# Digital Interaction Design IS-104

## UNDERSTANDING

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## Goals for today

Familiarise with different methods for "understanding":

(Chapter 7)

- Collecting people´s input: Interviews and Questionnaires.
- Observing people.
- Ethics.

# Understanding is one of four key activities

Understanding, design, envisionment and evaluation are tightly interwoven.

In information systems projects "understanding" can be a formal step which is usually termed 'requirements analysis´and comes before any other step.
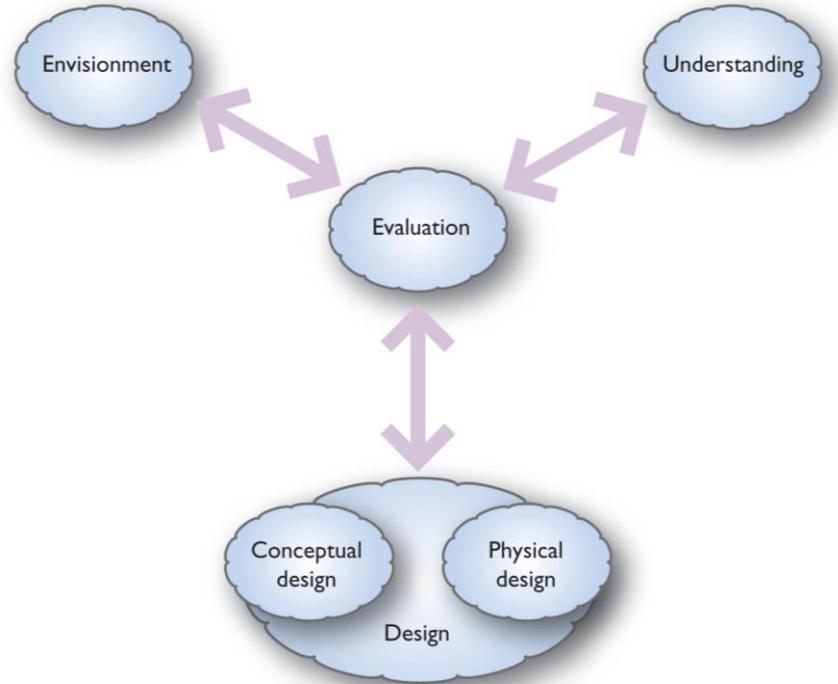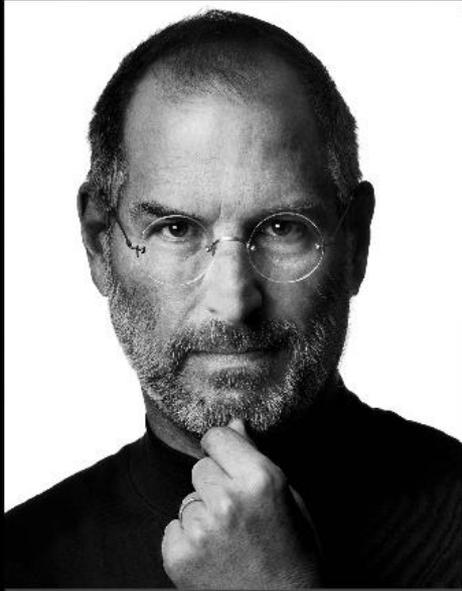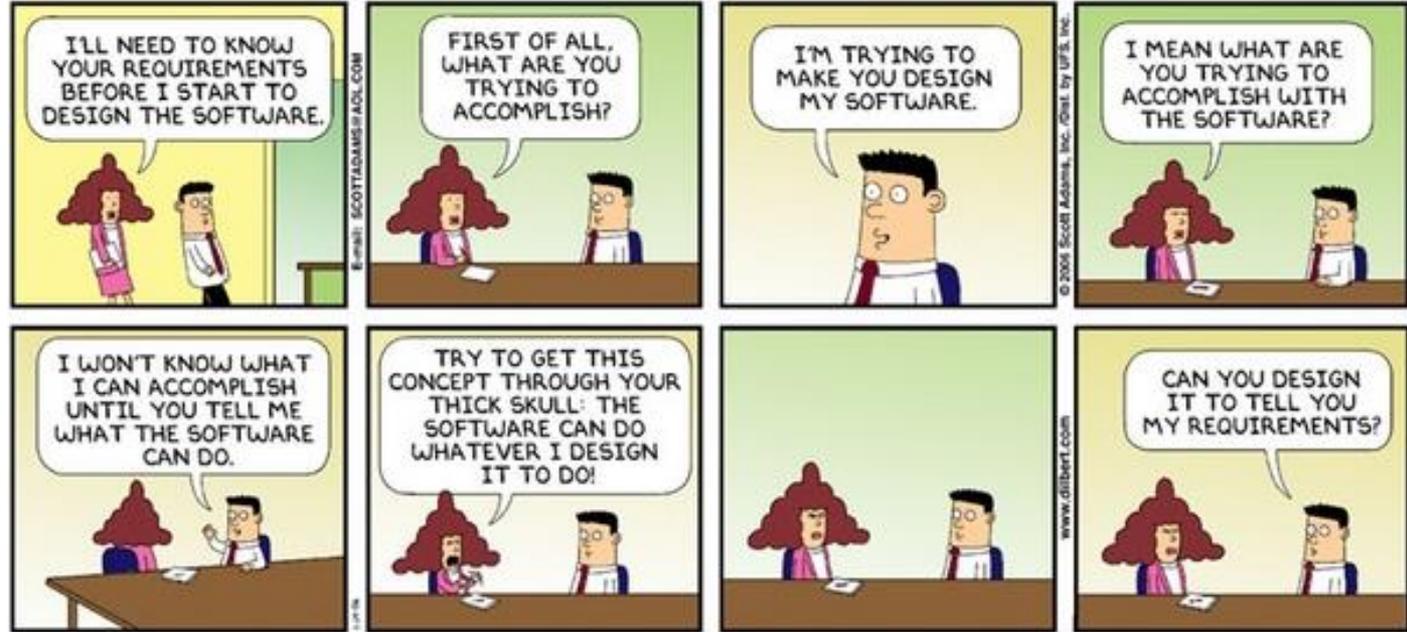
"A lot of times, people don't know what they want until you show it to them."

- Steve Jobs, Co-founder of Apple

Requirements analysis starts with a customer brief (a brief description of a system) and then, designers elaborate on it.

Customers or Users do not always know what technology can do. They express their needs.

Understanding requirements is an iterative process.

## Understanding Requirements

There are many different terms for the requirements activity:

- Requirements **gathering**, suggests requirements are lying around waiting to be picked up.
- Requirements **generation**, suggests a creative activity, that tends to de-emphasize links to current practice.
- Requirements **elicitation**, suggests interaction between stakeholders and designers.
- Requirements **engineering** –a formal approach for defining, documenting and maintaining requirements.

We avoid privileging one of the terms by using "understanding"

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Requirements

- Requirements describe the needs that the system will have to cover without specifying how technology will meet the requirements.
  - This is a later part of the design process.

- It is best to supplement the list of requirements with some supporting evidence – interview or observation reports, photographs of artifacts etc.
  - This helps the readers of the requirements to understand the reason behind items in the list.

- The systems delivered will be evaluated against the requirements.

# Beware of "feature creep"

The tendency to add features which inevitably leads to complex products that are confusing and hard to use.

## Interviews
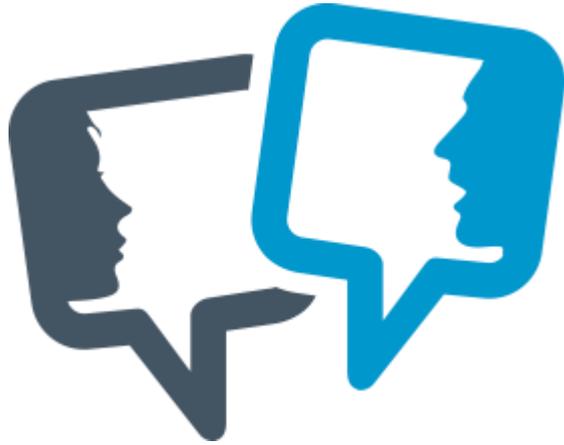


- One of the most effective ways of finding out what people want and what problems they have at the moment is to talk to them!

- There are different styles of interviews:
  - The *structured interview uses predefined questions. The interview follows the wording exactly.*
  - *The unstructured interview does not include predefined questions.*
  - The *semi-structured interview includes some predefined questions, but new topics can be explored as they arise.*

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# Structured Interviews

- Structured interviews use fully predefined questions that need to be strictly followed and can not be varied by the interviewer.

- Structured interviews using the same set of questions can be performed by multiple interviewers for large numbers of interviewees. It is reasonably easy to enroll interviewers just for this task simply because of the degree of pre-structuring.

- However, the interviewer can not follow up and explore unexpected responses.

## Unstructured Interviews



- As the term suggests, there are no predefined questions beyond the general subject of the project in question.

- Often, the interviewer prepares a checklist, sometimes with suitable prompts such as 'Tell me about the first things you do when you get into the office in the morning '.

- Unstructured interviews are sometimes used where it is particularly important to minimize designers' preconceptions, or where very little background information is available beforehand.

# Semi-structured Interviews

- The semi-structured interview includes some predefined questions, but new topics can be explored as they arise.

# Interviews require good preparation and also good communication skills



https://youtu.be/U4UKwd0KExc

- Comments?

- Anything that the interviewer could have done better?

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# Recording Interviews

- It is very useful to record interviews. Allows you to focus on the interview and not on detailed note-taking.

- You should always ask for the interviewee consent to record.

- Even when the interview is recorded, notes are useful and complement the audio records.

- Recorded interviews can be transcribed verbatim (word by word) or used to prepare detailed notes.

- Verbatim transcriptions require a lot of time to prepare but contain rich information.

# How many interviews?



- Balancing practical constraints (resource limitations) against the comprehensiveness of the data.

- Do not rely on one representative per role - you will need two or three interviewees per role (or type of stakeholder).

- With unlimited resources, the general rule is to stop once no new insights are being obtained (saturation).

# When to use Questionnaires



- Questionnaires are useful when a large number of people are to be surveyed and resources are not available to interview them individually.

- However, constructing a good questionnaire is surprisingly difficult and time-consuming. The items on a questionnaire should be as specific as possible.

- For small numbers of people – up to 10 or so – interviews will consume little or no extra resource if the time required to construct a questionnaire is taken into account.

# Web Questionnaires



- Web questionnaires are ideally suited to gathering a large amount of quantifiable data (you can run analytics within the data collected), or to capture responses from people who cannot be involved more directly.

- There are many on-line questionnaire services such as Surveyxact that allow quite complex questionnaires can be constructed and made available on the web. You can find more about the use of Surveyxact in UiA here: https://www.uia.no/en/library/forskning-og-publisering2/surveyxact

## Likert Scales Use in Questionnaires

- The Likert scale is the most common method for collecting opinion.

- People are asked to indicate their agreement with a statement using a five-point scale: Strongly agree. Tend to Agree, Neutral. Tend to Disagree, Strongly disagree.

5-point traditional Likert scale:

| | Strongly agree | Tend to agree | Neither agree nor disagree | Tend to disagree | Strongly disagree |
|---|---|---|---|---|---|
| I like going to Chinese restaurants | [ ] | [ ] | [ ] | [ ] | [ ] |

# Closed vs Open Questions

**Open**: People look for different things in a job; what sort of things are important to you in your job?

**Closed**: People look for different things in a job; which one of the following five is most important to you?
    good pay
    a feeling of achievement
    ability to make your own decisions
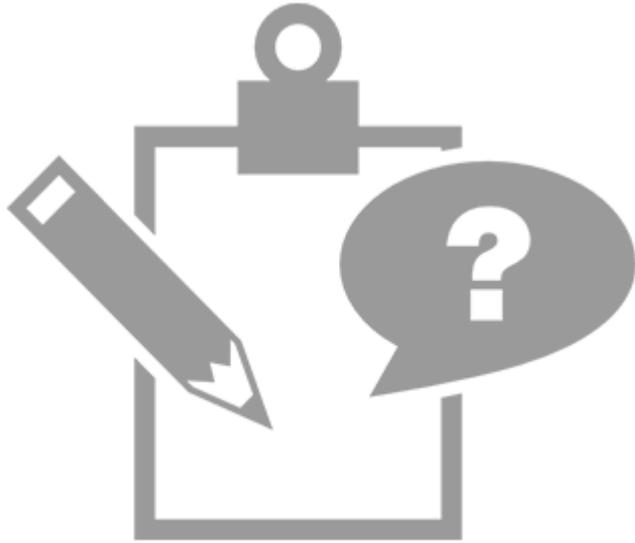    good people to work with
    job security

Closed questions are usually preferable to open questions.

They help to avoid differences in question interpretation and it is easy to analyze responses.

Open questions can be useful when not enough is known to construct closed questions.

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# Questionnaire Fundamentals

- The introduction should explain the purpose of the questionnaire, assure confidentiality and encourage reply.

- The questionnaire should look easy to fill in, with plenty of space for questions and answers.

- Initial questions should be easy and interesting.

# Observing People



- Interviews and questionnaires provide useful information, but in several cases it is difficult for people to describe what they need or to provide details of their activities.

- Sometimes this is because the activity is difficult to describe in words. In other cases, an interviewee may describe the 'official' procedure rather than how something is actually done in practice.

- Data from observation helps to get round these problems.

# Observing People: The Basics
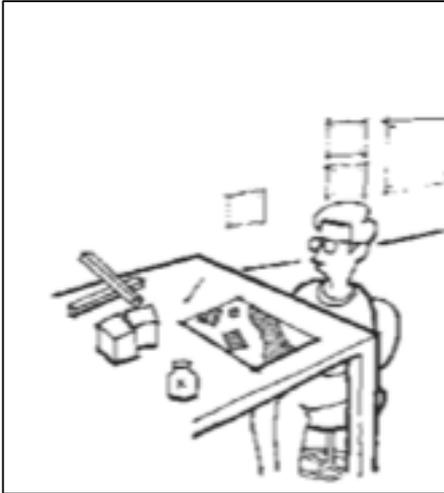


- Ideally you need to see a range of variations on the normal activity and situations where things go wrong.

- Just as with interviews, the time to stop is when no new information appears.

- As in interviews, notes should be taken and video recording is very useful, particularly for sharing the observation with other design team members.

- There are ethical issues associated with observing people, permissions need to be obtained and anonymity of who said and did what should be ensured.

# A Norwegian Movie on Observing: Kitchen Stories (Salmer fra kjøkkenet)



- [https://youtu.be/Z_dlKx3peJk](https://youtu.be/Z_dlKx3peJk).

# Communicating Findings from Observations

A room with two desks and computers. The desks are full of books.
- Nick: …......
Paula enters the room.
- Paula:......

- You can encapsulate the findings in 'vignettes' – short descriptions of typical scenes.

- A vignette is like the text of a scene in a play script. The vignettes are usually accompanied by a transcript of the accompanying dialogue.

- Vignettes are often supplemented by video extracts and sample artefacts.

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# Activity related artefacts
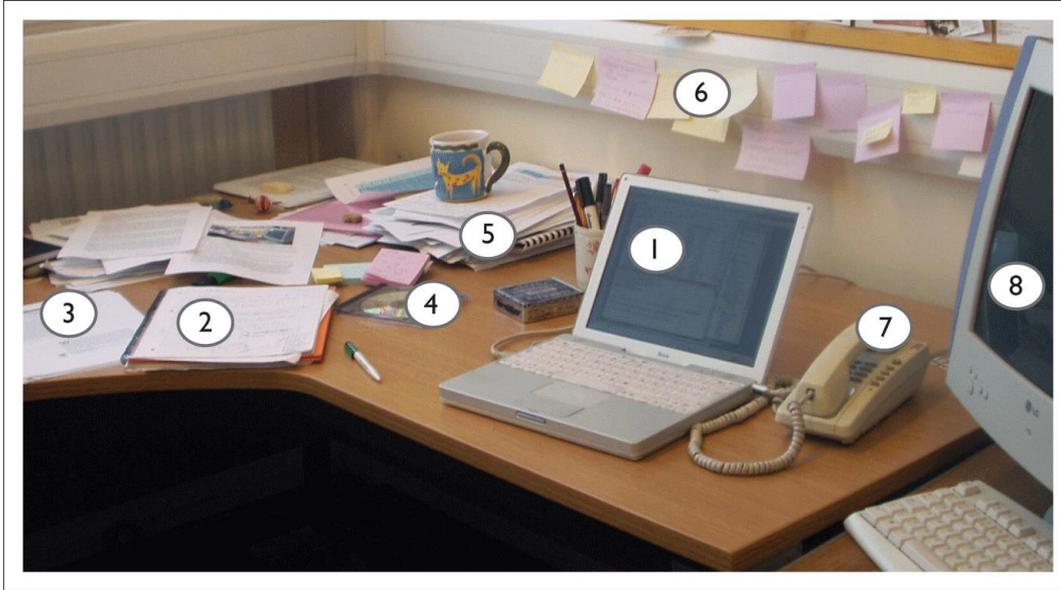


- Data from interviews, questionnaires and observation will have identified a range of artefacts in the form of things that support an activity.

- It is often possible to supplement this by collecting artefacts – such as documents, forms or computer printouts, in office settings – or to video or photograph items that cannot be removed.

# Ethics and codes of conduct

- Ethics: "moral principles governing our behavior"

- Practitioners are governed by codes of conduct: ethics guides on how to behave as professionals.
  - ACM: Association for Computing Machinery
  - The Norwegian Computer Society (Den Norske Dataforening -DND)

- Our university has rules for research ethics and data protection
  - Every research project at UiA that gathers personal data must be reported to the NSD - the Norwegian Centre for Research Data. To avoid any problems, students should **not record any names or personal data of people they interview or send questionnaires to**. https://www.uia.no/en/research/about-the-research/code-of-practice-for-processing-personal-data-in-research-and-students-dissertations

# How to conduct a project without gathering personal data

- The entire research process has to be anonymous.
- Here are some examples of how this can be done:
  - Paper surveys can be carried out, as long as neither names nor any sensitive personal data is registered.

  - For online surveys not to be subject to notification, the solution should be completely anonymous (among other things, the respondent's email or IP address cannot at any moment be connected to the survey), and the survey should not contain questions about identifiable information.

  - From interviews and/or observations, data recorded exclusively in the form of notes (not recordings). One must ensure that no names and no personally identifiable background information is registered in the notes. Audio recordings of interviews can be performed if the interview guide is designed in such a manner that no personal data will appear in the recordings.

# Summary of Main Points

- "Understanding" is a key designers´ activity. In Information Systems projects this is a formal step which is usually termed 'requirements analysis´. It is important to avoid adding in the requirements too many features which will lead to systems that are confusing and hard to use.

- There are different methods for "understanding" such as Interviews, Questionnaires and Observations.

- For each method there are multiple alternatives (e.g. structured vs unstructured interviews) and tools (e.g. Likert scales for questionnaires) that can be used. Choices need to be based on the characteristics of each project and resource limitations.

- It is important to perfrom research for understanding.

Thank you! Questions?

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