



# Human-Computer Interaction

Class Code: BSCS-F2015A

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# Design Tools

Numbers & facts please



Positivist

Beliefs & perceptions please



Interpretivist





- Participatory prototyping
- Means of exploring experience
- Emotions
- Ambiguity and creativity



- Telling about existing practices
- Introducing change perspectives
- Telling about needs and dreams

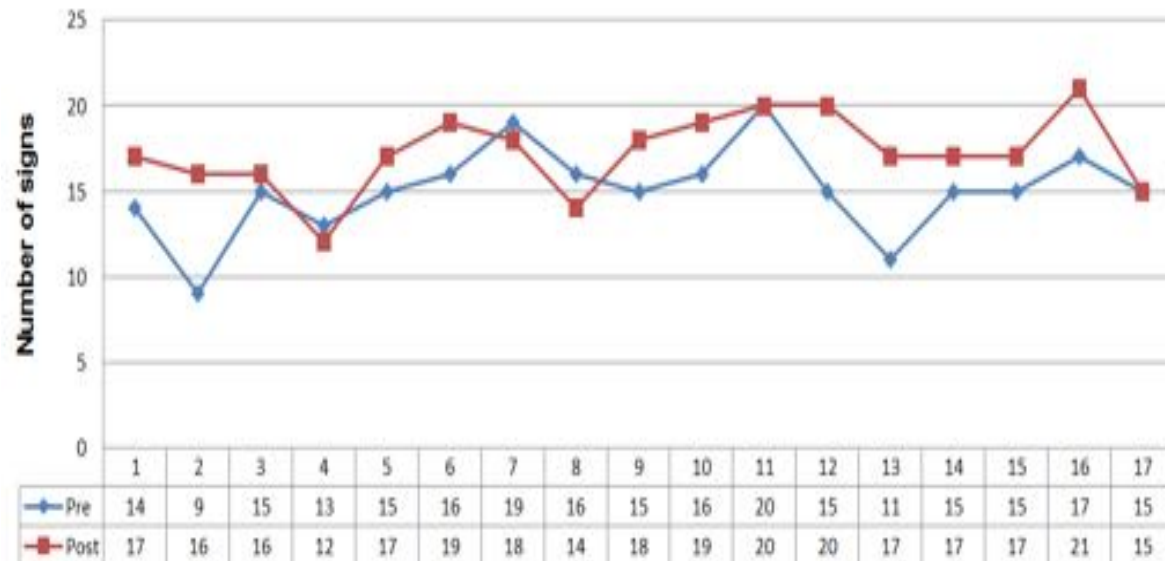
- Inspiration from theatre techniques
- Developing knowledge through practice
- Performances with probs, mock-ups & Prototypes

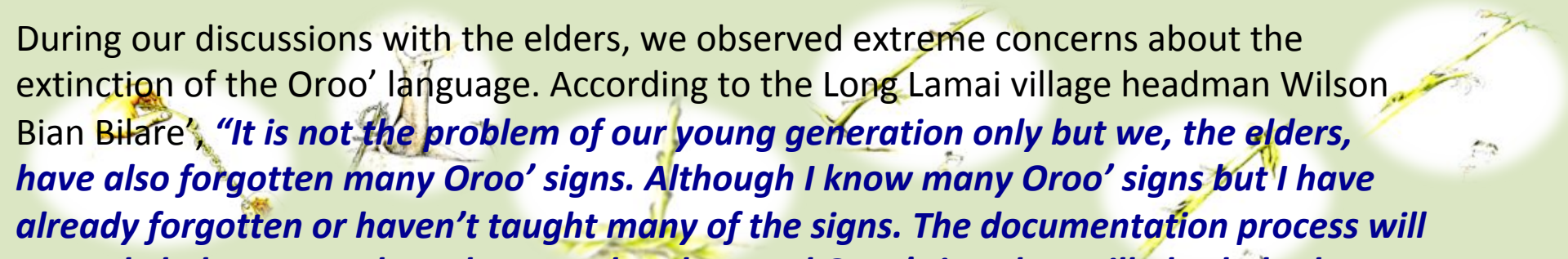
A post-game questionnaire test, identical to the pre-game questionnaire, was filled in by every child individually. On average each child now recognized 17 out of 26 signs, and for each sign an average of 11 children could name the signs correctly.

Although playing the game once did not yield in significant learning of signs, it did however draw the children's attention to their own cultural heritage in digital forms.

Zaman, T., Winschier-Theophilus, H., Yeo, A.W., Ting, L. C., Jengan, G. (2015). Reviving an indigenous rainforest sign language: Digital Oroo' Adventure Game. Paper presented at Proceedings of the International Conference on Information and Communication Technologies and Development, 15-18 May, 2015, Nanyang Technological University, Singapore

Comparison between Pre & Post-Test Results





During our discussions with the elders, we observed extreme concerns about the extinction of the Oroo' language. According to the Long Lamai village headman Wilson Bian Bilare', ***"It is not the problem of our young generation only but we, the elders, have also forgotten many Oroo' signs. Although I know many Oroo' signs but I have already forgotten or haven't taught many of the signs. The documentation process will not only help our youths to learn and understand Oroo' signs but will also help the elders to refresh on what they already know."***

To the Penans, Oroo' has significant cultural value. It bridges the experiences of semi-settled and nomadic lives of Penan. According to one of the elder, ***"If the younger generation loses Oroo', it will be difficult for them to associate themselves with the life in forest [nomadic life]."***

To make Oroo' signs, it is important to have ample knowledge of the forest, an accretion of experiences of seasons, plants, river, creatures and landscape of the forests. The extinction of Oroo' may lead to the extinction of their unique ways of knowing, living and their identity. The Penan(s) way of life is already in the very process of being forgotten under pressure from the dominant cultures [9].

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Our first group (G1) included father, mother and son (Figure 12a). During the post-test G1C correctly remembered 9 symbols out of 10. G1F retaught the forgotten symbol. The 4<sup>th</sup> group (Figure 12b) the teachers were G1F & G1C while the student G4C was the nephew and cousin of G1. G4C, born and raised in the city was visiting Long Lamai with his parents. During this session we asked G1C to teach the Oreo' symbols to G4C. After introducing all the symbols, G1C asked G4C to repeat the names by looking at the tangibles; he correctly remembered 6 symbols. We observed how the children worked together well and noted that G1C had retained knowledge of the symbols he had learnt 2 days earlier, and how to put them together to make an Oreo' story.



Participant	Gender	Age	Symbols identified	
			Pre-test	Post-test
G1C	M	8	0	9
G2C	M	7	0	6
G3C	F	8	2	5
G4C	M	8	0	8
G5C	M	12	0	10
G6C	F	16	0	10
Mean			0.33	8

Table 1: Child pre-tests and post-tests of Oreo' symbols



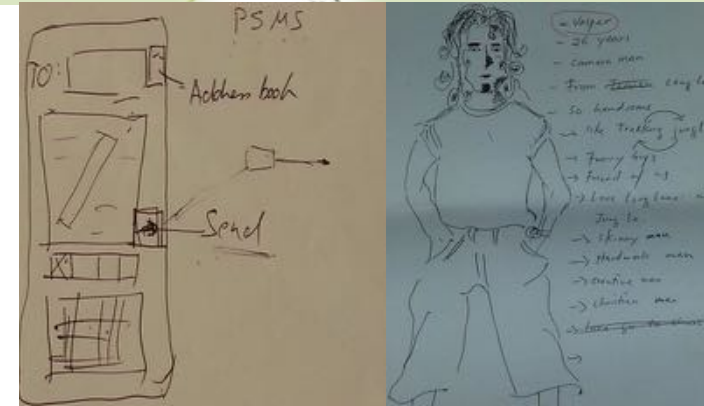
If the group is **unfamiliar to the designer**, the designer is likely unfamiliar to the group.

**Traditional surveys, questionnaires** and various observational techniques are likely to produce responses that are guarded and **merely scratch the surface**. In order to generate genuinely new ideas that will benefit the group, the designer must find **inspiration from within the group**



# Beyond Survey and Focus Group Discussions

- **Personas** (to get to know your user)
- **Design Probes** (to inspire ideas in a design process)
- **Scenarios** (use-cases for non-technical people)
- **Storyboard** (to illustrate an interaction between a person and a product/system)
- **Sketching** (Participatory prototyping)
- **Card Sorting** (to organize content)



# Personas

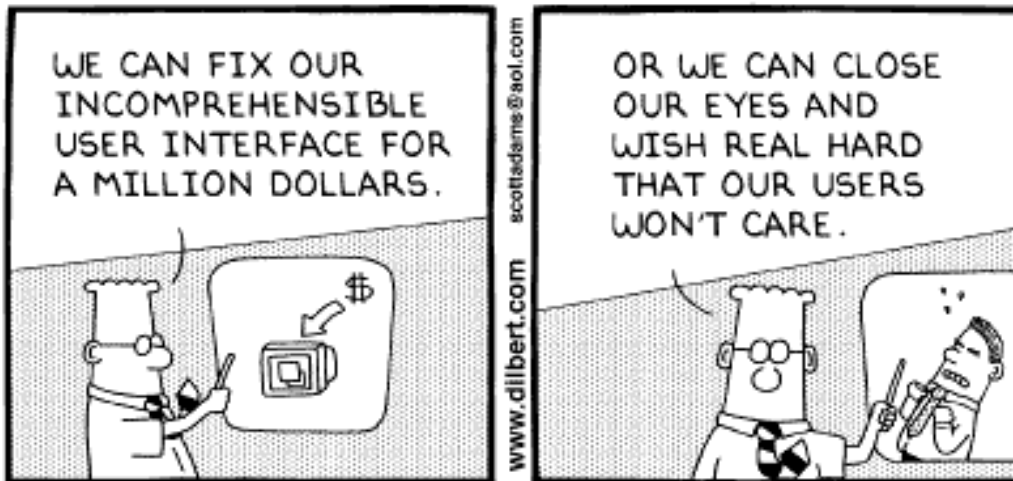
“A persona is a user archetype you can use to help guide decisions about product features, navigation, interactions, and even visual design.” - Kim Goodwin, Cooper

Should:

- be based on **user research**
- be based *primarily* on **qualitative research**
- be focused on **users’ goals**
- be based on **common behavior patterns**
- be **specific to your design context** or problem
- **come to life**, and seem like real people

Should not:

- be focused on **stereotypes** or **generalizations**
- be an **‘average’** of observed behavior patterns
- be based *only* on **user roles**
- be based *only* on **information gathered from subject matter experts**, as they cannot completely represent end users





# Goals, Tasks & Scenarios

- **Goals:**
  - Are what the user wants to do, but not how the user achieves them
- **Tasks:**
  - Describe the steps necessary to achieve the goals
  - Can vary with the available technology
  - Are broken down into steps for task analysis, and are recombined into sequence of steps for scenario development
  - Designers can reorganize, combine, or remove tasks currently performed to help users achieve their goals more efficiently
- **Scenarios:**
  - Written description of a persona achieving a goal through a set of tasks in a specific context
  - Should start technology-neutral and become more specific as the design progresses

# Examples: Instructor Personas



**Catalina De Silva**  
(Faculty - GSI  
Manager in  
Spanish)



**Ahmad Yousef**  
(Faculty -  
Tenure-track  
History)



**George  
McFadden**  
(Online  
Instructor -  
Journalism)



**Henry Sibley**  
(Longtime Faculty -  
Chemistry)

**"I take advantage of everything I can on the web." D.S. Cataline**

**"I'd like to open up access to my course to as wide an audience as possible." M. George**



# Scenarios

- A design technique used to envision future use of a system
  - Focusing on how users can achieve their goals
  - Helps designers & developers understand how system will really be used
- A story about a particular persona interacting with the system
- May be based on a use case, or a set of use cases
- Can be used for usability testing
- Scenarios become progressively more detailed

# Example Scenarios

## Context-based scenario

It's friday afternoon. Petter opens his desktop computer at the botanic center's office. He wants to be quickly done with the extra flower soil orders.

Petter decides to order the same combination of products as four weeks ago, but in smaller quantity. He does not order nutritions this time.

Petter is not interested in staying at the office long. As soon as the order is done, he leaves work to pick his daughter from school.



# Scenario two



Scanners feed villagers all levels of Droid language through a "crafting" or "recipe" game that will allow them to create Droid eggs through the completion of distinct components.



The player must select components using the interface on their feature phone (or smart phone), when a component is selected on the feature a Droid icon is sent to the base and the component has been supplied.



Once a player selects the correct components to create a particular egg they are congratulated and shown a photo of the egg.



The community center IT department will update the database regularly using a traditional interface (keyboard, mouse, memory card reader).



Villagers can exchange eggs directly between each other using Droid icons from their phones, as well as through the exchange of Droid currency credits (Droids) for the price will.



Visible quantitative data will be able to be obtained from the tools such as number of eggs added, frequency of access, crafting success rate, crafting failure rate, target hit time, etc.





# Design Probe



- Probe tool was first introduced in the end of 1990s by Bill Gaver, Anthony Dunne and Elena Pacenti
- Design probe is used exploratory rather than evaluative design context
- With minimal intrusion, glean insights into participants' environments
- Help to identify problem statements, uncover new opportunities, and inspire the designer with new ideas and novel solutions







# Process

- **Kit Design** – Identify goals, activities and material
- **Demographics** – Careful selection of participants based on goals
- **Delivery** – Kits are delivered to participants—ideally in person
- **Materials** – Careful selection of items, overall design of the kit based on desired response
- **Activities** – Include instructions with the kit to guide participants on completing the tasks i.e. show us the first five places that you would take a friend from out of town by placing a sticker at each location on the map
- **Follow-up** – Meeting with the participants again for deeper conversation
- **Analysis** – Debriefing, to interpret the probes, as well as to identify similarities and patterns

From: <http://designresearchtechniques.com/casestudies/cultural-probes/>  
<http://www.m-iti.org/uploads/Ga99.pdf>



Week 1: 5 September 2016

LU 2: Community-Based Research  
Approach



### The perfect Penan.

Based on the '60's movie 'The Perfect Human' which abstracts human behavior and translates it into stereotypes and cliches. By making 'The Perfect Penan' the community has to emphasize on cliches and stereotypes about being Penan that they think other people might describe them with.



### A day in my life.

These photo diaries can be used to record a day in a life of someone. It can be used to compare personal identity with communal identity.



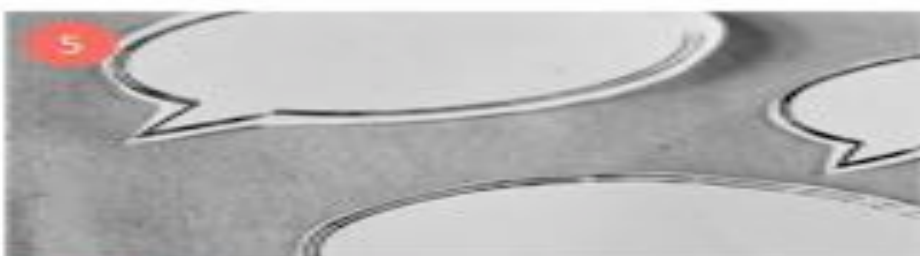
### Proud to be Penan.

These boxes aim to reflect on the aspects of the Penan culture that people are proud of. Within



### Through the looking glass...

These mirrors can be used to reflect on the current identity (of a person / of the community) and the preferred identity.



### Callouts!

These callouts can be used to highlight things or to comment on things, such as the objects they value or the objects they see as truly representing the Long Lamai culture.



### What makes ... so different...

Based on the famous collage of Richard Hamilton (1956), this aims to compare Long Lamai with



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### *Farewell Probe*

This probe contains envelopes with my address written on it and the right amount of stamps on it to make it easier for them to send something to me. I have also included a thank-you letter with pictures taken in the village. The suggestion this probe hopefully makes is that the contact will not be over after I leave.



### *Remember Probe*

A time-capsule-kit exists out of a bag that says: "remember" (in the local language). The bag is chosen because it will make it easier to bring multiple kits with me. The bag contains labels that also have the text "remember..." on them. Those ribbons can be connected to objects or things that they would like their great-grand children to know. The pictures taken of those things or objects can be placed in the bags.

The people of the community can take polaroid pictures with the cameras that I brought. I brought one PoGo (a digital polaroid camera), a photo printer + digital camera and a traditional polaroid camera.



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# Storyboard



- Oroo' Treasure Hunt

Source: <http://www.cs.tut.fi/ihte/projects/suxes/pdf/Designing%20Culturally%20Neutral%20Storyboard.pdf>



# Card Sorting

- Method used to help design or evaluate the information architecture
- Participants organize topics into categories that make sense to them
- They may also help you label these groups.
- To conduct a card sort, you can use actual cards, pieces of paper, or one of several online card-sorting software tools
- **Group activity**
  - **Categories**
    - **Open Sort:** Users are asked to sort items into a group and make up their own groups and give the groups a name
    - **Closed Sort:** Users sort items into previously defined category names