

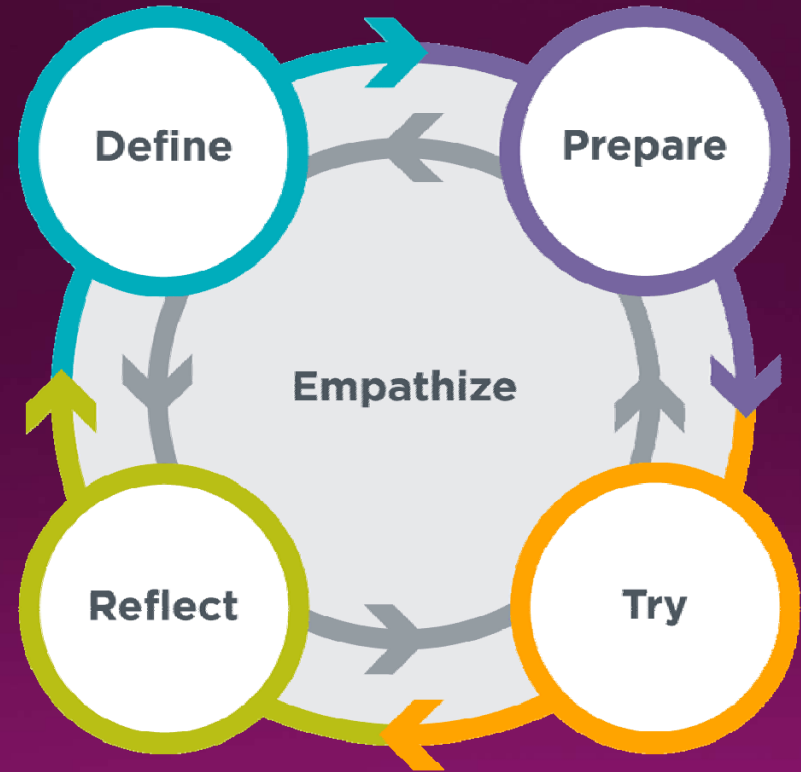
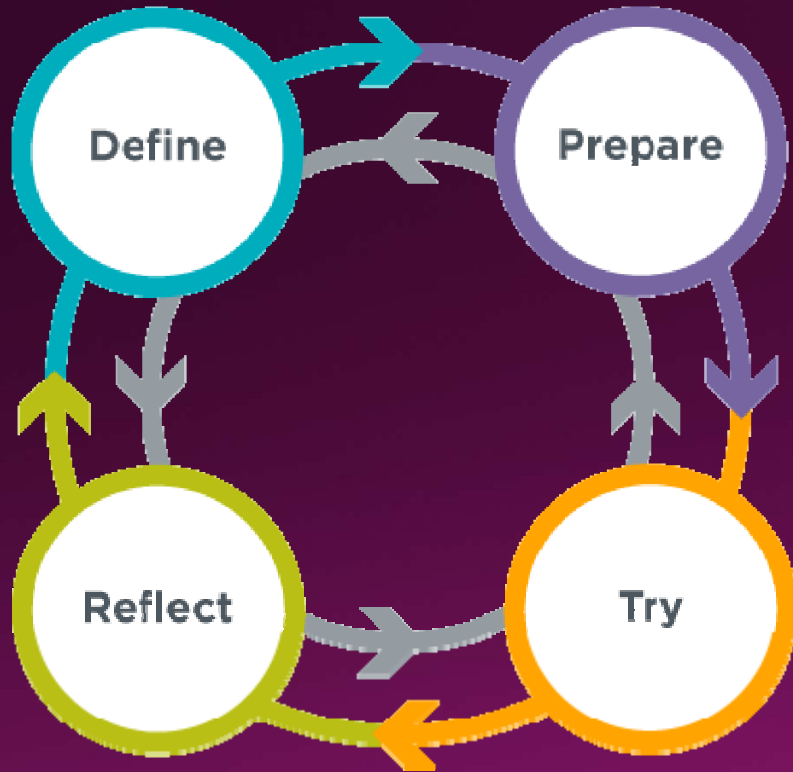
A USER  
INTERFACE IS  
LIKE A JOKE.  
IF YOU HAVE TO  
EXPLAIN IT, IT'S  
NOT THAT  
GOOD

# Introduction to Human Computer Interaction

# Share Out

- Which Teapots did you choose for "Someone who needs to serve tea at dinner party?" Why did you choose those particular teapots?
- Which teapots did you choose for "Someone who likes metallic objects?" Why did you choose those particular teapots?
- Which users were the easiest to find matches for?
- Which users were the hardest to find matches for?
- On page 2, ask which teapot was your favorite? Why?

# Problem Solving Process



# Impressions?



- What is interesting about this graphic?
- Other famous logos that have a hidden message

# Impressions?



- Hard to distinguish cost vs. # gallons
  - bad labels
  - placed inconsistently
  - displays too similar

# Impressions?




## 1. State EOC

### 1. TEST Message

 DRILL-PACOM (DEMO) STATE ONLY

Monthly Test (RMT) - STATE ONLY

 PACOM (CDW) - STATE ONLY

## 1. State EOC

### 1. TEST Message

DRILL-PACOM (DEMO) STATE ONLY

False Alarm BMD (CEM) - STATE ONLY

Monthly Test (RMT) - STATE ONLY

PACOM (CDW) - STATE ONLY

And there more [disasters caused by bad user interfaces](https://www.extremetech.com/extreme/262166-hawaiis-missile-scare-driven-terrible-ui-fcc-launches-investigation)





# Other examples of bad design



<https://www.pinterest.com/pin/459015386994744337/>

[https://upload.wikimedia.org/wikipedia/commons/8/86/SanDisk\\_Cruzer\\_Micro.png](https://upload.wikimedia.org/wikipedia/commons/8/86/SanDisk_Cruzer_Micro.png)

<https://www.quora.com/What-are-some-examples-of-bad-design-you-have-seen>

# Human-Computer Interaction (HCI)

- Human
  - the end-user or users of a program
- Computer
  - the machine, (machines client/server), or devices the program runs on
- Interaction
  - the user tells the computer what they want
  - the computer communicates results





# But remember

You  
Are  
Not  
The  
User

▪

OBD Unit 4 Lesson 1


Name(s) \_\_\_\_\_ Period \_\_\_\_\_ Date \_\_\_\_\_


### Activity Guide - Determine the User


**C O**  
**D E**


*Next to each description of a user, write down the letter of each teapot they might use. Be prepared to justify your answers.*


- Someone who wants an individual cup of tea before bed.
- Someone who often drops things.
- Someone who likes very ornate objects.
- Someone who needs to serve tea at dinner party.
- Someone who likes to see their tea brewing.
- Someone who is often in a rush.
- Someone who has a kitchen with a lot of black appliances.
- Someone who likes plain objects.
- Someone who prefers iced tea.
- Someone who can use a stove to heat up water.
- Someone who owns a pot holder.
- Someone who wants to serve tea to a friend who came over to chat.
- Someone who has a modern kitchen.
- Someone who likes tall thin objects.
- Someone who collects antiques.
- Someone who has a very small kitchen.


A.


B.


C.

D.

E.

F.

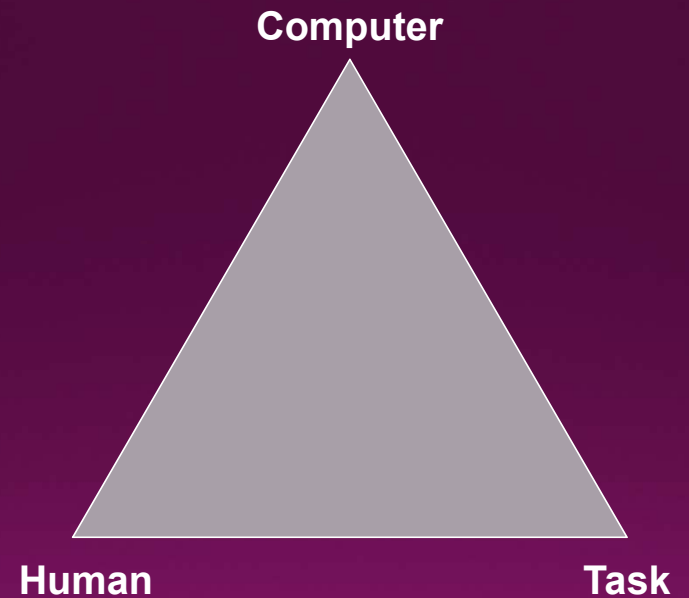
G.

H.

1

# User Experience (UX)

- From [Wikipedia](#): “ the process of enhancing user satisfaction with a product by improving the usability, accessibility, and pleasure provided in the interaction with the product”
- Need to understand all three parts of the “Human-Computer-Task” triangle



# User Interfaces (UIs)



That part of application that allows people

- to interact with computer
- to carry out their task

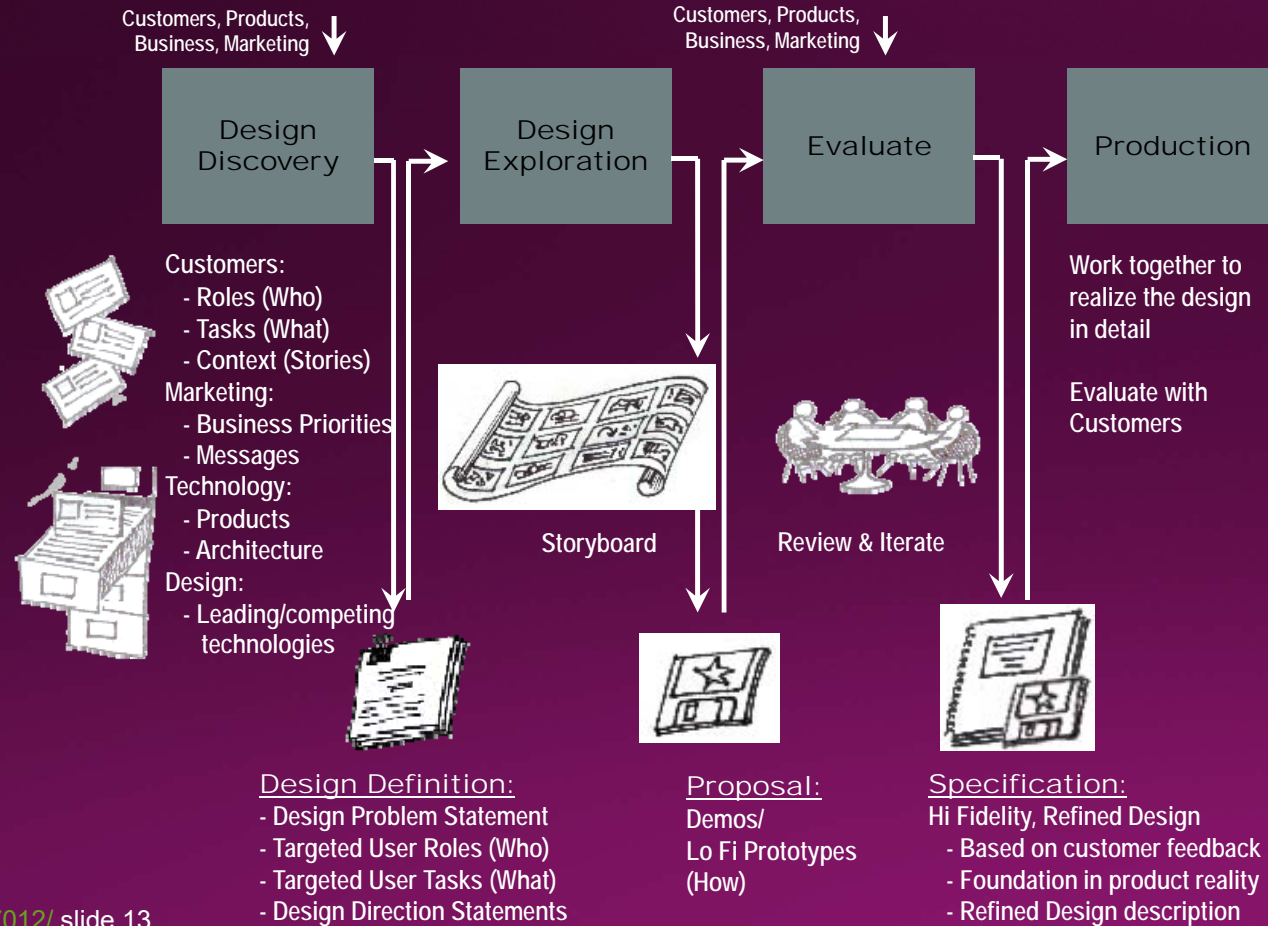
# Why is HCI Important?

- Bad user interfaces cost
  - money
    - 5%↑ satisfaction → up to 85%↑ profits
    - finding problems early makes them easier to fix
  - reputation of organization (e.g., brand loyalty)
  - lives
- User Interfaces hard to get right
  - people are unpredictable
  - intuition of designers often wrong



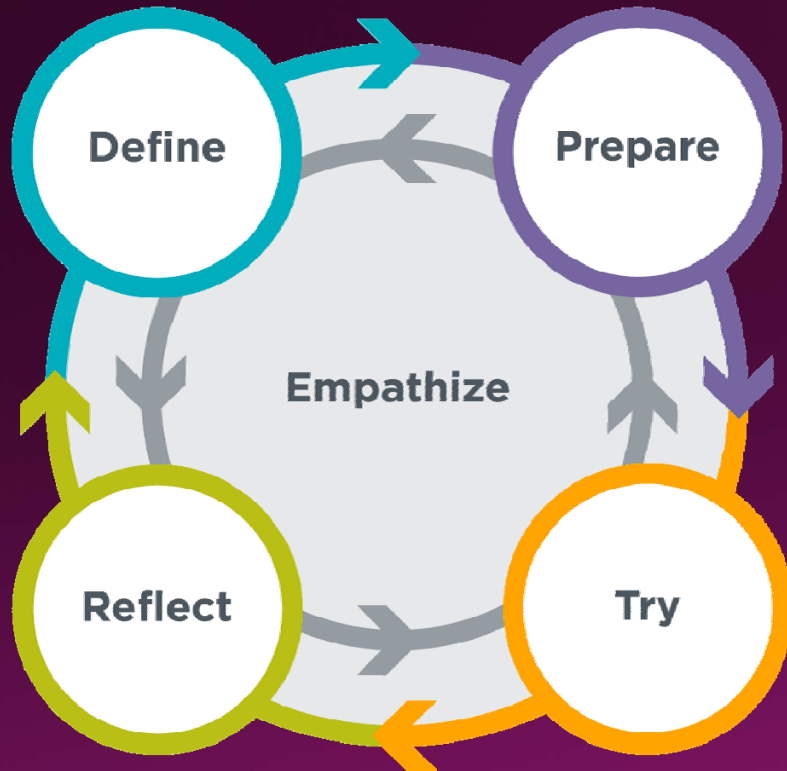


# User Interface Development Process



HCI is...

# HCI is...Iterative



- Define
  - Understanding the user and task and any constraints through Task Analysis, **Contextual Inquiry**, Ethnographic studies
- Prepare
  - **Prototypes**, storyboards, use cases
- Try
  - Test the prototypes with **Participatory design** – early and continuous involvement by end users
- Reflect
  - What went right? What went wrong? What to change?
- Define
- Prepare
- Try
  - Perform Contextual Inquiry, Ethnographic studies on working product
- Reflect
  - Version 2.0...

# HCI is...similar to

- Art: painting, photography, visualization
- Theatre: animation, film, stage
- Architecture
- Music
- Writing

HCI can learn from these disciplines that share similar design principles

# HCI is... Multidisciplinary

- Psychology
- Graphic design/visual communication
- Written communication
- Industrial design
- Programming

Each discipline brings its own knowledge and has its own priorities!

# HCI is...a Computer Science Discipline

The process for building software is a human activity. Backgrounds in physics, engineering, and math are ill-suited for consideration of human factors. Social scientists generally look at how people use computers, not how programs are developed  
– John McHugh, in a seminar on software safety.

# Contextual Inquiry

# Not The Way \*You\* Think

From the Fall 2010 class, a student tells the story of how his mom calls text messages sent from one phone to another "email." The mom says "Hey did you get the "email" I sent but the student hasn't received any "email" in his inbox on his desktop machine. He's expecting "email" but she's expecting that he checked his phone for the message.

- From the mom's perspective all she is doing is sending an asynchronous bit of text based communication to her son. To her, the mechanism for transport doesn't matter - whether she's typing it into an email client or into her phone. She's typing a recipient, typing in some text and pressing something to actually send the message. Likely she learned to email before she learned how text on a phone and thus anything that is sent in this fashion is just "email."
- To the student, these are clearly different mechanisms for sending and receiving information.

**Moral:** step out of your own assumptions when trying to understand how others use technology.



# Contextual Inquiry

- Way of understanding customers' needs and work practices
- Observe people using a product in naturalistic settings
- Master / Apprentice model allows customer to teach us what they do!
  - master does the work & talks about it while working
  - we interrupt to ask questions as they go
- **Goal:** To find out where they have problems with the experience.

# Useless “Ergonomic” Cup



# Gym Doors



By Alec G

# The Decorative Pillow Bed



# Low Fidelity Prototyping

# Low Fidelity Prototyping

- Published in “Prototyping for Tiny Fingers” in CACM by Rettig, April 1994
- Low fidelity prototypes allows for quick exploration with minimal investment
- Quickly sketched on paper, then evaluated.
- Iterate and change sketches based on lessons learned.
- Improves creativity and resulting design

# Benefits of Low-fidelity

- Quick and cheap to build prototype
- Communicates design concept and structure, can demonstrate interactions
- **Facilitates brainstorming and invites discussion**
- Enables early evaluation
- Maximizes number of design refinements before you commit to code
- Enables rapid and extensive exploration of the design space

Choose a Conversion

Distance

Area

Volume

Mass/Weight

Time

Select the Units You Want to Convert

From

-select-

centimeters  
decimeters  
fathoms  
furlongs

To

-select-

millimeters  
nauticalmi  
yards

1 2 3

4 5 6

7 8 9

. 0

Invert Convert

Hearts Suckkaper

♥ ♣ ♦ ♠

New Game

Load Game

Settings

Quit

New Game

Select Number of Players

Play for: 1000

Player 1: \_\_\_\_\_

Player 2: \_\_\_\_\_

Player 3: \_\_\_\_\_

Player 4: \_\_\_\_\_

Player 5: \_\_\_\_\_

Player 6: \_\_\_\_\_

Start Game

Saved Games

Date	Rounds Completed	# of Players
1/1/10	4	2
1/1/10	9	6
1/1/10	0	3

Main Menu

Settings

Sound Effects  OFF

all more settings if necessary

P1	P2	P3	P4	P5	P6
0	0	0	1	25	0
0	0	0	2	24	0
0	0	0	21	23	0
0	0	0	22	22	0

Do you want to save your game?

Yes No

Player 2 saved the game

Player 2

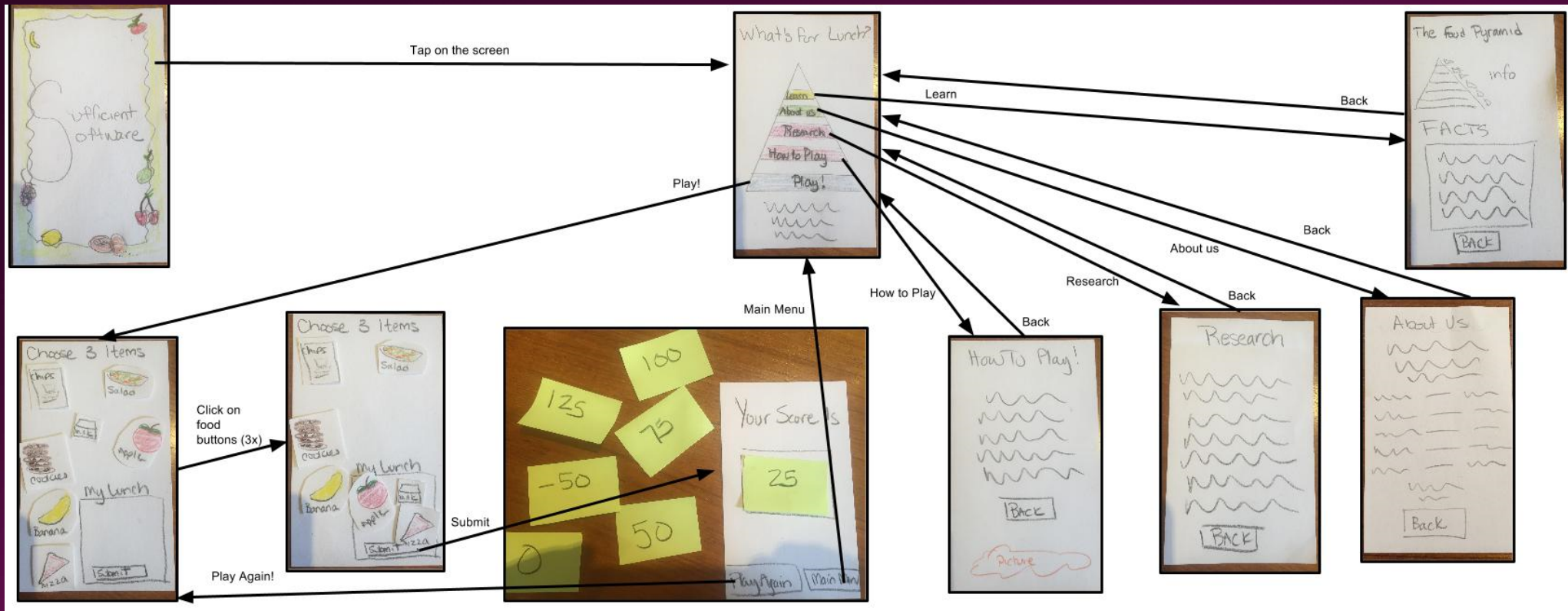
Who Shot The Player?

P1  
P2  
P3  
P4  
P5  
P6

Save Menu

Are you sure you want to quit?





# Prototype Evaluation

- Evaluate how well users can perform tasks with your low-fidelity prototype
  - have a user perform a task with prototype
  - manipulate prototype to make it interactive
  - identify trouble points and solutions
  - revise prototype and perform again
- This only works if your team's goal is to **improve the design, not defend it**





# Txt Ur Grndkdz



## Suzette

Next birthday in: 3 months, 5 days  
Age: 13  
Grade: 8th

Chat



### Suzette

Next birthday in: 3 months, 5 days  
Age: 13  
Grade: 8th

Hi granny, how are you?

Just keepin' it real!

**LOL** you're a goof

You know me :)

send

## LOL

### Definition:

Laughing Out Loud

### Grandkid Use:

"[Laughing Out Loud], you're a goof"

## Help

Txt Ur Grndkdz is an app designed to help you connect better with the younger generation.

Add a grandkid, select their face on the home screen and start chatting. Whenever your grandkid uses a slang word it will show up with a red outline. Click on the outlined word to learn the definition and see a translation of your grandkid's message.

## Settings

Grandkid 1 Name:   
Grandkid 1 Bday:   
Grandkid 1 Phone:

Grandkid 2 Name:   
Grandkid 2 Bday:   
Grandkid 2 Phone:

Grandkid 3 Name:   
Grandkid 3 Bday:   
Grandkid Phone:

Grandkid 4 Name:   
Grandkid 4 Bday:   
Grandkid 4 Phone:

Allow Notifications:

Settings

Home



# “Homework”

- Read about HCI in the CS Field Guide:  
<http://csfieldguide.org.nz/en/chapters/human-computer-interaction.html>
- Watch the rest of the video: <https://vimeo.com/186668687>
- Do some Contextual Inquiry
  - Find an object (not a computer program) that is poorly designed based on problems you see others having with it.
  - Come prepared to share:
    - What the object was...
    - Why it was poorly designed based on your observations?
    - Why do you think it was designed in this way?
    - What could be done to make this easier to use?
- Create a low fidelity prototype for the project you are working on. Test it using the methods you learned here.