Contextual Inquiry and Task Analysis

Chris Ponce de Leon, Thuy Ny Le, Howon Lee
kindergarten

Providing the basics you need to succeed.
kindergarten will allow instructors to quickly gather feedback and questions from their students. It will also make office hours more organized and rewarding for both students and instructors.
Team Members

Chris Ponce de Leon
Design - User Testing

Thuy Ny Le
Team Manager - Design

Howon Lee
Development
Problem

Students get confused.

Students go through many hoops to get un-confused.

Instructors waste time answering redundant questions.

Instructors also have no efficient and effective way to get feedback on student understanding.
Solution Overview

- To optimize the process of answering students' questions
- Improve communication and feedback between instructors and students
Who are our customers?

Students

Instructors
Students

Background
- Stanford engineering undergraduates
- Live on campus
- First-adaptors and promoters of new technology

Skills
- Technologically savvy
- Above average problem solving skills

Work Habits
- Varies (procrastinates, last minute, immediately done)
- Super active and busy schedule
Instructors

Background:
- Either graduate students or professors at Stanford University
- Might have other side commitments (i.e. research, industry jobs, etc)
- Usually live further away from campus so are not always available

Skills:
- Technologically savvy
- Can explain concepts well (for the most part)

Work Habits:
- Outside of Office Hours, very few spend time answering student questions
Who We Interviewed

Hart Goldman, Physics 70 TA

Kevin Crain, CS103 TA
Who We Interviewed

Firas Abuzaid
CS145 Head TA
Applied master-Apprentice inquiry while he answered questions on Piazza.
Percy Liang  
CS 221 Professor  
Applied Master-Apprentice inquiry while he conduct OH.
Who We Interviewed

Maneesh Apte, Student in CS107 (Not pictured)
Ben Zhou, Student in Physics 70 (Not pictured)
Task Analysis

Students
- Students’ priorities are to learn the material and earn a good grade.
- Individual smaller tasks that students perform to reach those goals include:
  - Working on an assignment or problem set.
  - Asking questions if confused either through Office Hours or Piazza
  - Working with peers and instructors to check work
Task Analysis

Instructors

- Most important tasks to instructors:
  - Teaching material in lecture and sections
  - Distributing materials and grades
  - Providing valuable Office Hours
  - Getting good feedback from students

- Less important tasks to instructors:
  - Answering questions via email and Piazza
  - Referring students to extra resources
  - Consolidating similar and redundant questions on Piazza
Task Analysis

THE PHD GUIDE TO T.A. OFFICE* HOURS

ATTENDANCE IS EXPONENTIAL:

*ASSUMING YOU HAVE AN OFFICE

OFFICE HOUR ATTENDANCE

THE DAY BEFORE THE BIG EXAM

DAY GRADES ARE POSTED

ACADEMIC TERM
Task Analysis

OH MAN, I CAN'T WAIT 'TIL WE GET TO THE MORE COMPLICATED STUFF.

WELL, THANKS FOR ANSWERING MY QUESTIONS!

BYE!

SEE YOU NEXT WEEK!

REASONS FOR T.A.ING:
- PAYS THE BILLS.
- LOOKS GOOD ON C.V.
- THE ONE UNDERGRAD WHO CARES

WWW.PHDCOMICS.COM
Desired Tasks

1. Organizing Office Hours
2. Gathering student feedback regarding the class
3. Working together with peers to learn the material and ask questions.
Existing tools

Question

Which do you think would be hardest for an AI to do today?

- translating an article from Chinese to English
- identifying all the chairs in an image
- transcribing a conversation at a party
- folding your laundry
- proving new theorems
- automatically replying to your email
More Task Analysis Questions

- How will users learn new tasks?
- Where are tasks performed?
- How do users communicate with each other?
- With what frequency do users perform the tasks?
- What are the time constraints on the tasks?
Best Application Ideas

Class Check-In

Before class starts, while in class, the professor sends a mobile check-in quiz.

Swip up, right, left, or down to answer.

Professor reveals results.

Select number of classes.
Best Application Ideas
Best Application Ideas

Study Group Organizer

1. Public
   - Search
   - Connect two or more study groups

2. Connecting two or more study groups
   - Task time, location
   - Members who can make it

3. CS 61AP Focus, Language, Team
   - # friends in group
   - # mutual friends
   - Focus:
     - Review concepts
     - HW
     - Mtg line

4. Sorted or Sort By
   - Connect by
     - Friends
     - Team
     - CS 14
     - Language
     - Focus

5. When added
   - HW
   - Concept

Profile is public
Can make group closed
Can see grad level of QA
Best Application Ideas

- iPhone home screen
  - Push alert
  - Alerts:
    - Keep is busy at office hours. If you have a question, stop by office hours.

- Your classes:
  - CS 103
  - CS 167
  - Add a class

- Notify Student when Office Hours is empty
  - Chris Pence de Leon

- Similar notification system
  - for room changes or
  - if office hours is full

- Instructor: P.O.V.
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<thead>
<tr>
<th>Application Idea</th>
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<tbody>
<tr>
<td>OH Hours Pool</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
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<tr>
<td>Class Notification System</td>
<td>Y</td>
<td>?</td>
<td>Y</td>
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<tr>
<td>Study Group Organizer</td>
<td>?</td>
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<td>Y</td>
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<tr>
<td>Class Check-In &amp; (Follow Up Quizzes)</td>
<td>Y</td>
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Sketches
Sketches

Overview Dashboard for Instructors

1. Hrs on HW
   - Popular OH
   - Yr 1
   - Yr 2

2. Current Snapshot of Course
   - TA(s) Friday 3-5pm
   - Recommends

Questions

- 1a 2b 3c 4c

Decide if release more info

Popular time: Wed 12-3pm

Popular times requested by students:
- Tues 9-12pm

Need help

QA on Linear Alg

Review Section After Class QA