UX + Engineering: Three Years in the Startup Trenches

Amy J. Ko, Ph.D.
Associate Professor
The Information School
My background

• Computer Science (B.S.)

• Psychology (B.S.)

• Human-Computer Interaction (Ph.D.)

• I’m trained in UX research, UX design, and Software Engineering
Also a tenured professor

• I discover truth and tell my colleagues about it *(research)*

• I tell people what my colleagues and I have found *(teaching)*

• I also design curriculum, run admissions, fundraise, budget, hire, fire, consult, design space, peer review, mentor, plan conferences, advocate, testify, etc.
I’ve invented dozens of productivity tools for testing, debugging, and design.

I’ve investigated all kinds of issues in software engineering team dynamics.
“Why aren’t all of these cool inventions and discoveries used in practice?”
I decided to find out.
A 7-year story of turning a research project into a 20+ person business. (AnswerDash)

My reflections on interactions between design and engineering
I WRITE AN NSF GRANT (2009)

capture. These plans include five major activities:

- **Why did this error appear?**
- **How do I change the thickness?**
- **Why is this whitespace here?**

I will **enable help questions** in a set of web-based courseware applications developed at the University of Washington (in addition to interactive applications). To do this, I will generalize the prototype in Figure 1 to interactive web applications, adding support for new kinds of “why” and “how” questions to extend the range of detectable issues.

I will gather users’ help questions at a large scale, exploring different ways of requesting users' permission to report information. I will also explore how **privacy**, **consent**, and testing influence the representativeness of collected field data.

I will invent techniques for incrementally **grouping** questions over time, aggregating large-scale feedback into meaningfully distinct groups. These tools will analyze the input and output contexts of users’ questions, producing generalized, executable test cases.

I will invent analytical tools for helping software teams aggregate user data over time, successive software versions, and customer data. These tools will integrate data from other forms of software testing, such as crash reports and user tests. I will assess these tools’ ability to help teams make more evidence-based judgements of issue **frequency** and **severity**.
PARMIT CHILANA JOINS MY LAB (2010)
Questions and comments by other users...

How do I sync the calendar with my iPhone? [1]
How do I change the color of repeating events? [1]
Can I color code today's events? [0]
Why is today's day shown in gray? [0]

[+] Ask your own question...

How do I sync the calendar with my iPhone?

Answer #1:
To select which calendars to sync to your Apple device, follow these steps: Open the Safari browser on your device and go to http://m.google.com. Sign in with your account and select your device from the list of devices you've set up for Google Sync. Bookmark this page so you can return to it easily.

✓ Helpful

[+] Add an answer...
PARMIT DEMOS TO FACEBOOK (2011)
The world needs LemonAid. You should sell this!
Do I really want to spend my whole sabbatical on this?

Do I really want to moonlight for a year?

Do I really want to quit my Ph.D.?
WE LEAP (2012)
Bill details: Oct. 16

About account charges
Account charges either apply to multiple lines or do not apply to any individual line on your account.

Changes
$0.00
There were no account level changes.

Service prior to Oct 17
OTHER CHARGES AND CREDITS
Zeroed Int - Emp
($238.16)
Subtotal: ($238.16)

Service from Oct 17 to Nov 16
PLAN
SimpleChoice Val FAM UnITT+D
$80.00
Subtotal: $80.00
THE ORG CHART (2015)

CEO

CTO

CMO

UX/Product Triad

me

VP Engr

Engr

UX Designer

Engr

Sales

Sales

Sales

Marketer
What was hard about achieving great UX through engineering?
100,000 word diary

**THESIS**: Successful products require the constant, collective communication and agreement of a coherent proposition of a product’s value across UX, design, engineering, product, marketing, sales, support, and even customers.
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This is not a design problem or an engineering problem. It’s communication problem.
Here are seven ways this is true.
DIFFUSION OF POWER IMPedes COLLECTIVE AGREEMENT OF VALUE
INCONSISTENT UNDERSTANDING OF VALUE → INCOHERENT EXPRESSION OF VALUE
Prosocial Communication Streamlines Dissemination of Value
DISTRUST IMPEDES EXPRESSION OF VALUE ACROSS DISCIPLINES
SOCIAL DECISION FATIGUE LIMITS CONSENSUS ON VALUE
Value is Quickly Lost in Translation to Code
SCHEMAS STRUCTURE EVERYONE'S WORK

-- Table structure for table `targets`

DROP TABLE IF EXISTS `targets`;
/*!40101 SET @saved_cs_client      = @@character_set_client */;
/*!40101 SET character_set_client = utf8 */;
CREATE TABLE `targets` (

`frameSize` int(11) DEFAULT '10',
`baseSmartphonePointSize` int(11) NOT NULL DEFAULT '16',
`textFieldStyle` text,
`modelessMinOpacity` int(11) DEFAULT NULL,
`modelessMinScale` int(11) DEFAULT NULL,
`modelessDwellTime` int(11) DEFAULT NULL,
`modelessColor` text,
`modelessSize` int(11) DEFAULT NULL,
`qa_button_text` text NOT NULL,
`qa_button_hover_text` text NOT NULL,
`question_label` text NOT NULL,
`answer_label` text NOT NULL,
`objective` text NOT NULL,
`search_prompt` text NOT NULL,
`question_submitted` text NOT NULL,
`submit_new_question_label` text NOT NULL,
`new_answer_prompt` text NOT NULL,
`popup_objective` text NOT NULL,
`questionstoshow` int(11) NOT NULL DEFAULT '5',
`q_label` text,
`a_label` text,
`question_prompt` text,
`email_prompt` text,

PRIMARY KEY (`styleid`)
) ENGINE=InnoDB AUTO_INCREMENT=1 DEFAULT CHARSET=utf16;

/*!40101 SET character_set_client = @saved_cs_client */;
Q Why aren’t all of these cool inventions and discoveries used in practice?
A There are literally a million decisions between a research prototype and a product…
… and if those decisions are not made with the constant, collective communication and agreement of a coherent proposition of a product’s value across UX, design, engineering, product, marketing, sales, support, and customers … it will fail.
... and if those decisions are not made with the constant, collective communication and agreement of a coherent proposition of a product’s value across UX, design, engineering, product, marketing, sales, support, and customers... it will fail.

Subject to further study
Questions to ponder...

• Does everyone on your team have the same product value proposition in their head?

• How do you ensure they do?

• Is everyone on your team making decisions consistent with this understanding?

• When your value proposition changes, how do you communicate the change to everyone?

• Who owns your teams value proposition?

• Are they open to reconsidering the proposition in light of new evidence?
UX + Engineering

• Which of you owns the value proposition?
• Engineering: are you making decisions based on value or based on architectural concerns?
• UX: are you making decisions based on value or interface concerns?
• Is it your job to build consensus on value or is that the job of sales and marketing?
My academic colleagues and I will keep studying this.

We’ll also start teaching it.
Before we start, what are your thoughts on it?

Thanks!