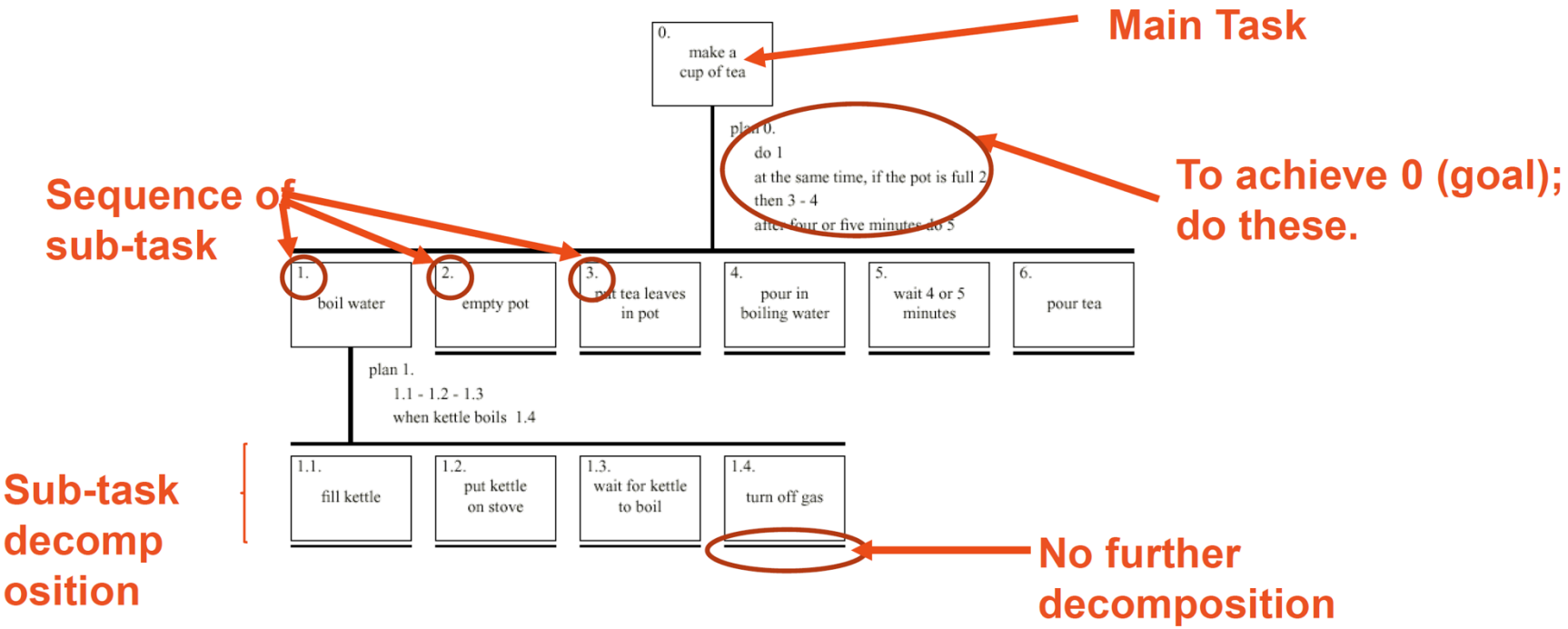
Hierarchical task analysis (HTA)

- A graphical representation of a task structure based on a structure chart notation.
- Sequence is usually shown by ordering the tasks, subtasks and actions from left to right.
- Annotations can be included to indicate *plans*.

Steps to perform HTA

1. Identify task to be analysed.
2. Break task into sub-task. Recommended 4-8 tasks.
3. Decide on the level of detail to decompose and decompose sub-tasks further.
4. Determine the plans. Plans dictate how task/sub-tasks are achieved.
5. Draw the tree diagram:
   - Goal at the top of the diagram.
   - Sub-tasks in next layer from left to right.
   - Next layer, decomposition of each sub-task (where required).

HTA example



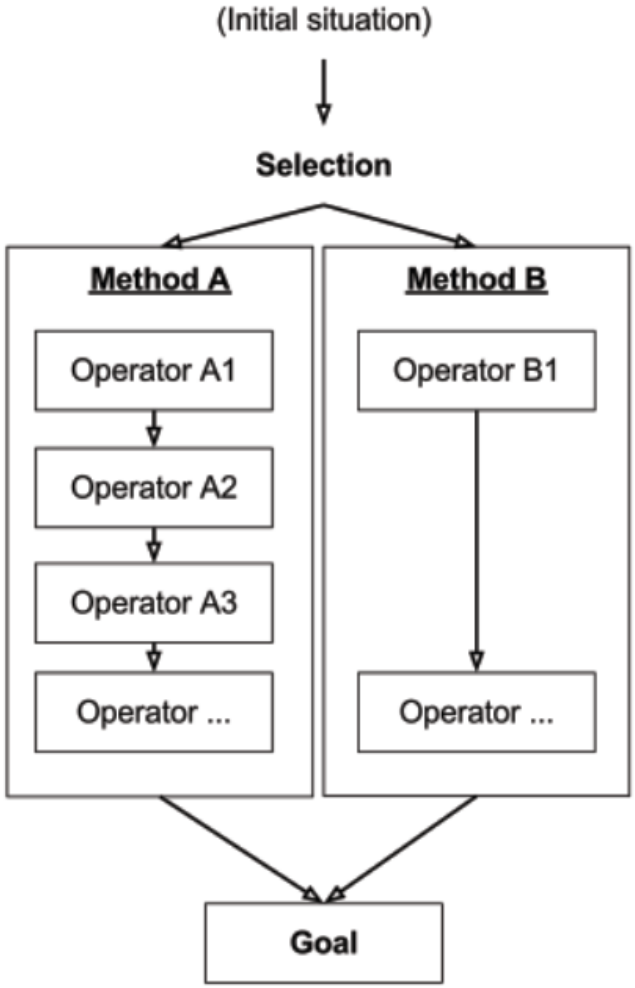
Source: Dix(2003) - Chapter 15.3, Pg. 515

Outcomes of HTA

- Manuals & tuition
  - Procedural 'How to do it' Manual
  - Conceptual Manual
- Detailed interface design
  - task frequency guides default choices
  - existing task sequences guide dialogue design

GOMS

- **G**oals – What the user wants to achieve.
- **O**perators – Basic actions that the user must perform to use the system.
- **M**ethods – Sequence of subtasks and operators
- **S**election rules – Rules that people use to choose between methods of achieving the same subtask.



Presenting findings

- Structured Notations
  - Clear syntax and semantics to present particular viewpoint
  - E.g., use-case diagram
- Stories/storytelling
  - Easy and intuitive approach
  - Example: personas, scenarios
- Summarizing findings
  - Different presentation styles
  - Example: tables, graphs, diagrams, video

Use cases

- Focus on functional requirements and capture interaction
- Can be used to think about interaction design or to capture requirements
- Use cases are step-by-step descriptions of interactions
- Two styles:
  - Essential use cases
  - Use case with normal and alternative courses

Essential use cases

- Division of tasks between the user and the system
- Focuses on the user intentions and product responsibilities
- No implementation/interaction detail
- Example: Use case for the visa requirements element of the group travel application

RetrieveVisa	
USER INTENTION	**SYSTEM RESPONSIBILITY**
find visa requirements	request destination and nationality
supply required information	obtain appropriate visa information
obtain a personal copy of visa information	offer information in different formats
choose suitable format	provide information in chosen forma

Example

1. The product asks for the name of the destination country.
2. The user provides the country's name.
3. The product checks that the country is valid.
4. The product asks the user for their nationality.
5. The user provides their nationality.
6. The product checks the visa requirements of that country for a passport holder of the user's nationality.
7. The product provides the visa requirements.
8. The product asks whether the user wants to share the visa requirements on social media.
9. The user provides appropriate social media information.

Alternative Courses

4. If the country name is invalid:

4.1 The product provides an error message.

4.2 The product returns to step 1.

6. If the nationality is invalid:

6.1 The product provides an error message.

6.2 The product returns to step 4.

Use case diagram – elements

– Use cases (ellipse):

A use case represents the actions that are performed by one or more actors to pursuit a particular goal

– Actors (stick figure annotated):

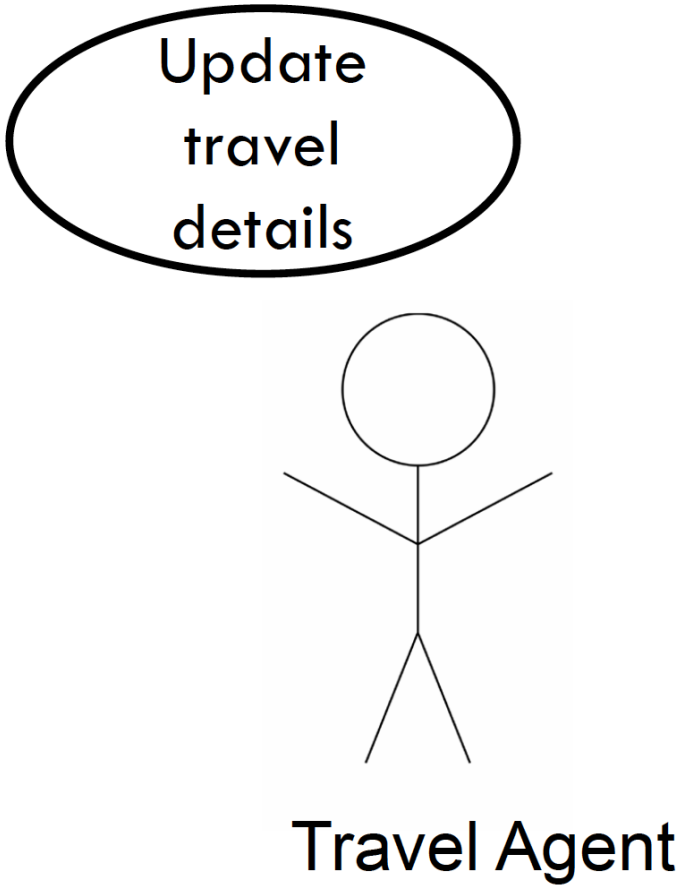
A person, organization, or external system that plays a role in interactions with the system

– System (box, optional):

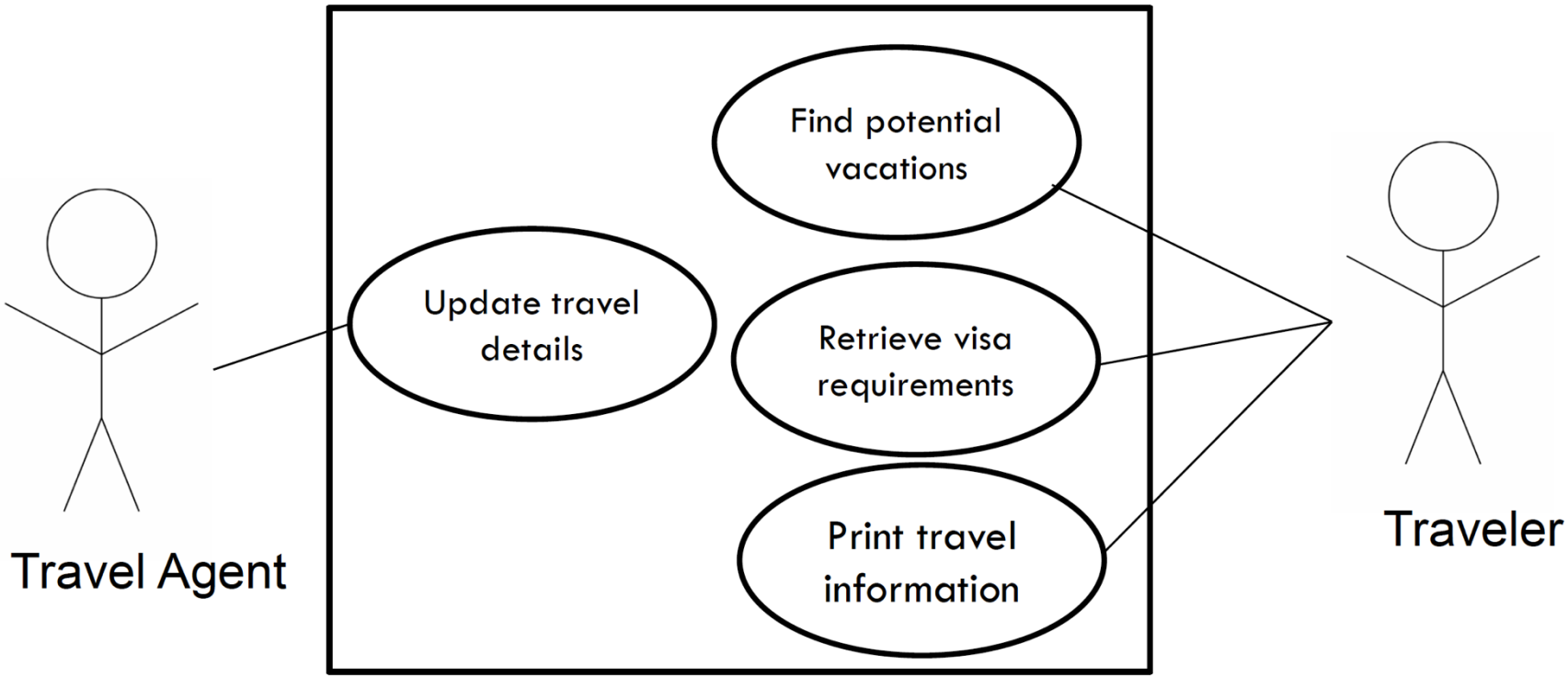
Boundary box around use cases indicates the scope of the system

– Associations (solid lines):

An actor is involved with an interaction described by a use case



Use case diagram – example



Storytelling – elements

- Main character(s)
- Story details/narration –when, where and what happened.
- Goldilocks and the three bears
  - Three bears went out for a walk while their porridge cools
  - Goldilocks on an errand passed by the house, found it unlock and entered.
  - She ate Little Bear's porridge, broke Little Bear's stool and fell asleep in Little Bear's bed.



https://americanliterature.com/childrens-stories/goldilocks-and-the-three-bears

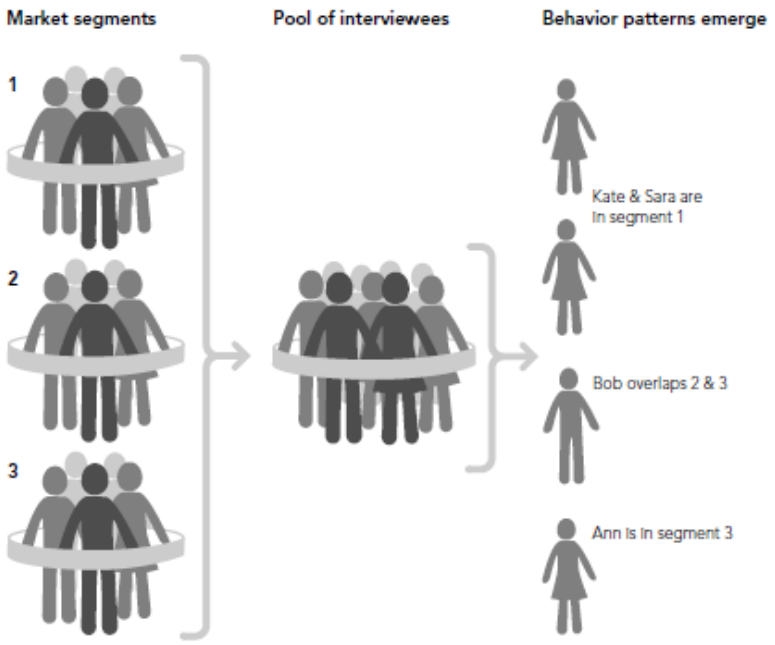
Personas

- Synthesized from real people based on user research
- Typical, not idealized
- Bring to life with name, characteristics, goals, and personal background
- Relevant to product under development
- Good persona helps designer make design decisions and reminds team about who will use the product.
  Avoids:
  - Elastic users
  - Self-referential
  - Edge cases



How to create personas?

1. Identify behavioural variables from demographic data e.g. activities, attitudes, aptitudes, motivations, skills.
2. Identify common pattern by mapping participants to behavioural data.
3. Synthesize and build model.



Types of personas

- **Primary***
  - target of interface
- **Secondary**
  - Primary needs + additional features
- **Supplementary**
  - Combination of primary + secondary needs
- **Customer**
  - Needs of customer, not end user
  - May be primary user
- **Served**
  - Not users directly affected by the use of the product
- **Negative**
  - Users in which the product is not meant for.

Persona – example



Fred Fish: Corporate Chef

"Get me out of the office &into the kitchen."

Employer: Boise Controls
Background: Masters from Johnson & Wales University
Computer skills: Novice

Quick take on Fred	
Computer skills	**Novice** Expert
Job situation	**Employee** Director **Manager** Vice president
Computer type	**Netbook** Laptop Desktop
Computer tools	Advanced features Coding tools **Email** **Web browsing** **Word processing**
Background	Business Engineering Marketing Management **Other: cooking**

Photo from Flickr, some rights reserved

Key goals

Fred doesn't get his hands dirty the way he used to (literally). He stops in at all six Boise Controls sites as often as possible to stay in touch with cooks and cooking.

He wants to learn computer tools, but not at the expense of managing his kitchens.

A day in the life

Once a month, he meets with the head chefs and to plan the menu. When they're done, he sends it to his staff and his manager.

He's not a computer whiz. On a good day, he can drag in some clip art and do some formatting with fonts. Once in awhile, he'll format menus with the new editor they on his MacBrook Pro.

He's figured out a lot, but not everything. He always had a problem sending a message without the attachment, or an attachment with no message. That's annoying and embarrassing and used to keep him away from computers.

The new EZ-Write system seems to have some features to help with that. Anytime he writes something like "…see the attached menu..." the program prompts him if he doesn't attach something. If there were a Nobel Prize for software, he'd nominate the people who designed this.

Chefs are different from other users

Computers are just tools for a chef. Fred would rather use a cutting board than a keyboard.

https://www.smashingmagazine.com/2014/08/a-closer-look-at-personas-part-2/

Persona – example

Family traveler



"I want a travel organiser that will offer me a range of potential vacations that suit our needs"

Age: 35
Work: Plumber
Family: Married, two children

Personality

Introvert — Extrovert
Thinking — Feeling
Sensing — Intuition

Organised | Practical | Expects high standard

Goals

- To book comprehensive travel quickly
- To find a trip that meets the needs of the whole family
- To feel supported and guided from the beginning of the booking experience right to the end.

Frustrations

- Wasting time filling in forms
- Too much irrelevant information
- Existing systems tend to be too diverse and complicated

Bio

Will loves to take his family on adventure holidays to explore new challenges. His children, Sky (8) and Eamonn (15) are old enough to take part in several sporting activities and he wants to make the most of this before they no longer want to go on trips with him and his wife, Claire. He likes the fact that choosing travel options is so much easier than it used to be, but is frustrated by the many different sources and disjointed options that this can result in. He wants a travel organiser that can provide clear support for family holidays while offering as wide a choice as possible.

Motivation

Price
Comfort
Choice

Favourite destinations





https://xtensio.com/user-persona/

Persona and Scenario

- **Personas**
  - Rich descriptions of typical users, not specific people.
- **Scenario**
  - Narrative describes tasks performed by the persona

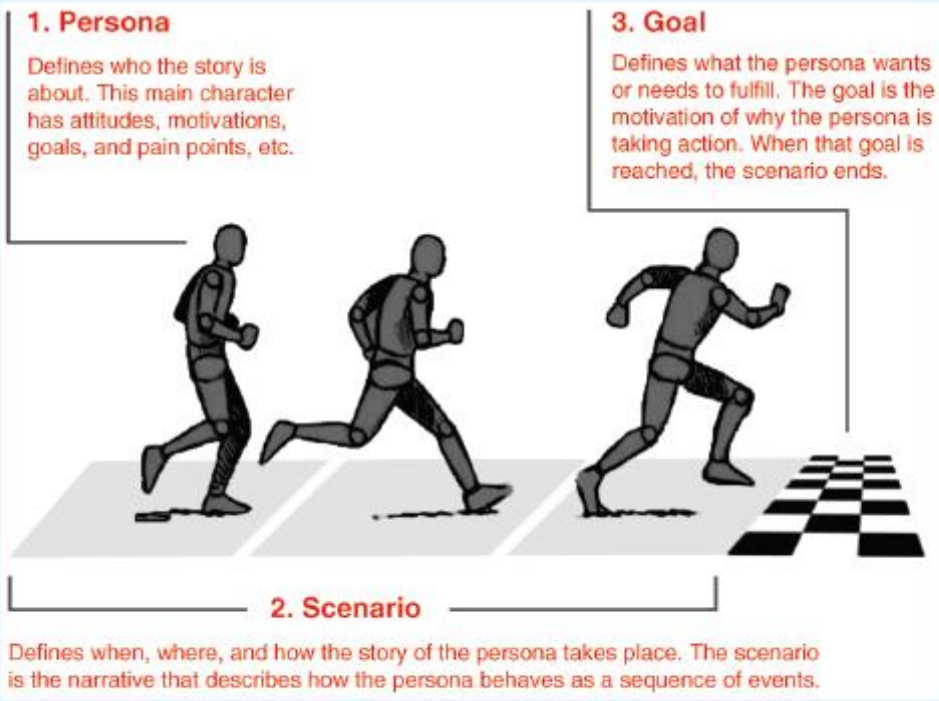


Figure 10.10 The relationship between a scenario and its associated persona

Source: http://www.smashingmagazine.com/2014/08/06/a-closer-look-at-personas-part-1/

Creating scenarios

- Who is the **persona** involved?
- What triggers this experience?
- What happens?
- What is the outcome?

Scenario – example

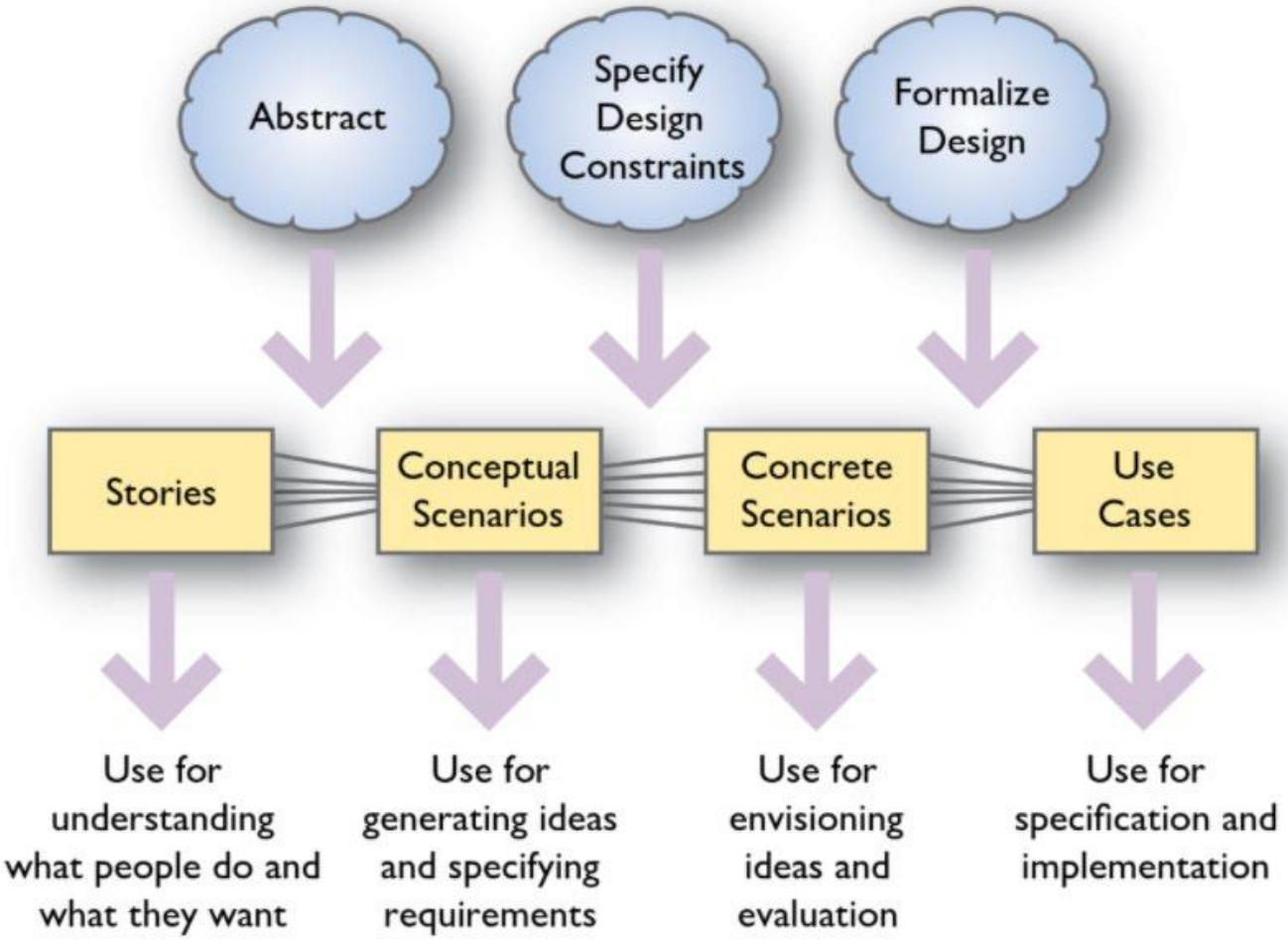
"The Thomson family enjoy outdoor activities and want to try their hand at sailing this year. There are four family members: Sky (8 years old), Eamonn (12 years old), Claire (32), and Will (35). One evening after dinner they decide to start exploring the possibilities. They want to discuss the options together, but Claire has to visit her elderly mother so will be joining the conversation from her mother's house down the road. As a starting point, Will **enters an idea** they had been discussing over dinner – a sailing trip for four novices in the Mediterranean. The system supports users **to log on from different locations and use different devices** so that all members of the family can interact easily and comfortably with it wherever they are. The system's initial suggestion is a flotilla, where several crews (with various levels of experience) sail together on separate boats. Sky and Eamonn aren't very happy at the idea of going on vacation with a group of other people, even though the Thomson's would have their own boat. The travel organizer **shows them descriptions** of flotillas from other children their ages and they are all very positive, so eventually, everyone agrees to explore flotilla opportunities. Will confirms this recommendation and asks for detailed options. As it's getting late, he asks for the details to be saved so everyone can consider them tomorrow. The travel organiser **emails them a summary** of the different options available."

Summary – user profile, persona, and scenario

Document	Definition	Purpose	Content
User profile	Detailed description of your users' attributes	To ensure that you know who you are developing your product for, and who to recruit for usability activities	• Demographic data • Skills • Education • Occupation
Persona	A fictional individual created to describe the typical user based on the user profile	To represent a group of end users during design discussions, and keep everyone focused on the same target	• Identity and photo • Status • Goals and tasks • Skill set • Requirements and expectations • Relationships
Scenario	Story that describes how a particular persona completes a task or behaves in a given situation	To bring your users to life, test to see if your product meets the users needs, and develop artifacts for usability activities (e.g., tasks for usability tests, day-in-the-life videos for focus groups)	• Setting • Actors • Objectives or goals • Sequence of events • Result

Courage, C., & Baxter, K. (2005). *Understanding your users: a practical guide to user requirements methods, tools, and techniques*. Morgan Kaufmann Publishers.

Scenarios throughout design



Case study – Secret City Edinburgh

- Interactive narrative platform that allows users to create and experience dynamic, fictional stories set in Edinburgh.
- Two types of users:
- Players
  - Mobile app to navigate around Edinburg
  - Activate Story Nodes defined by geographic location
  - View – text, media and puzzles
- Creators
  - Create story experienced by players



https://www.chasingthelongroad.com/scotland/things-to-do-edinburgh/

Case study – Secret City Edinburgh

- Data Gathering
  - Focus group of potential users of the application
  - Interviewed informally over phone, email and instant messenger



User stories

'Since I got the job here – I'm based in Queen Street but we've also got clients dotted all around the city – I spend a lot of time travelling across town. Quite a lot my meetings are after ordinary work hours and since I live out in Rosslyn, there's no point trying to get home and back in the rush hour, so I often sit in the office or go for a coffee. I have to have my mobile phone with me and I've normally got a laptop, too.'

'I'd definitely play something like that. I play tabletop roleplaying games and it sounds like it could be similar. I've built a few things along those lines – there's a ton of free software you can use – but they are fairly limiting. I'd want to have more control of layout and stuff. What if you picked up, say, a sword in the first part – would the game then know you had it at the end? You'd also want to control the colours and fonts and stuff on your own pages otherwise it'd look just like everyone else's.'

Persona



Name
George

Age
41

Occupation
Systems architect

Location
Works in town but lives outside city centre

Likes
Mental puzzles and logic games
Problem solving
Scoreboards

Technology skills
Highly skilled with all forms of computing but less familiar with direct use of content management systems
Occasional player of mobile games but regular player of console games

Goals

- To entertain himself between meetings.
- To design puzzles for others to figure out and examine how they tackled them.
- To explore parts of the city he would not normally find.

Limitations

- George has limited time he can dedicate to playing mobile games and must be able to answer business calls and emails even outside normal work times.
- Although a keen walker, George has a prosthetic leg, which can get uncomfortable on extended journeys and when ascending steep hills.

Player **Creator**

Persona



Name
Sarah

Age
26

Occupation
Audit manager

Location
Lives and works in city centre

Likes
Running
Time-based challenges
Creative writing

Technology skills
Owns a laptop and carries work smartphone, plus personal smartphone
Familiar with both and especially Office software and has some experience with operating content management systems
Plays video games occasionally but finds that game systems get in the way of the story. Mostly prefers to read a book

Goals

- To get her short fiction writing skills onto a new platform.
- To fit around her busy work life.
- To feedback on her writing.
- To use application as part of her normal exercise routine.

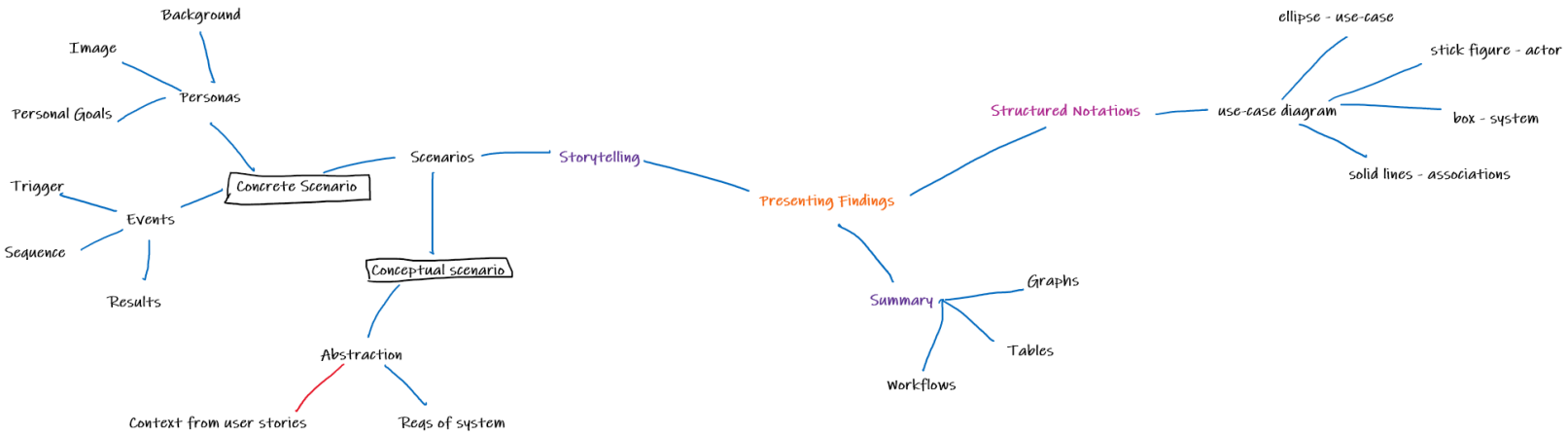
Limitations

- Has little time to spend learning a new content management system.
- Not interested in additional media types.
- Travels with work so can be away from the city for days at a time.

Concrete scenario

Sarah is out for her morning run. She likes to get regular exercise, but since it's a nice day she doesn't want to go to the gym. She chooses a time-based challenge – she doesn't want to stop to read a great deal of text on her run but enjoys the challenge of solving clues while she jogs.[1] She picks one that suits her distance requirements and notes the average completion time.[2] She sets off towards her starting point, at the base of the Crags in Holyrood Park. The instructions tell her to head north, to the remains of an ancient chapel.[3] She starts jogging and soon spots her destination. The application confirms her arrival[4] and gives her a further text pointing to her next destination. A few miles later, she's reached the final point on the run and the application congratulates her on completion.[5] She is asked to rate the story she has finished and she gives it three stars.[6] 'Not bad', she writes. 'I'd have preferred a few more puzzles.'[7]

Presenting findings



Required Reading

- Preece, J., Rogers, Y., & Sharp, H. (2019). Interaction design: beyond human-computer interaction (Fifth edition.). Wiley. Chapter 8
- Preece, J., Rogers, Y., & Sharp, H. (2019). Interaction design: beyond human-computer interaction (Fifth edition.). Wiley. Chapter 9
- Preece, J., Rogers, Y., & Sharp, H. (2019). Interaction design: beyond human-computer interaction (Fifth edition.). Wiley. Chapter 11.1 to 11.4.
- Benyon, D. (2019). Designing user experience a guide to HCI, UX and Interaction Design (Fourth edition.). Pearson. Chapter 7.
- Preece, J., Rogers, Y., & Sharp, H. (2019). Interaction design: beyond human-computer interaction (Fifth edition.). Wiley. Chapter 9.7, 11.5, 11.6
- Benyon, D. (2019). Designing user experience a guide to HCI, UX and Interaction Design (Fourth edition.). Harlow, England: Pearson. Chapter 3.7 – Case Study: Secret City, Chapter 11.3 Task Analysis