Team Mail

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The Challenge

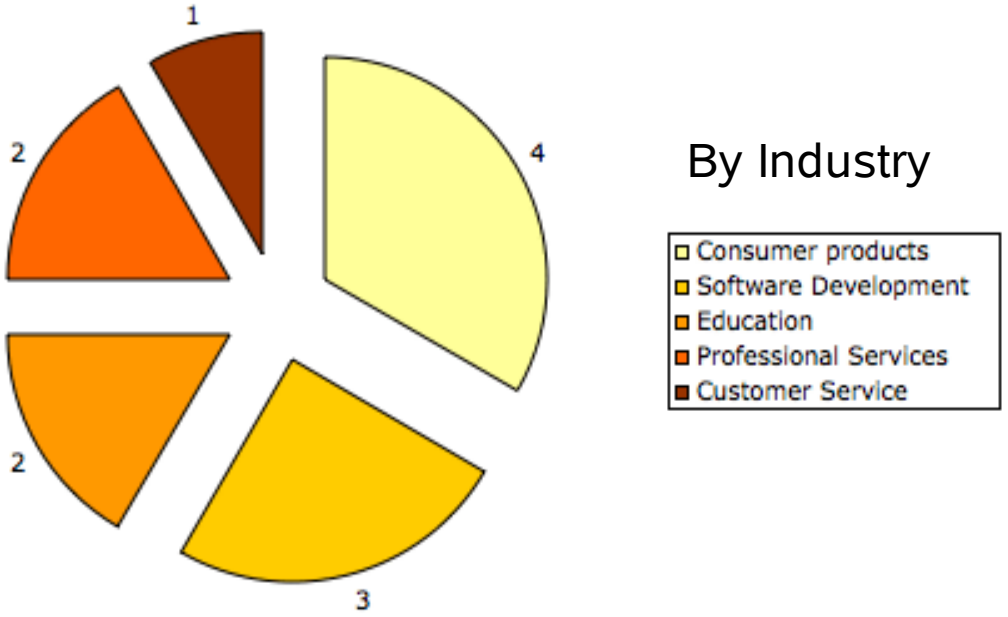
"Make communication and collaboration easier for knowledge workers."

Overview of Formative Research

- Research literature – over 100 papers
- Competitive analysis – over 25
- Expert interviews – 3
- Email corpus – 6,000+ emails
- Contextual Interviews – 12 (groups and individuals)

Formative Research

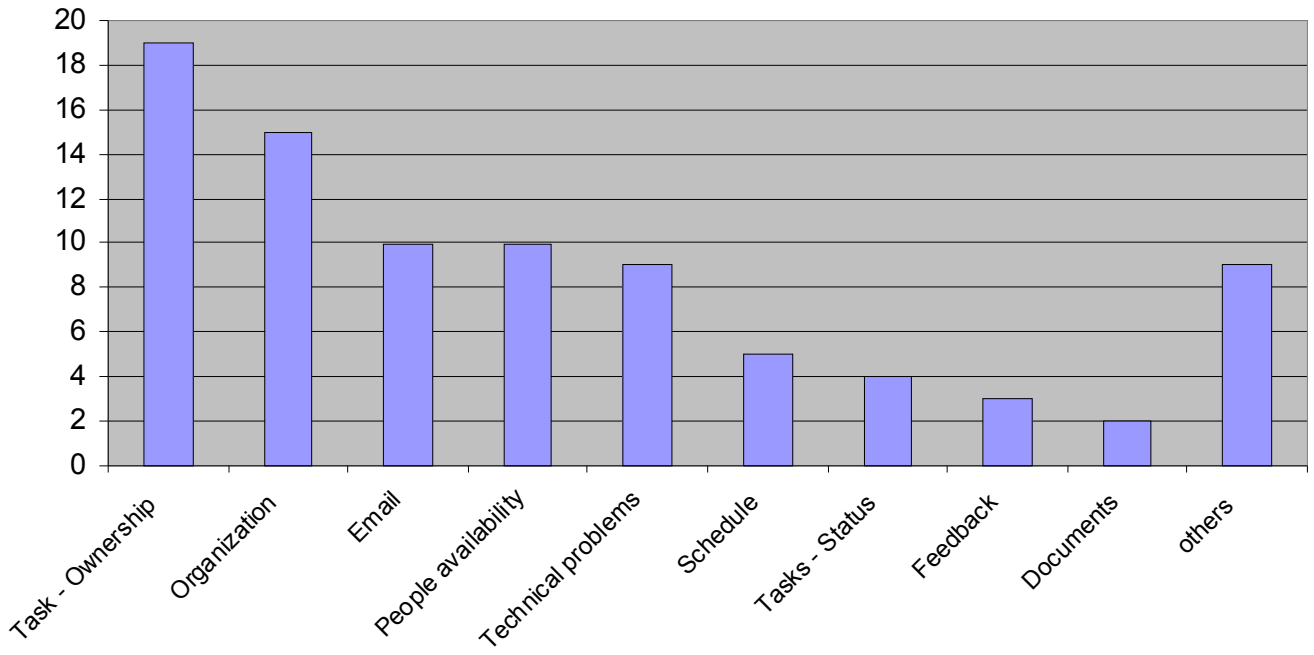
12 Contextual Inquiries



4 Extended Observations

- MHCI Project groups
- Initial observations
- Intermediate Interviews with group members
- Follow-up observations

Main Breakdowns



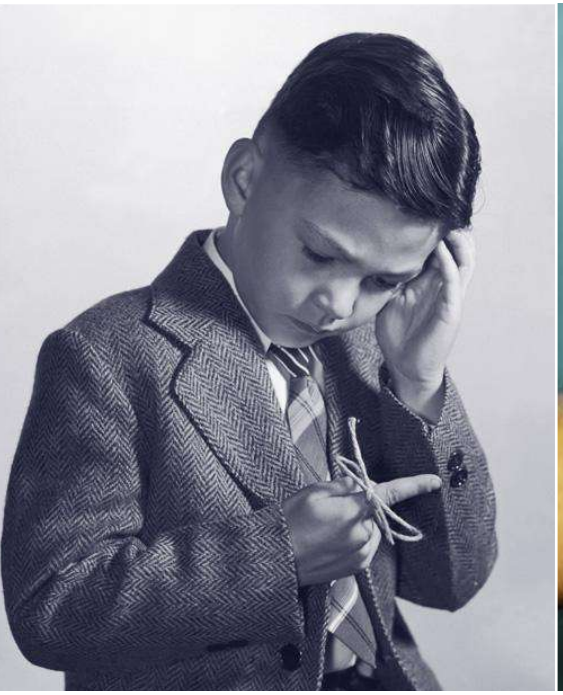
Category lists

2. Task-Ownership
3. Organization
4. E-mail
5. People availability
6. Technical Problems
7. Schedule
8. Task Status
9. Feedback
10. Documents

Examples

- Task Ownership – ex. “Is this my job?” G7 -U2
- Organization – ex. Lack of ability to customize task list and entry on WIKI. G9-U2
- Email – ex. Email not read. Sender assumed email was read G8-U1

Do people need help remembering what to do?



Do groups need to see who's doing what?

Is the right information (document) hard to find?

Design Strategy

5 General Principles

3. Work within email
4. Explicitly declare tasks
5. Incrementally innovate
6. Centrally locate information
7. “The carrot and the stick”

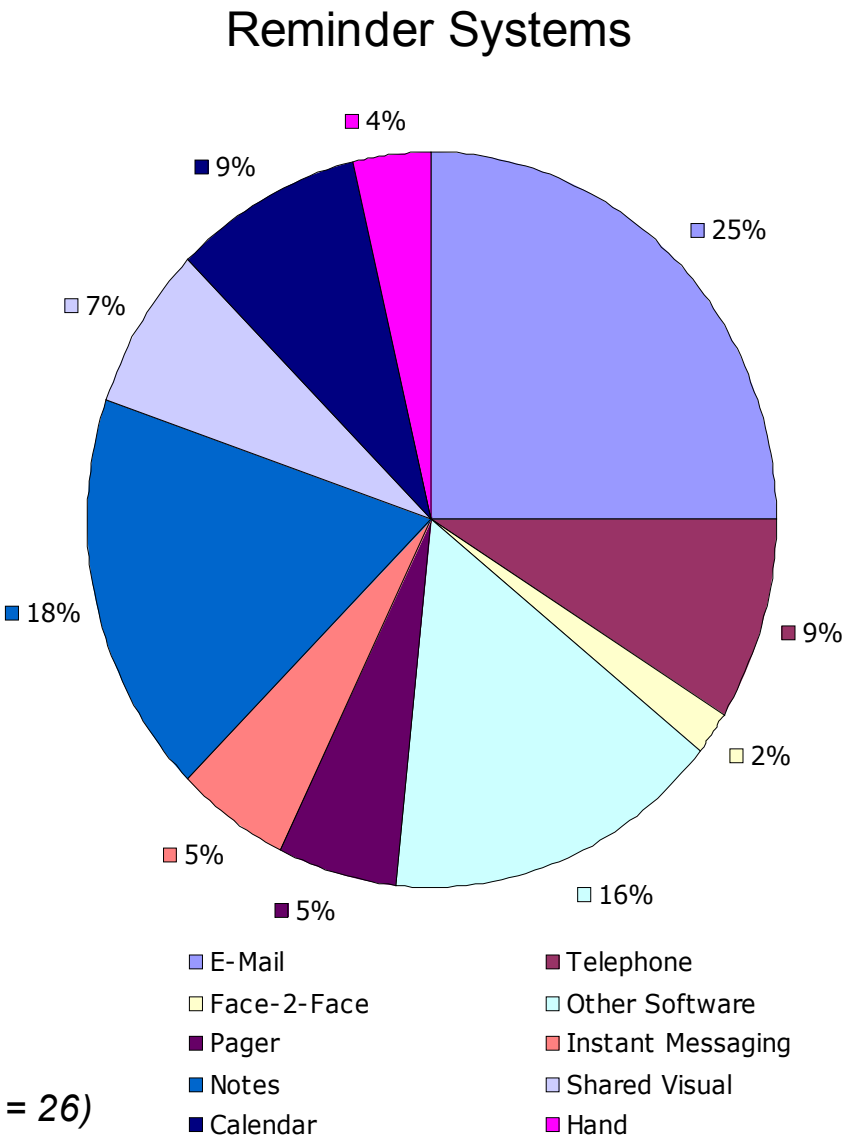
Work within email

Reminder Systems*

- Already used for informal task management
- Opportunity to integrate real support features

Hypothesis:

People will be more likely to use features located where they already go



Source: Aggregated CI and P0 Surveys (n = 26)

Explicitly declare tasks

- Personal task systems pervasive (55 of 56 users*)
- Provide a low-cost way to describe the task
- Make individual task status visible to others

Hypothesis:

Public task statements can clarify ambiguity without significantly or negatively affecting working relationships

** Aggregated statistics from Contextual Inquiry, and prototype testing*

Incrementally innovate

- Small changes to existing behavior
- Lightweight structure
- Very little informal task coordination

Hypothesis:

Informal workflow will support a lightweight structure

Central location for information

- Create a shared space
- Post all information there

Hypothesis:

A single place to find information is better

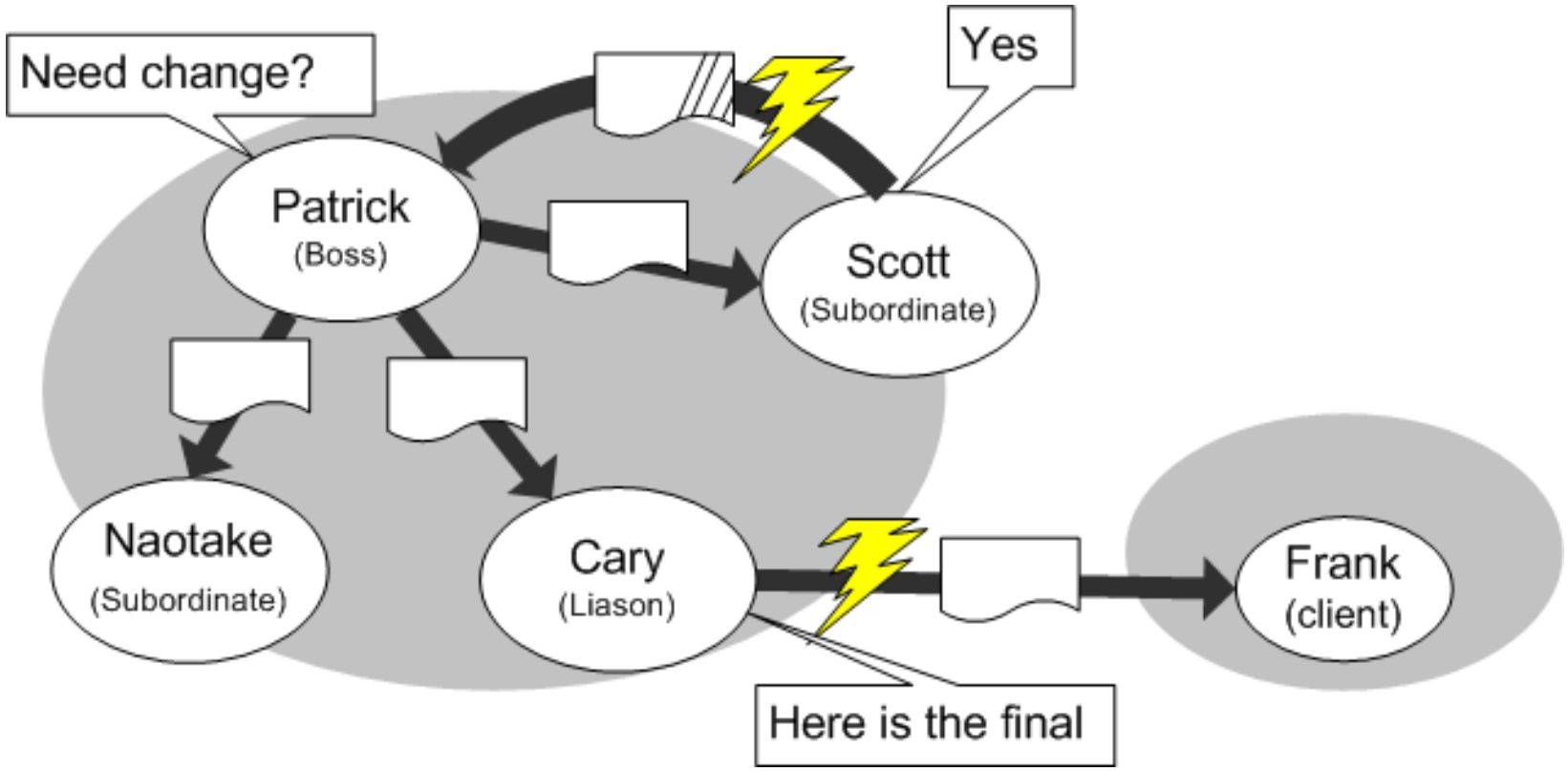
What's in it for me?

- People should get satisfaction by marking items as completed
- Incentives for senders and receivers

Hypothesis:

Incentives can control for the "disparity between those who will benefit from an application and those who must do additional work to support it" (*Jonathan Grudin, CSCW 1998)*

What is TeamMail?


Need change?
Patrick
(Boss)
Yes
Scott
(Subordinate)
Naotake
(Subordinate)
Cary
(Liason)
Frank
(client)
Here is the final

Design and Development Lifecycle

Design and Development Lifecycle

Phase 1: Concept Validation (P0)

- Integration of tasks within email
- Viability of a group workspace

Phase 2: Task Interactions (P1)

- Manipulating tasks
- Value as a personal reminder system and as a collaborative tool

Phase 3: Integrated Collaborative Task Space (P2)

- Visibility of ownership and status
- Consolidation of communications

Evaluation and Testing Methods - P0

Test Protocol

- Think Aloud studies - 5 users
- Used a guided walkthrough with a background scenario
- Exit Survey to discuss their experiences with task systems

Prototype v.0 Test Goals

- Do users understand the difference between tasks and email?
- Do users understand the concept of ownership?
- Will they understand the difference between Forward and Reply?
- Will they understand the concept of a 'public task'?
- How will they react to assigning tasks?

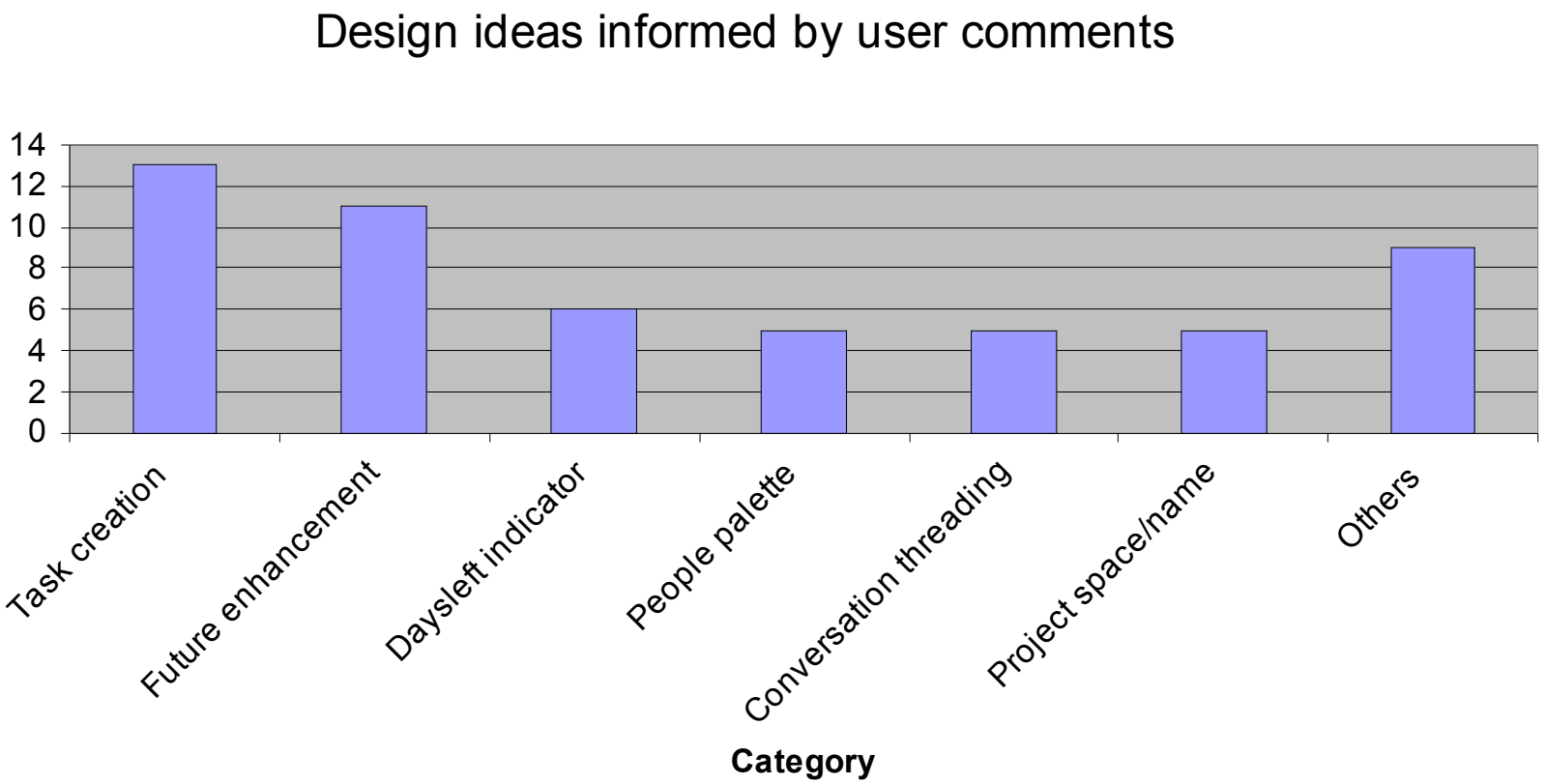
Test Tasks

- Create a reminder for yourself
- Identify what you need to do today
- Respond to a new task assigned to you by your boss

Key findings for P0

- Difference between the inbox and the project space
- Emails appeared in both inbox and project space
- Unclear consequences for forward / reply to a task
- Incorporating tasks within email is effective in showing what users have to do

Key findings from P0



Evaluation and Testing Methods – P1

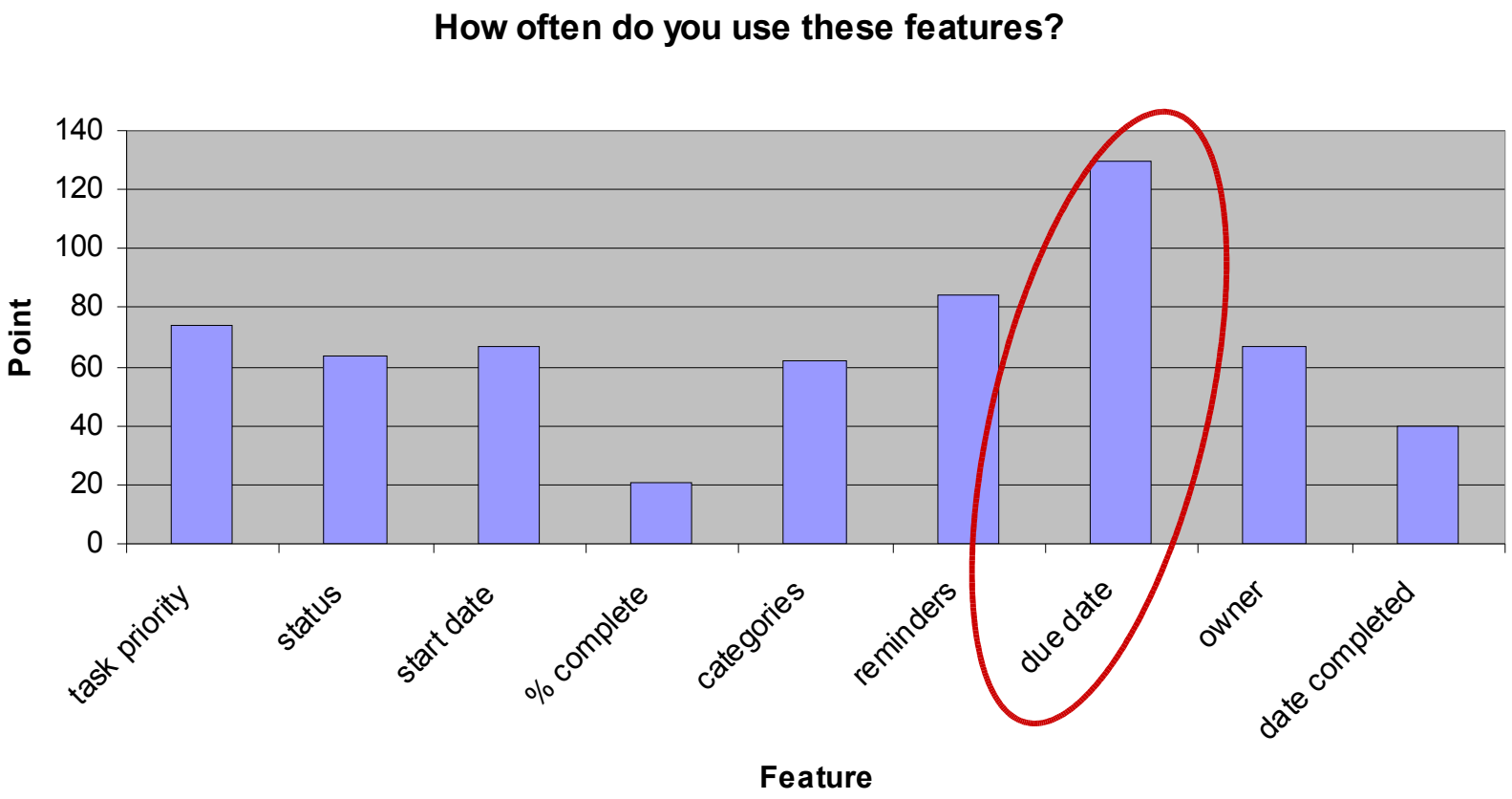
Test Protocol

- Surveyed MHCI students to identify common task features.
- Week-long diary study with team mail – 15 participants
- Distributed the daily surveys (as tasks)
- Follow-up focus groups

Prototype v.1 Test Goals

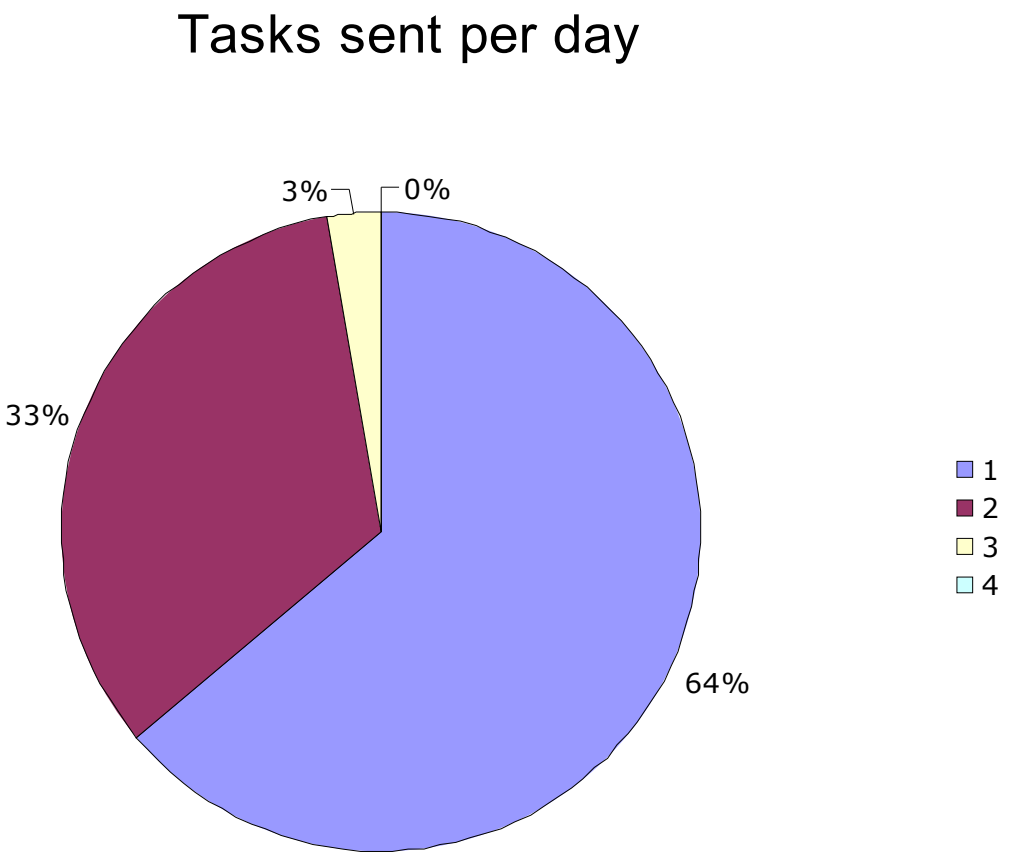
- Will users send each other tasks?
- Will they create them for themselves and if so, when and why?
- Do they find the interface easy to use?

Survey Results



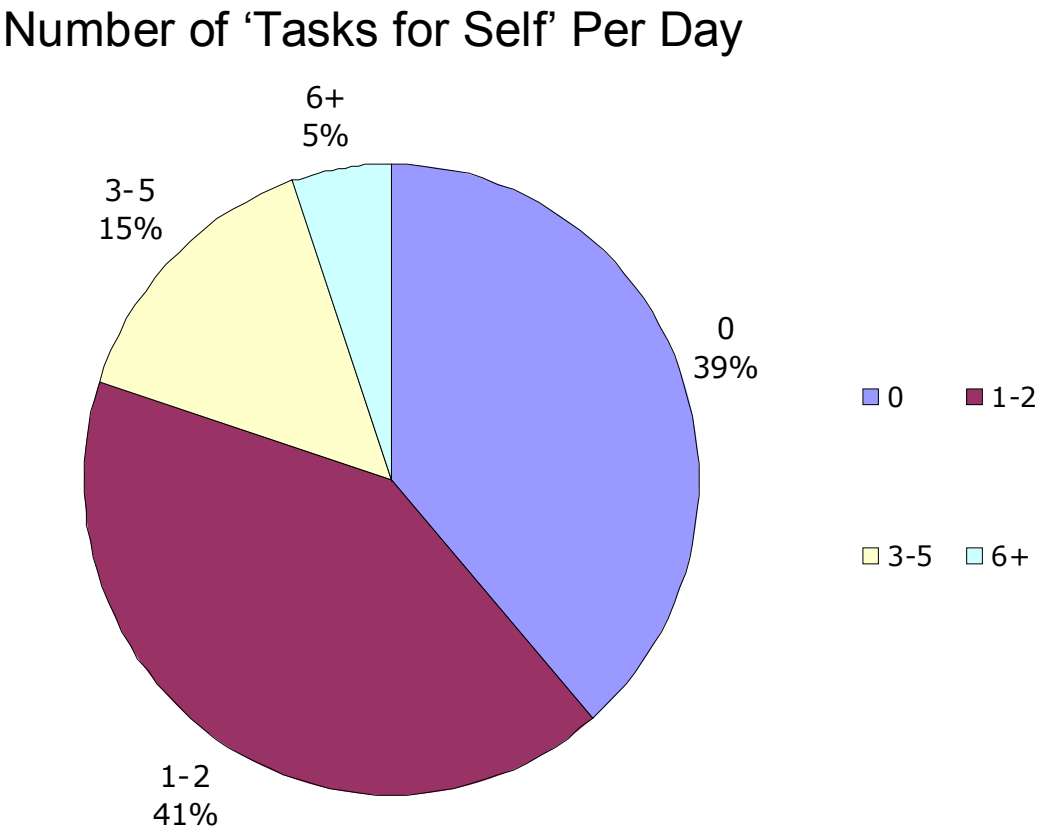
Source: Survey 6/15/2004

Diary Study



Source: Diary Study P0, n=15

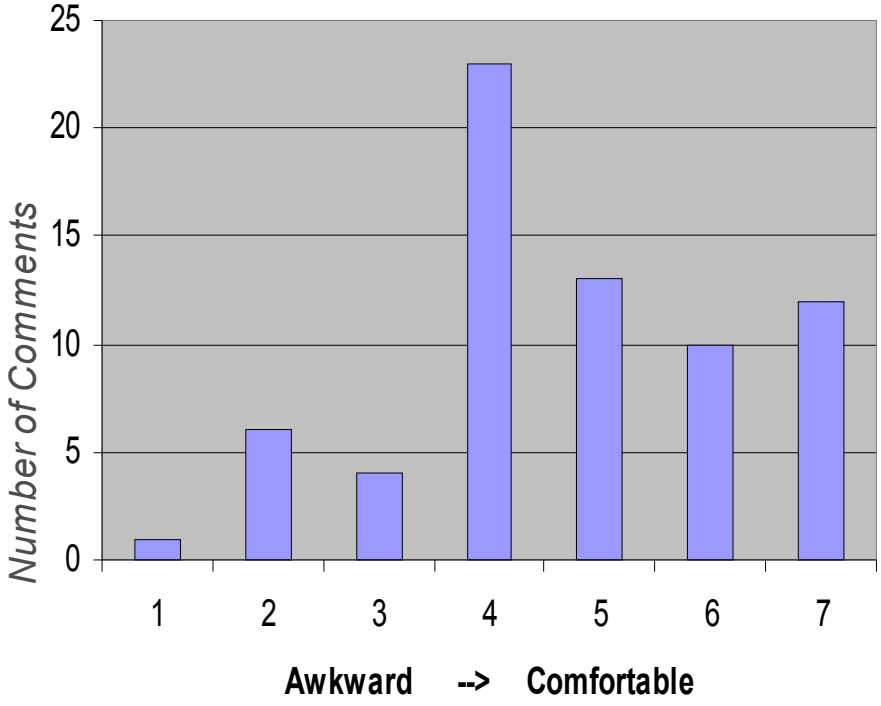
Diary Study



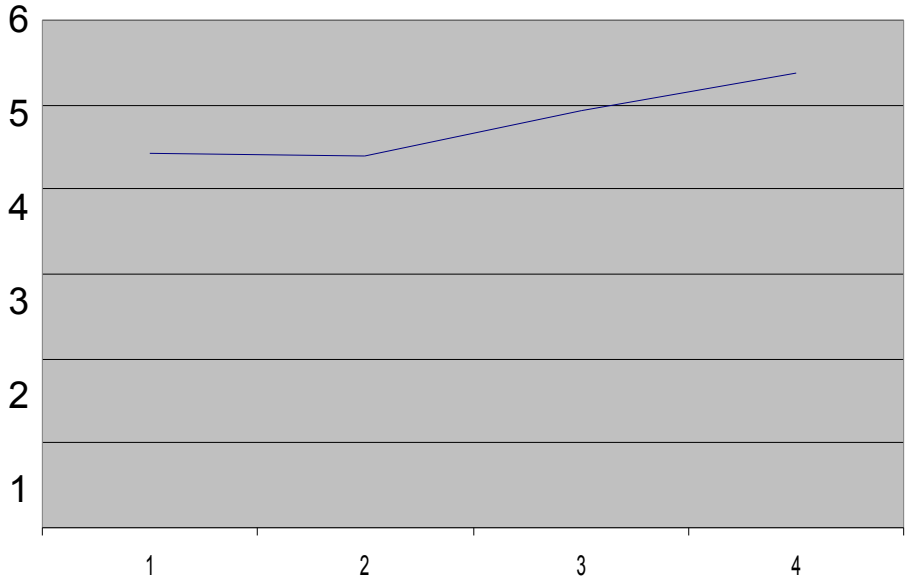
Source: Diary Study P0, n=14

Diary Study

Comfort level for sending a task



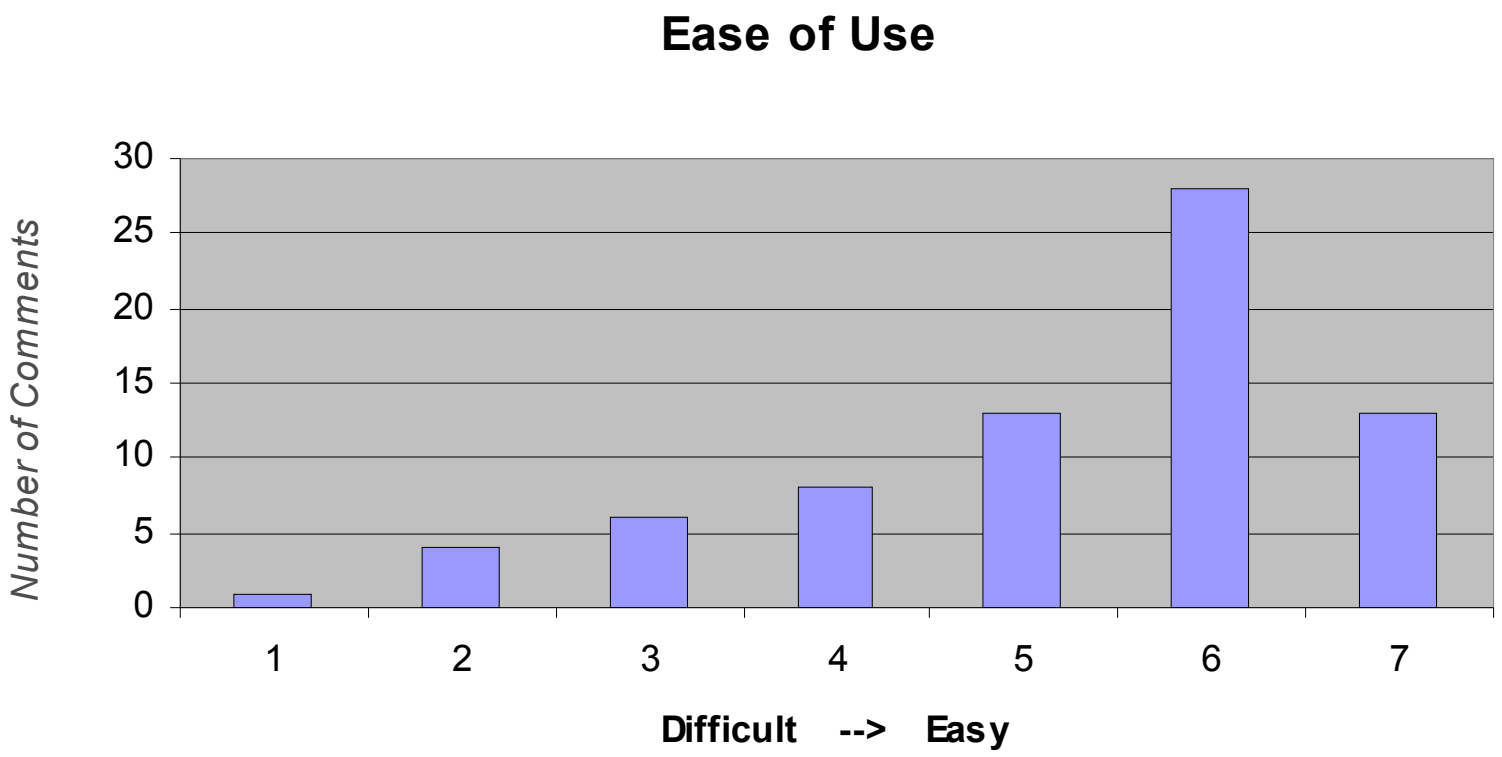
Comfort level with sending tasks over time



Source: Diary Study P1, n=14

"I thought that in our lack of hierarchy it would be weird to send around, but actually it got less and less weird. "
U20 P1 Focus Group

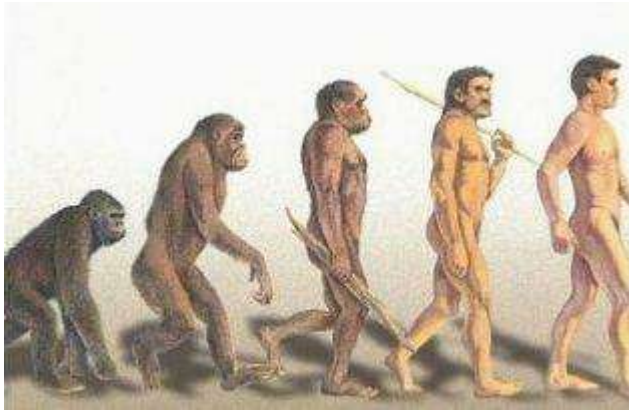
Diary Study



Source: Diary Study P1, n=14

Design Evolution

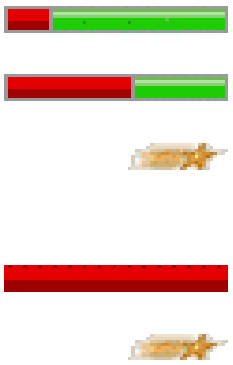
- Days Left Indicator
- Task icons
- Task Bar
- Shared Emails / Tasks



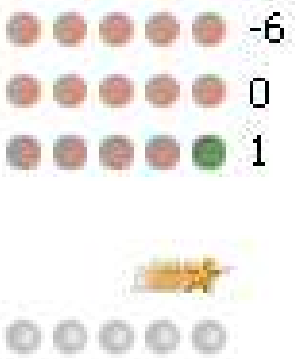
Email → TeamMail

Time Left Indicator: P0 → P1 → P2

Prototype P0



Prototype P1



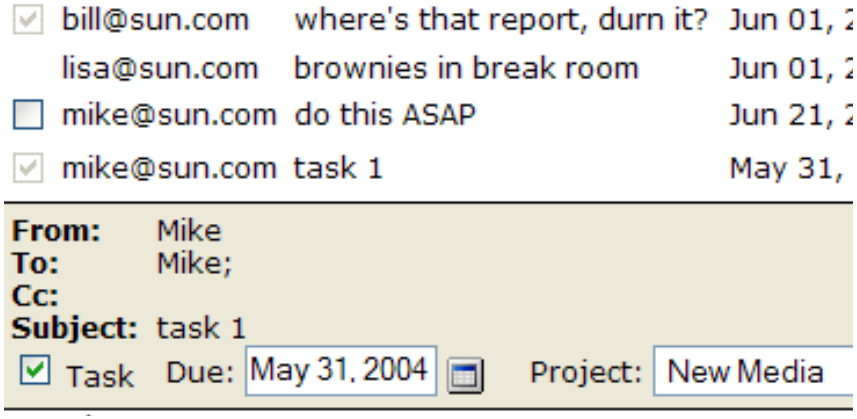
Prototype P2

"I need to see a definite scale...It seems to be beneficial as a comparison object. I would use them if they were related to each other."
U5 – P0 Think Aloud

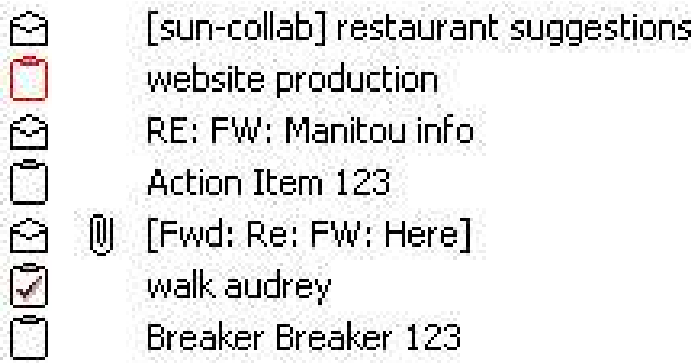
"I don't like having zero days left when I have something due today. At all."
U20 P1 Focus Group

Task Indicator: P0 → P1

Prototype P0



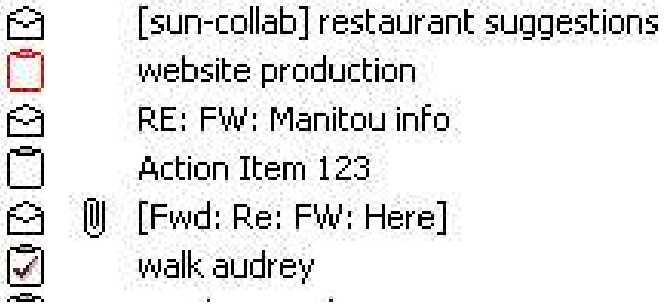
Prototype P1



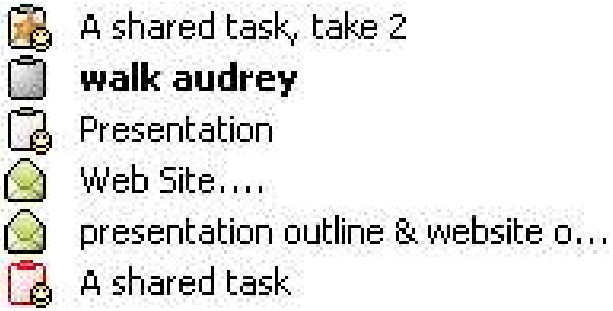
"What is the difference between the checkbox for a new task and the checkbox for completed?"
U6 Think Aloud

Task Indicator: P1 → P2

Prototype P1



Prototype P2

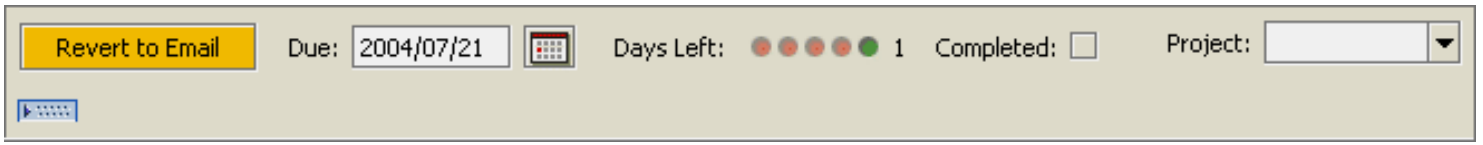


"I NEVER notice the difference between the mail icon and clipboard."
U20 P1 Diary Study

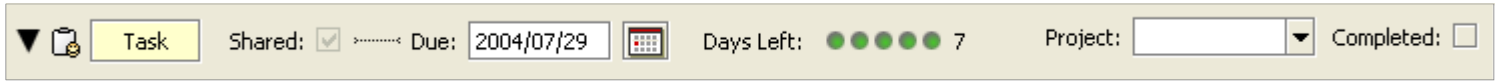
Task Bar: P0 → P1 → P2

P0

P1

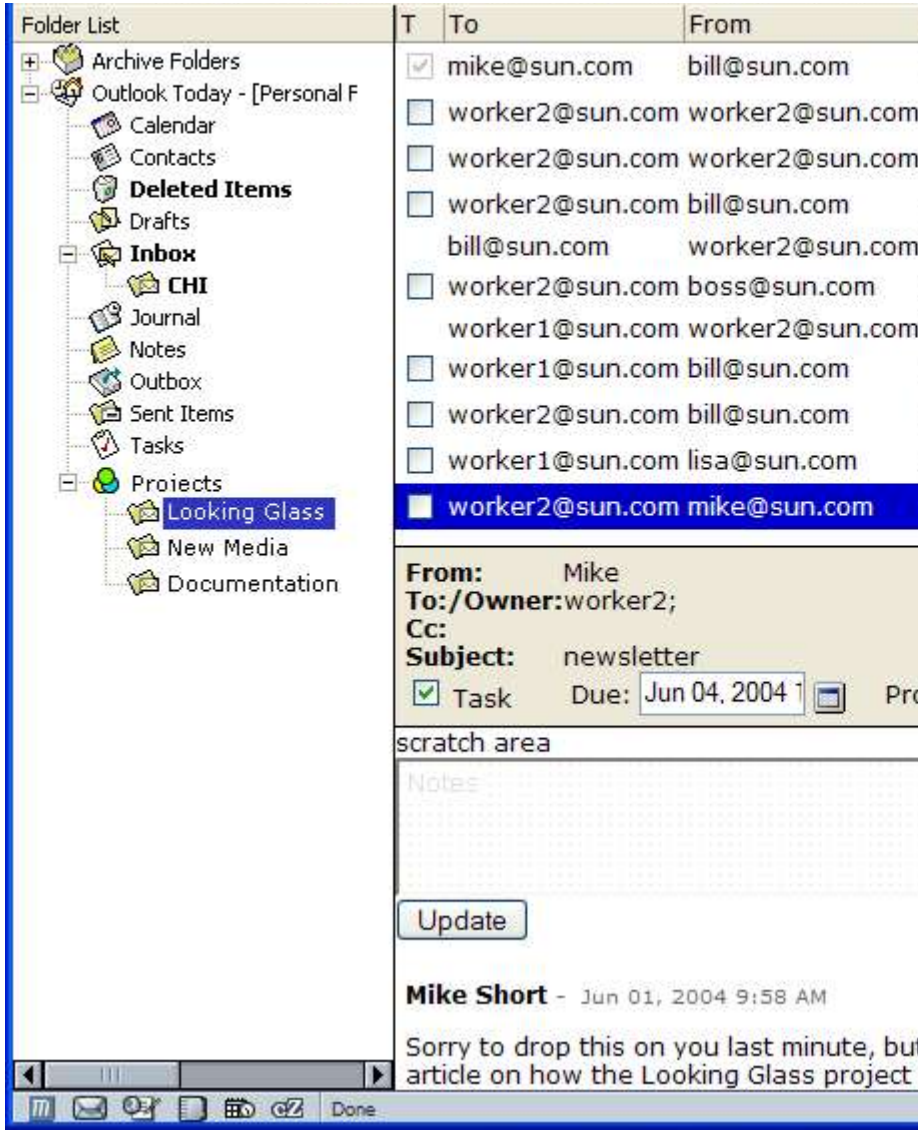


P2



"What is the difference between the checkbox for a new task and the checkbox for completed?"
U6 Think Aloud

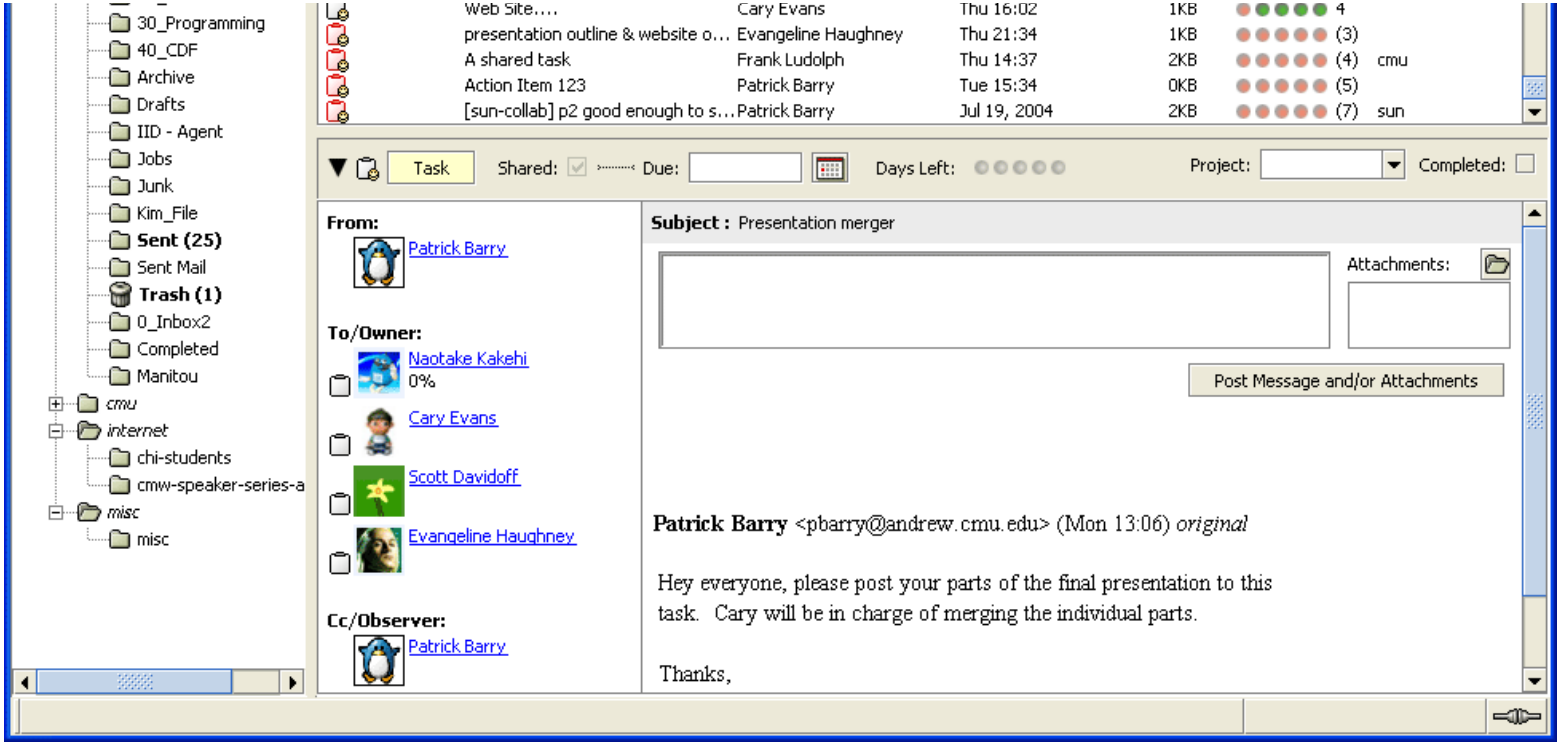
Shared Workspace – P0



- Organized by project
- All of one team's information in the same space
- Emails appeared in both inbox and project space

"It's kind of nerve-racking. I felt like I had to go back and forth between the Inbox and the Project Space, I can't tell where to look. Maybe if you could combine them to a "See All", or see projects within your Inbox." U6 P0 Think Aloud

Shared Workspace – P2



"Have you guys considered if somebody sent you a task and you completed it, what if it just sent an email back to the person who sent you the task?"
U21 P1 Focus Group

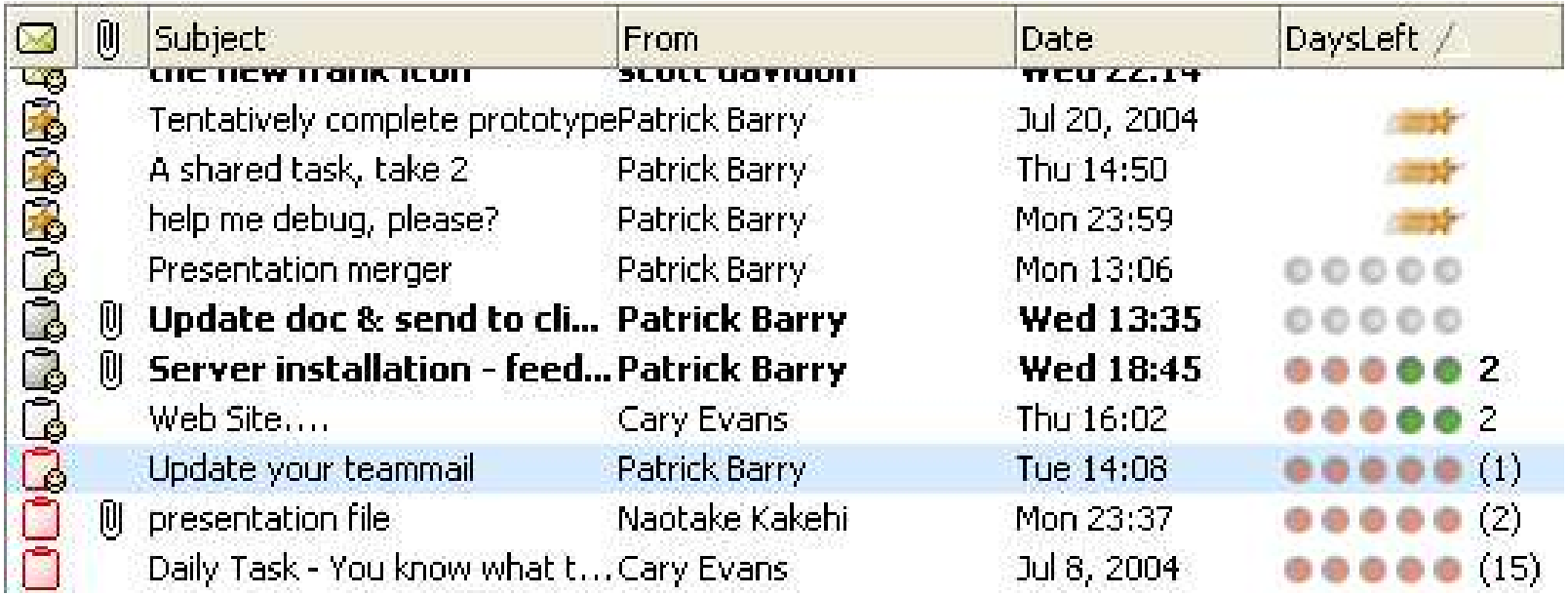
Conclusions

Conclusions

How have we answered our three goals? How can users…

- See what they have to do?
  - Integrated tasks with email – keeping tasks visible
  - Easily sort by tasks and days left
- See what their collaborators are doing?
  - Shared tasks and emails allow visibility into others' status / progress
  - Update notifications increase awareness
- Find the key information they need to complete tasks?
  - Conversation and document threading keep information consolidated

Do we enable users to see what they have to do?



"I have also found that having tasks within my inbox is really useful as I can see what things I have yet to finish."
(U44 Diary Study)

Do we enable groups to see who's doing what?

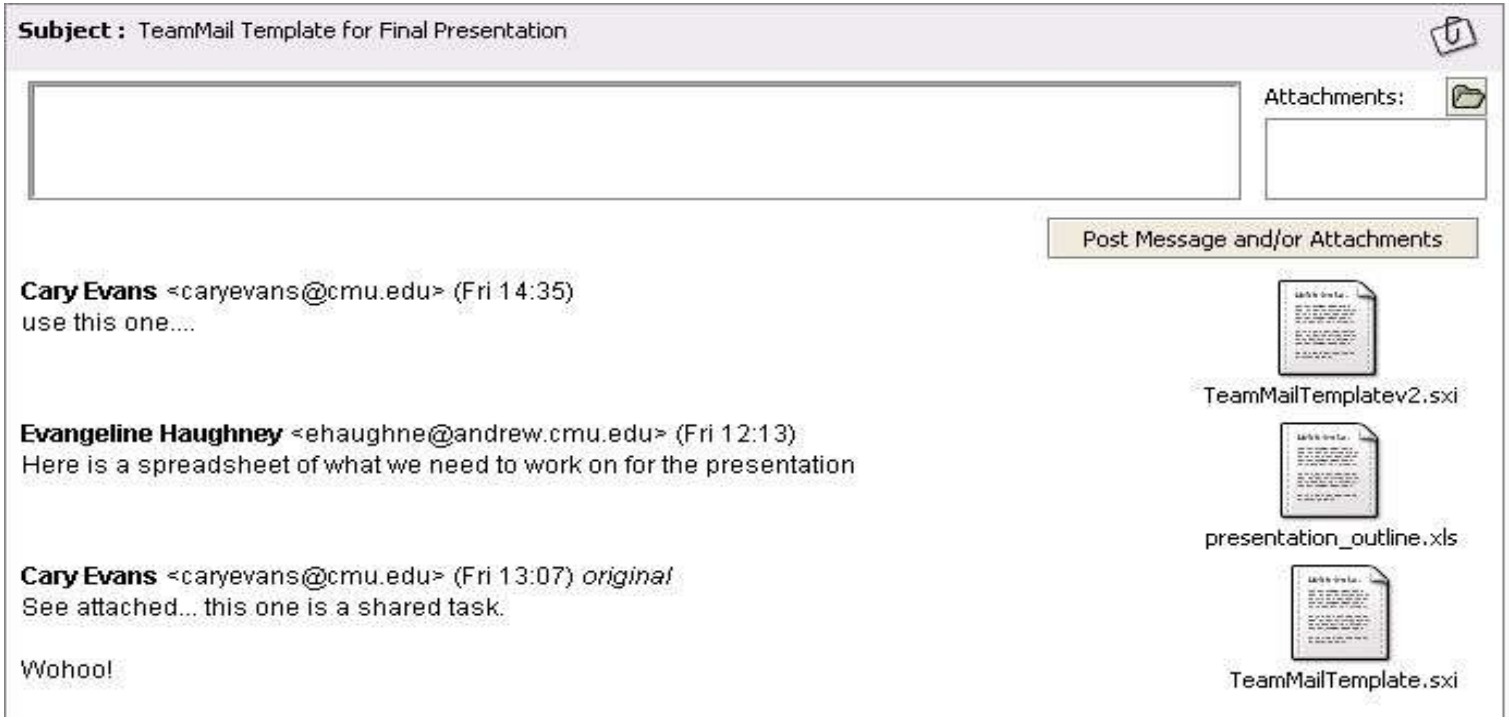
People Palette

- Clarity of Ownership
- Visibility into other's status
- Communicate your status
- Completion Reward
- History Tracking
- Desirability

Do we make it easy to find the right information?

Conversation threading

- Information in one place
- Less email created
- Less searching



Future Recommendations

Future Direction and New Features

Calendar integration – 8 out of 15 users*

"I'm used to having tasks linked to calendar entries more so than email" (U41 diary study)

"I wanted to see all the task due dates at once, like on the calendar" (U22 Diary Study)

Interrupting Reminders – 5 out of 15 *

"I find myself wanting to set event reminders along with tasks, even though they don't have a due date, exactly" (U23 diary study)

Filtering capabilities

Part of the whole reason of the task list is to see what you have left to do and even though it's really clear that those things below are emails, it would still be really nice not to see them.

(U23 Focus Group 2)

*Source: Focus Group and Diary Study, P1

Future Directions and New Features

People palette status awareness - 4th largest CI breakdown

- IM integration

Unanticipated uses in P2 diary study

- Near real-time chat space
- Single person dynamic tasks
- 'Complete or Delete' – ambiguous social signals

Thank You!