

Team Mail



Team Mail



The Challenge

“Make communication and collaboration easier for knowledge workers.”

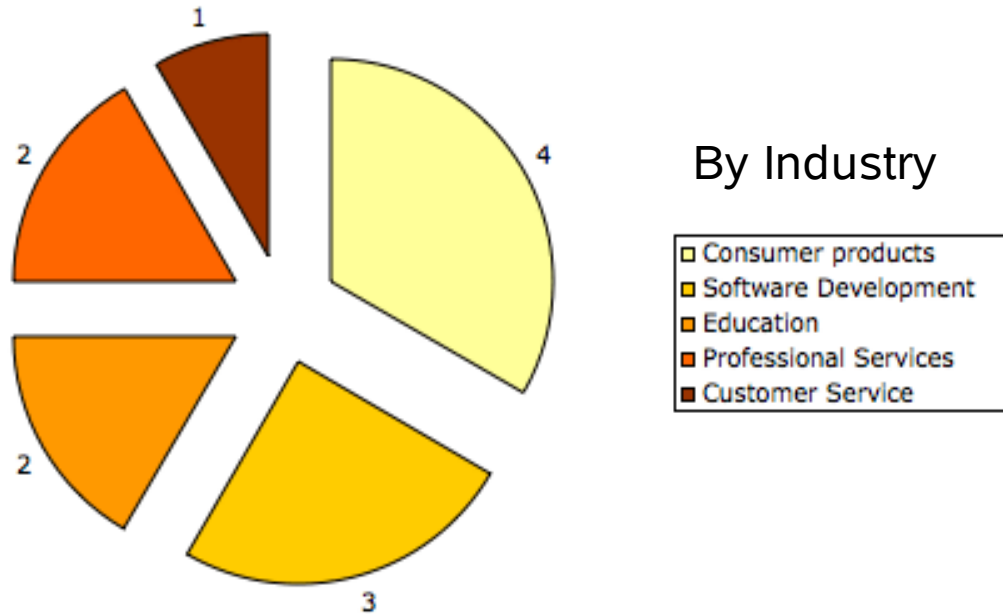


Overview of Formative Research

- 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

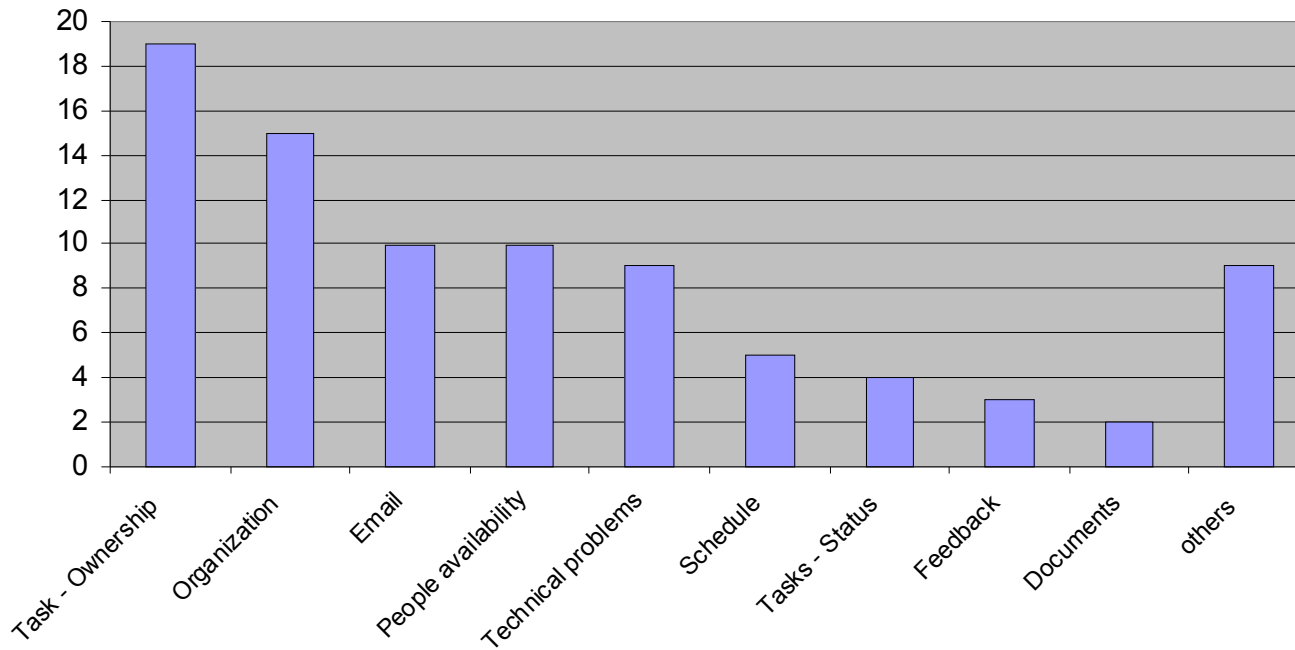
12 Contextual Inquiries



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?



Recess.com 2003

Is the right information (document) hard to find?



Where did Cary leave
the manual?

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

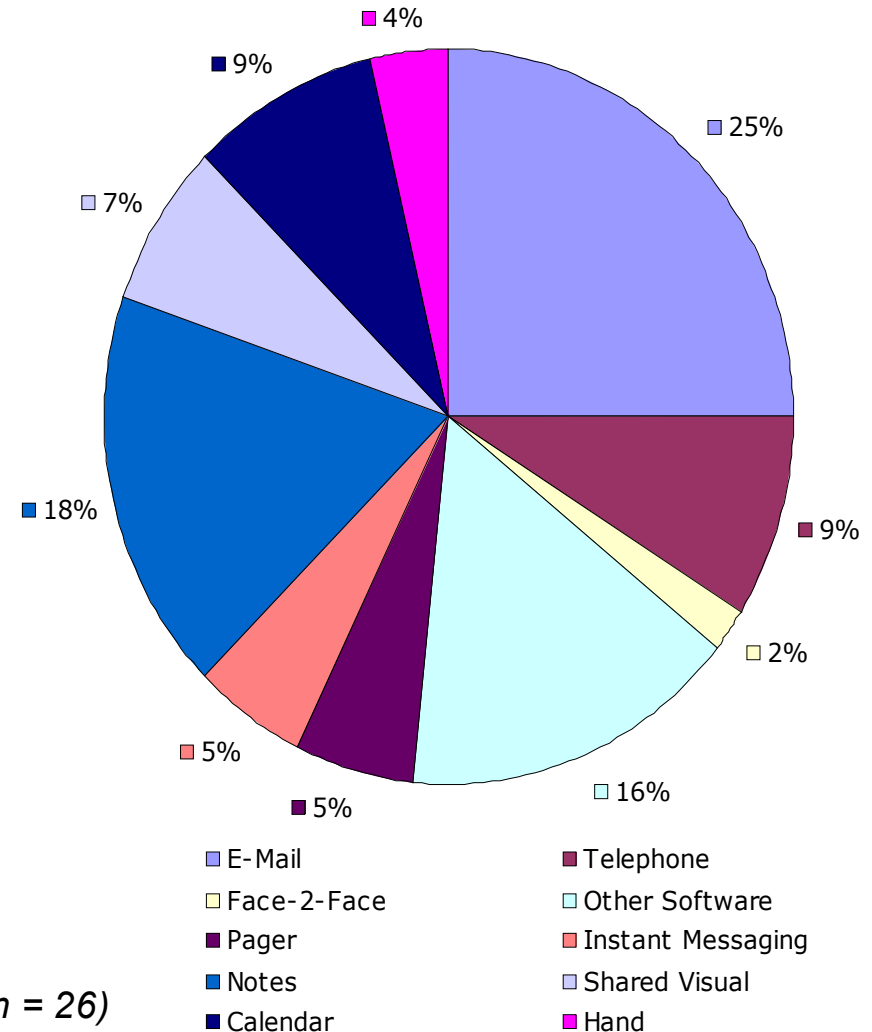
Reminder Systems*

- 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

Reminder Systems



*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

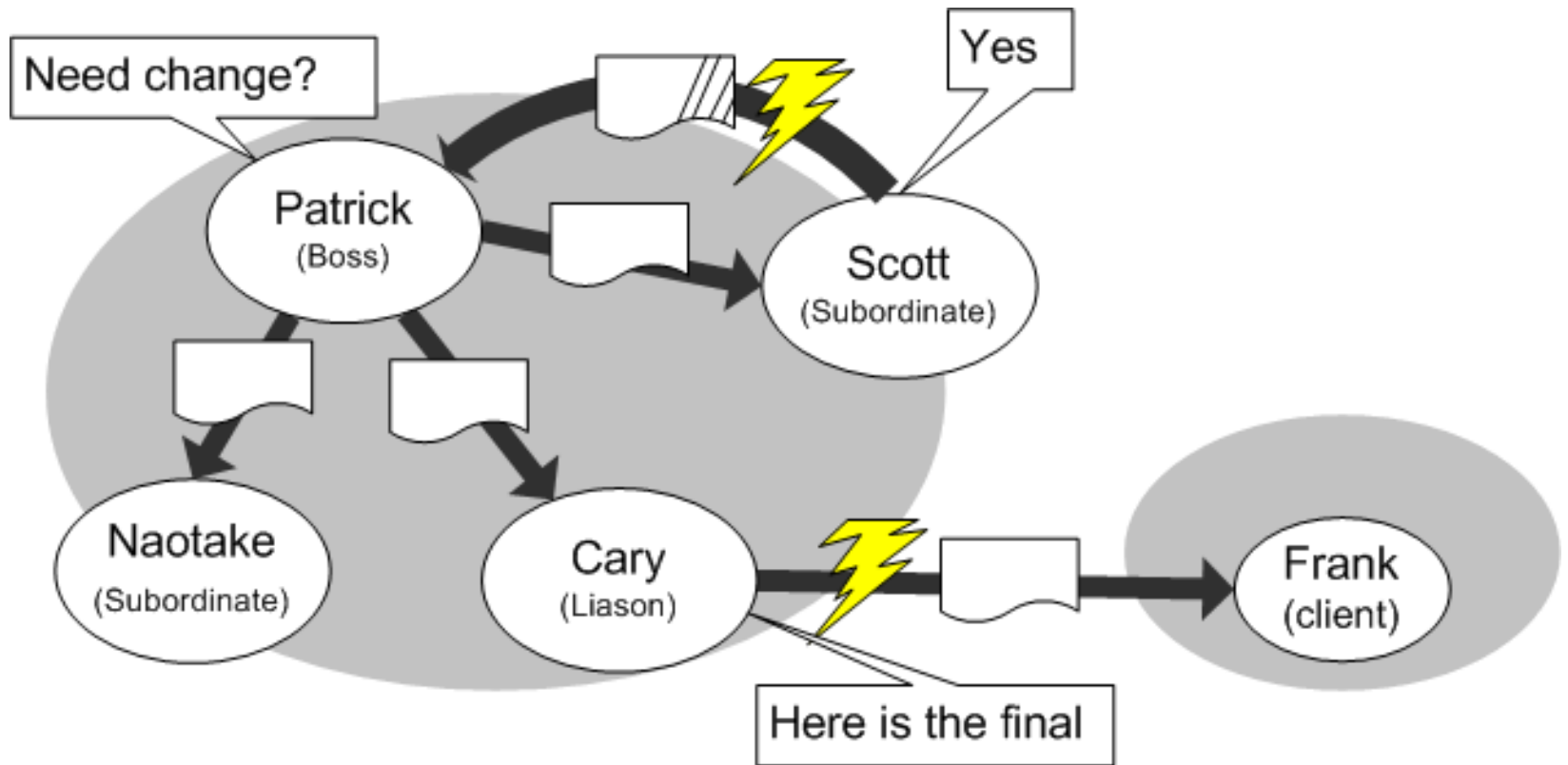
What's in it for me?

- 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?



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

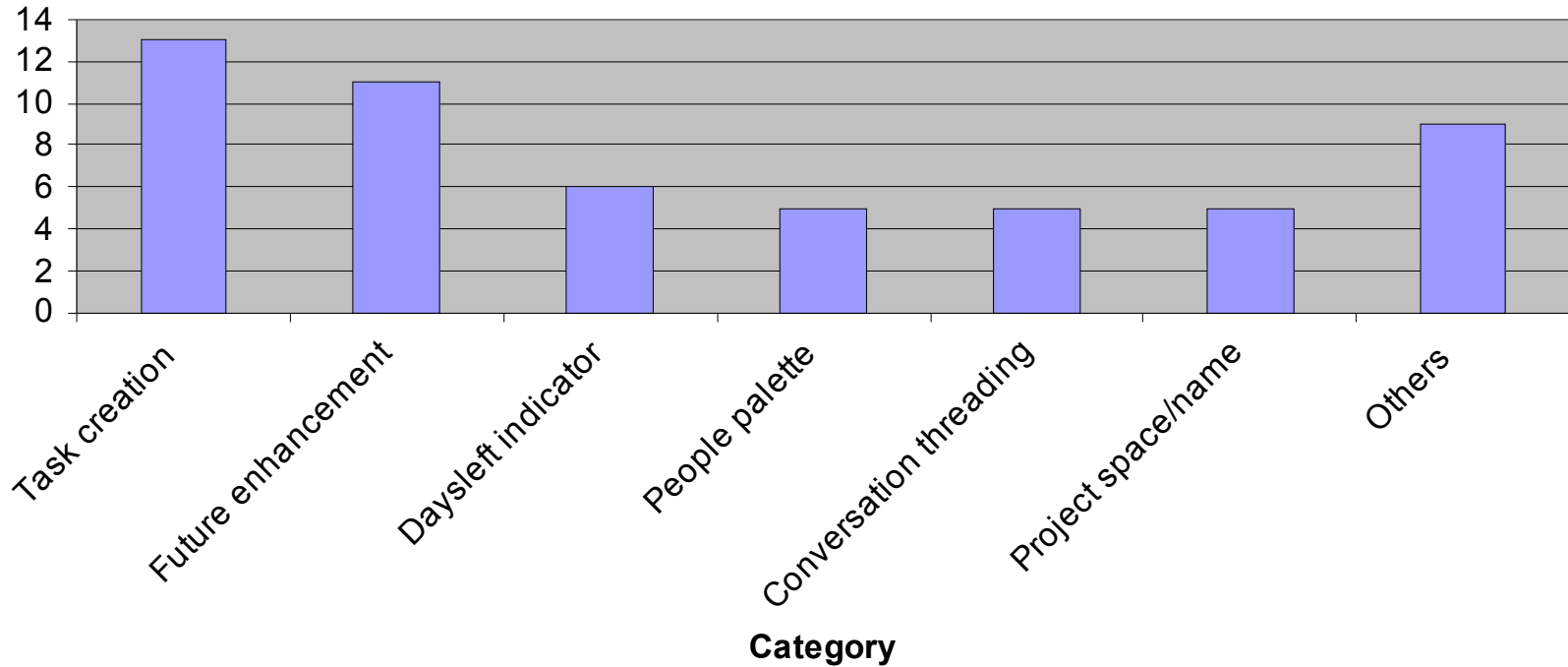
- Create a reminder for yourself
- Identify what you need to do today
- Respond to a new task assigned to you by your boss

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

Design ideas informed by user comments



Evaluation and Testing Methods – P1

Test Protocol

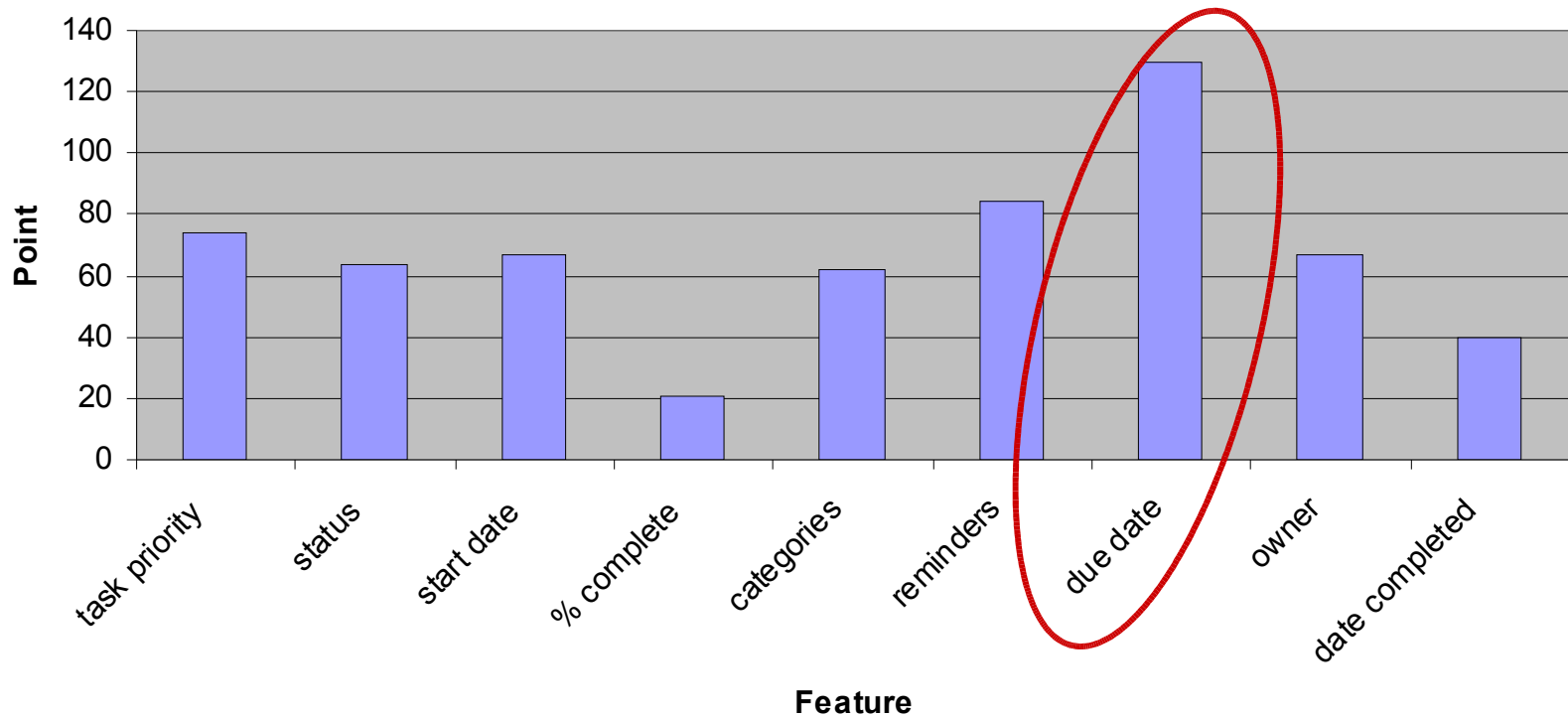
- Surveyed MHCI students to identify common task features.
- Week-long diary study with team mail – 15 participants
- Distributed the daily surveys (as tasks)
- Follow-up focus groups

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

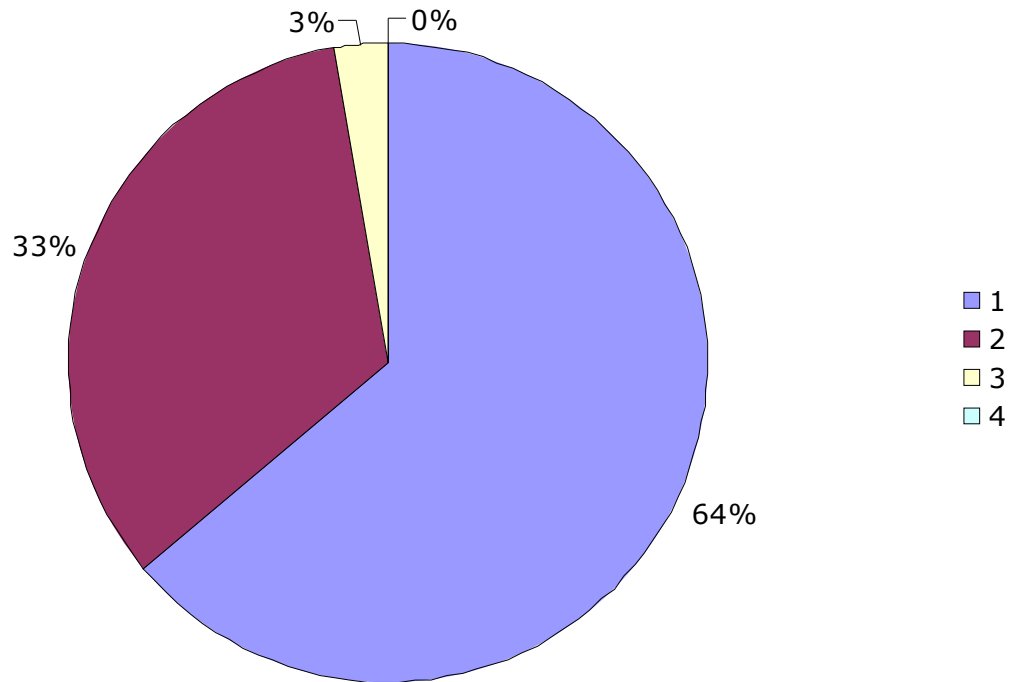
How often do you use these features?



Source: Survey 6/15/2004

Diary Study

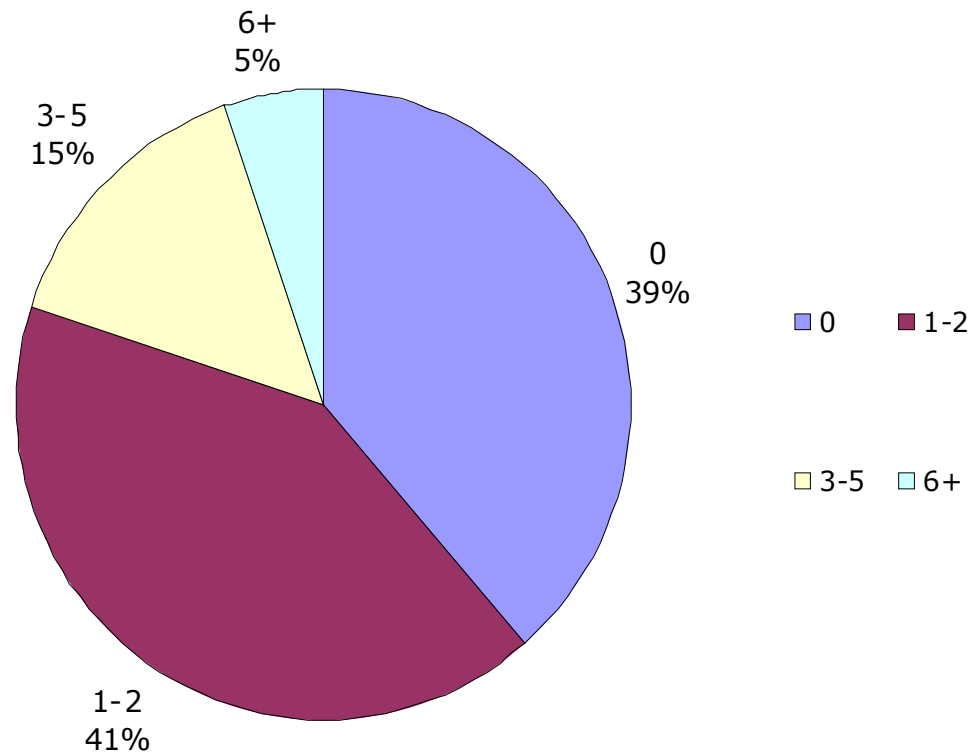
Tasks sent per day



Source: Diary Study P0, n=15

Diary Study

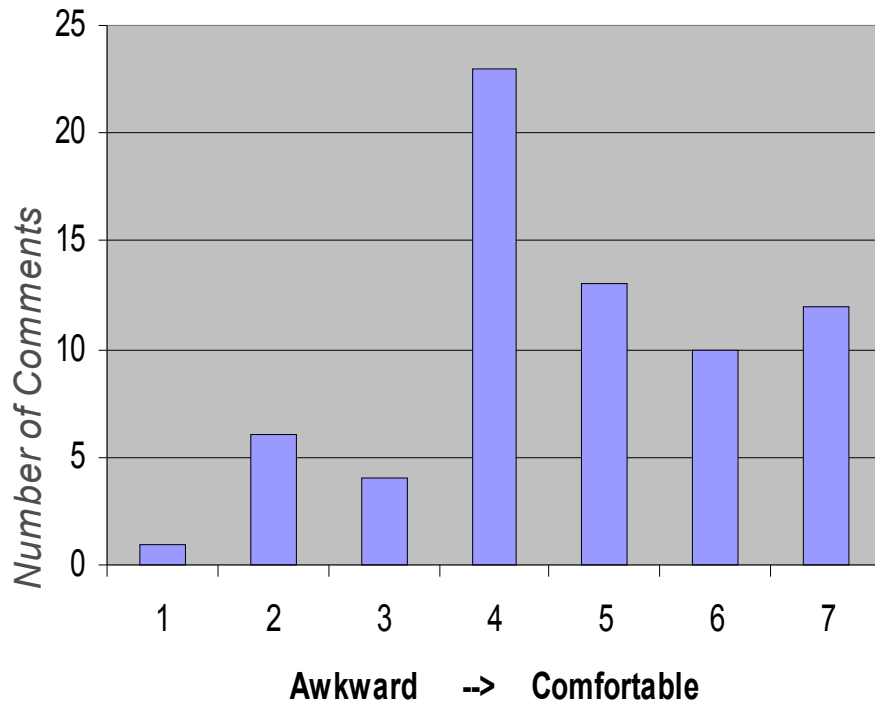
Number of 'Tasks for Self' Per Day



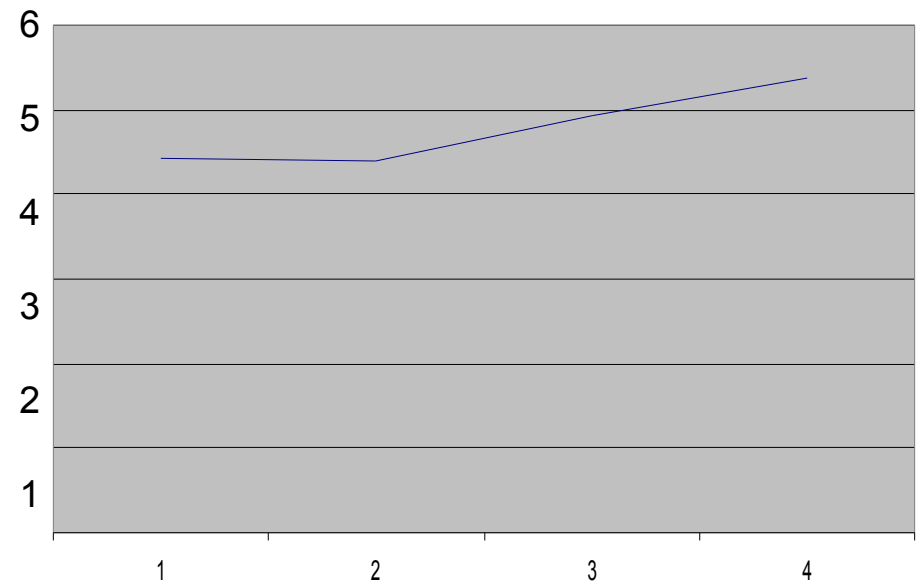
Source: Diary Study P0, n=14

Diary Study

Comfort level for sending a task



7 Comfort level with sending tasks over time

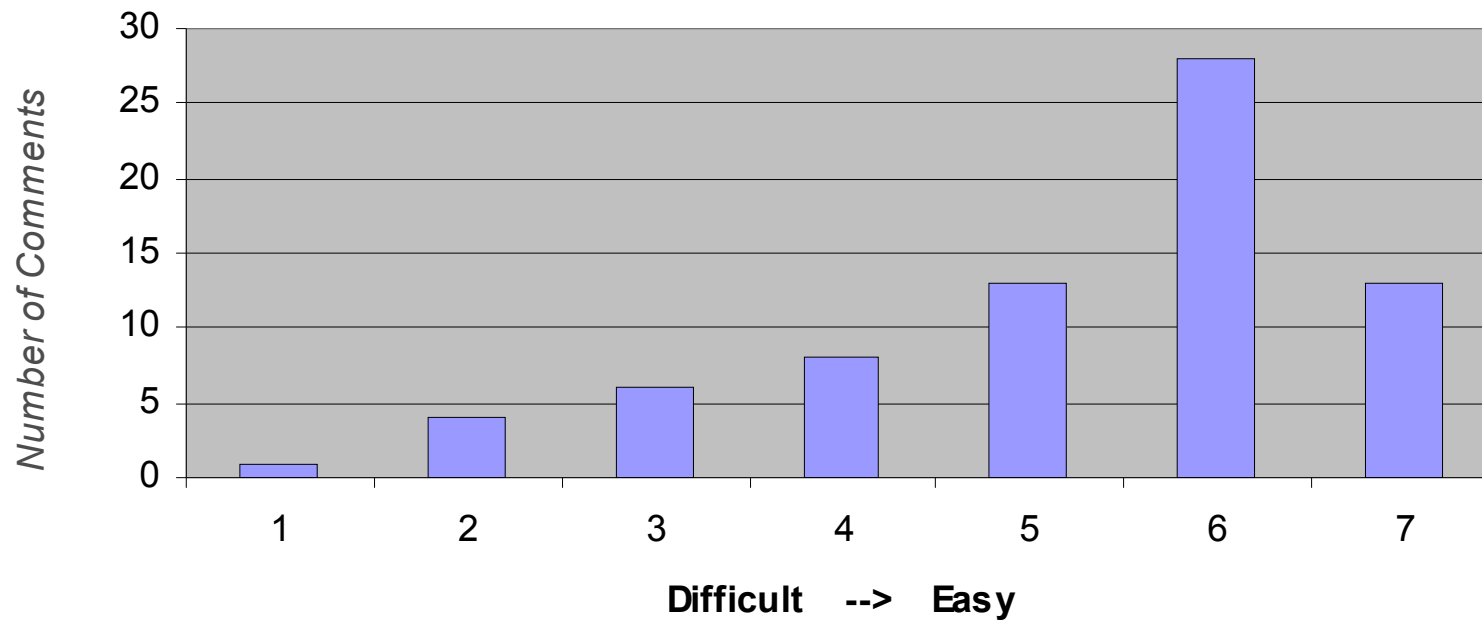


Source: Diary Study P1, n=14

"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

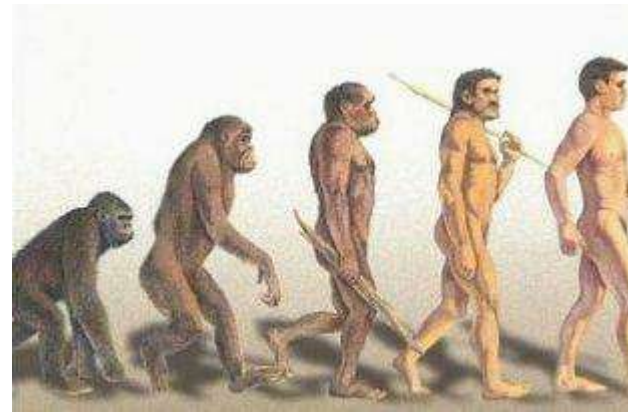
Ease of Use



Source: Diary Study P1, n=14

Design Evolution

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



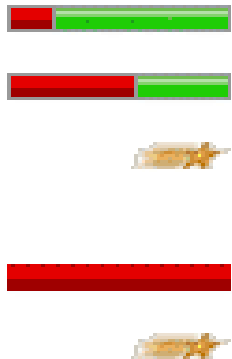
Email



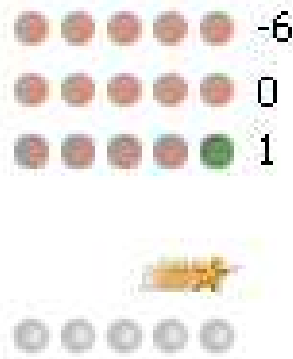
TeamMail

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

- bill@sun.com where's that report, darn it? Jun 01, 2
- lisa@sun.com brownies in break room Jun 01, 2
- mike@sun.com do this ASAP Jun 21, 2
- mike@sun.com task 1 May 31,

From: Mike
To: Mike;
Cc:
Subject: task 1
<input checked="" type="checkbox"/> Task Due: <input type="text" value="May 31, 2004"/>  Project: <input type="text" value="New Media"/>

Prototype P1









-  [sun-collab] restaurant suggestions
-  website production
-  RE: FW: Manitou info
-  Action Item 123
-  [Fwd: Re: FW: Here]
- walk audrey
-  Breaker Breaker 123

“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

-  [sun-collab] restaurant suggestions
-  website production
-  RE: FW: Manitou info
-  Action Item 123
-   [Fwd: Re: FW: Here]
-  walk audrey
- 


Prototype P2

-  A shared task, take 2
-  **walk audrey**
-  Presentation
-  Web Site....
-  presentation outline & website o...
-  A shared task




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

Task Bar: P0 → P1 → P2



P0

Task Due:  Project: Completed

P1

Due:  Days Left:   1 Completed: Project:

P2

Shared: Due:  Days Left:  7 Project: Completed:

“What is the difference between the checkbox for a new task and the checkbox for completed?”

U6 Think Aloud

Shared Workspace – P0

T	To	From
<input checked="" type="checkbox"/>	mike@sun.com	bill@sun.com
<input type="checkbox"/>	worker2@sun.com	worker2@sun.com
<input type="checkbox"/>	worker2@sun.com	worker2@sun.com
<input type="checkbox"/>	worker2@sun.com	bill@sun.com
<input type="checkbox"/>	bill@sun.com	worker2@sun.com
<input type="checkbox"/>	worker2@sun.com	boss@sun.com
<input type="checkbox"/>	worker1@sun.com	worker2@sun.com
<input type="checkbox"/>	worker1@sun.com	bill@sun.com
<input type="checkbox"/>	worker2@sun.com	bill@sun.com
<input type="checkbox"/>	worker1@sun.com	lisa@sun.com
<input checked="" type="checkbox"/>	worker2@sun.com	mike@sun.com

From: Mike
To:/Owner: worker2;
Cc:
Subject: newsletter
 Task Due: Jun 04, 2004

scratch area

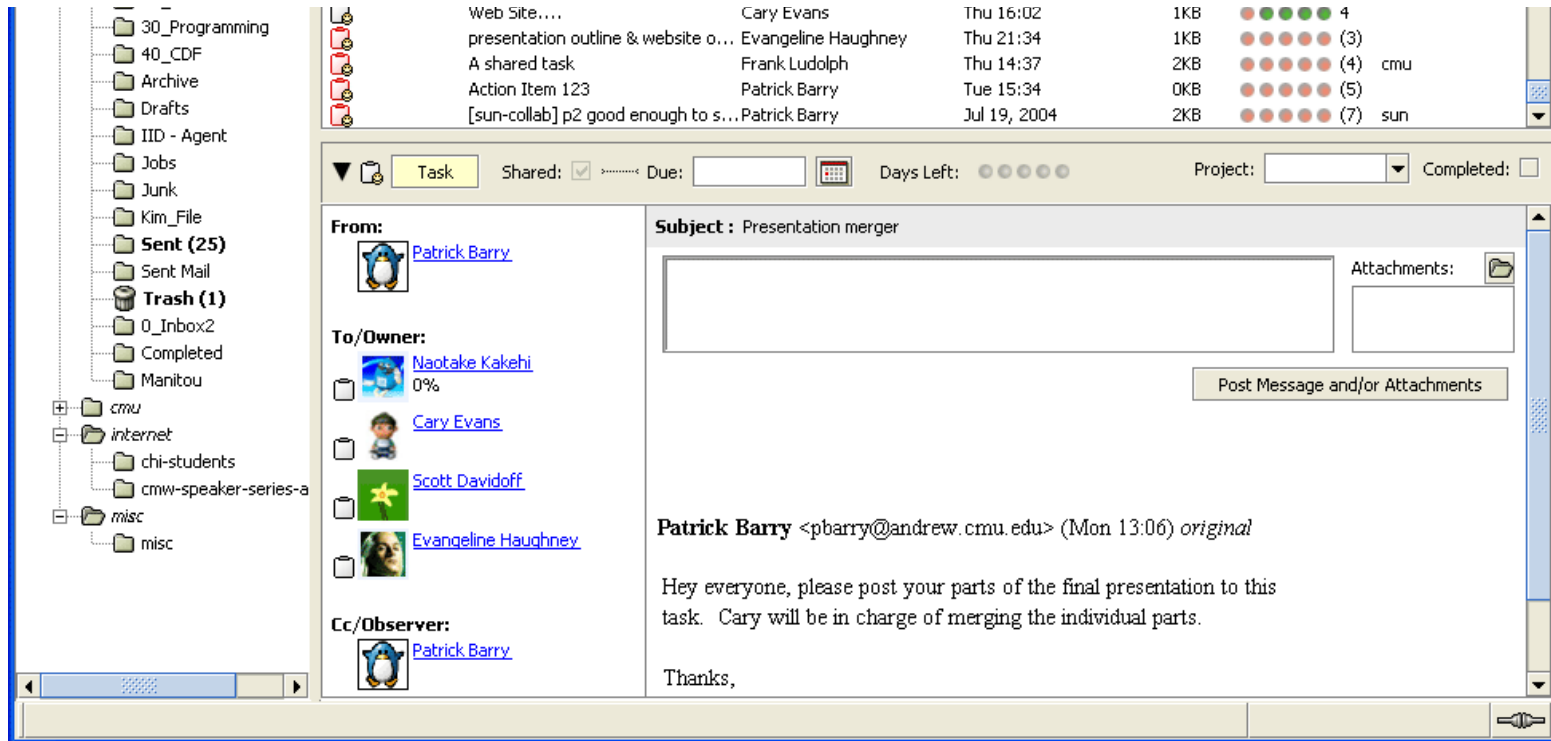
Notes

Mike Short - Jun 01, 2004 9:58 AM
 Sorry to drop this on you last minute, but article on how the Looking Glass project

- 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



The screenshot displays the TeamMail interface. On the left is a folder tree with categories like '30_Programming', '40_CDF', 'Archive', 'Drafts', 'IID - Agent', 'Jobs', 'Junk', 'Kim_File', 'Sent (25)', 'Sent Mail', 'Trash (1)', '0_Inbox2', 'Completed', 'Manitou', 'cmu', 'internet', 'chi-students', 'cmw-speaker-series-a', 'misc', and 'misc'. The main area shows a task list with columns for description, assignee, due date, size, progress, and completion status.

Task	Assignee	Due Date	Size	Progress	Completion
Web Site...	Cary Evans	Thu 16:02	1KB	●●●●●	4
presentation outline & website o...	Evangeline Haughney	Thu 21:34	1KB	●●●●●	(3)
A shared task	Frank Ludolph	Thu 14:37	2KB	●●●●●	(4) cmu
Action Item 123	Patrick Barry	Tue 15:34	0KB	●●●●●	(5)
[sun-collab] p2 good enough to s...	Patrick Barry	Jul 19, 2004	2KB	●●●●●	(7) sun

Below the task list is a task control bar with options for 'Task', 'Shared' (checked), 'Due' (calendar icon), 'Days Left' (progress dots), 'Project' (dropdown), and 'Completed' (checkbox).

The email view shows the following details:

- From:** Patrick Barry (penguin icon)
- Subject:** Presentation merger
- To/Owner:** Naotake Kakehi (0%), Cary Evans, Scott Davidoff, Evangeline Haughney
- Cc/Observer:** Patrick Barry
- Attachments:** (empty)
- Message Body:** Patrick Barry <pbarry@andrew.cmu.edu> (Mon 13:06) original
Hey everyone, please post your parts of the final presentation to this task. Cary will be in charge of merging the individual parts.
Thanks,

“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?

		Subject	From	Date	DaysLeft /
		ONE NEW TASK ICON	SCOTT DAVIDSON	Wed 22:14	
		Tentatively complete prototype	Patrick Barry	Jul 20, 2004	
		A shared task, take 2	Patrick Barry	Thu 14:50	
		help me debug, please?	Patrick Barry	Mon 23:59	
		Presentation merger	Patrick Barry	Mon 13:06	
		Update doc & send to cli...	Patrick Barry	Wed 13:35	
		Server installation - feed...	Patrick Barry	Wed 18:45	 2
		Web Site....	Cary Evans	Thu 16:02	 2
		Update your teammail	Patrick Barry	Tue 14:08	 (1)
		presentation file	Naotake Kakehi	Mon 23:37	 (2)
		Daily Task - You know what t...	Cary Evans	Jul 8, 2004	 (15)

"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

From:



[Patrick Barry](#)

To/Owner:



[Scott Davidoff](#)

Completed



[Naotake Kakehi](#)

Not Started

Cc/Observer:



[Evangeline Haughney](#)



[Patrick Barry](#)

Deleted:



[Cary Evans](#)

Do we make it easy to find the right information?

Conversation threading

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

Subject: TeamMail Template for Final Presentation 

Attachments: 

Cary Evans <caryevans@cmu.edu> (Fri 14:35)
use this one....

Evangeline Haughney <ehaughne@andrew.cmu.edu> (Fri 12:13)
Here is a spreadsheet of what we need to work on for the presentation

Cary Evans <caryevans@cmu.edu> (Fri 13:07) *original*
See attached... this one is a shared task.

Wohoo!


TeamMailTemplate2.sxi


presentation_outline.xls


TeamMailTemplate.sxi

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)

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!