Engaging Technologists

Donna Spruijt-Metz, MFA PhD
Director, USC mHealth Collaboratory
Research Professor, Psychology & Preventive Medicine
University of Southern California
dmetz@usc.edu

UCLA mHealth Training Institute
August 8-12, 2016, Los Angeles, CA
mHealth across disciplines: THE CHALLENGE

Is it the most up-to-date technology?
Has the accelerometer in that cell phone (or that EMA questionnaire) been validated?

Proof of concept! Done!

Promotion = 1st AUTHORSHIP IN JAMA

OMG(oodness)!! TRANSDISCIPLINARY MOBILE HEALTH SYSTEMS DYNAMIC RESEARCH WOW!! WITH REAL PEOPLE!!!
Finding the Right Tech Collaborators

• Engineers come in many flavors
  – Signal processing
  – EE
  – Computer science (just to name a few)
  – You might need a harem
  – Understanding your needs might not even be in your job description!

• Engineers may not be the only ‘tech’ people you need
  – Human-computer interaction, game design, user-centered design, creatives (music, visual arts, story)

• Really good to map this out up front (at the budgeting phase)
Choosing technologies

• What you really want versus what is out there, what is ‘on the shelf’ that we can really use? (black box, not really bluetooth, won’t give you your data)

• The ‘we can do that’ attitude vs. budgetary and time realities – and what does ‘that’ really mean?

• Who has an ‘in’ with Nokia, can the non-tekkies use it?
Roles and Phases

• **Ground truthing and qualitative iterations**
  – Small, iterative data collection rounds, first in lab with structured and unstructured protocols
  – and then in ‘the wild’ – make sure the target population is involved at every step!
  – Will they wear it? Use it? Focus groups, idea building groups, etc. every step of the way
  – This is a ‘taking turns’ scenario – not always comfortable, agree and understand up front

• **Stay in touch – mutual involvement in every phase.**
TAKE TURNS: Hurry up and wait

• For many projects, engineers and creatives work is up front
  – Behaviorists play an important, but more advisory role in this part of the journey. This is not always academically rewarding. Be patient, think creatively

• When you go into the field, behaviorists take the lead
  – Engineers and creatives might play more of a ‘maintenance’ role – this is not academically rewarding. Think about this up front. When do you need a programmer?

• This scenario looks different if you engage a company – understand the trade-offs.
What isn’t measured isn’t modeled

• What to measure?
• How to tag it?
• Different disciplines need different measures,
• Different disciplines interpret the same data differently
• Limited measurement ‘real estate’ – repurposing measurement & sharing the space
Keep Communicating!!

- Make team presentations a regular, fun event – explain what you are doing and why you need to do it in terms that your colleagues can understand
dmetz@usc.edu email me all the time

Can you repeat the part of the stuff where you said all about the things?
Thank you! Any questions? Please stay connected!

Donna Spruijt-Metz, MFA, PhD
dmetz@usc.edu
Engaging Health Researchers

_Perspective of a Computing Researcher_

Santosh Kumar

Director, MD2K Center of Excellence
Professor & Moss Chair of Excellence in Computer Science
University of Memphis
MD2K Team – Computing

Gregory Abowd
Polo Chau
Tyson Condie
Emre Ertin
Deborah Estrin

Deepak Ganesan
Tim Hnat
Ben Marlin
Jim Rehg
Mani Srivastava
MD2K Team – Health Research

William Abraham
Mustafa Al’Absi
David Conroy
Cho Lam
Clay Marsh
Susan Murphy

Inbal Nahum-Shani
Kevin Patrick
Vivek Shetty
Ida Sim
Bonnie Spring
Dave Wetter

Advancing biomedical discovery and improving health through mobile sensor big data

Cornell Tech ♦ Georgia Tech ♦ U. Memphis ♦ Northwestern ♦ Ohio State ♦ Open mHealth
Rice ♦ UCLA ♦ UC San Diego ♦ UC San Francisco ♦ UMass Amherst ♦ U. Michigan
Advancing biomedical discovery and improving health through mobile sensor big data
Lessons Learned
recognise mistakes
observe what works
document them
share them
Benefits of Working with Health Researchers

• Higher chance of funding success
• Address problems of larger societal importance
• Solutions developed is more likely to work in real-life and have societal impact
• Learn of methods and techniques that have worked in other disciplines
  – Can lead to entire new research areas in native disciplines
Recruiting Collaborators

• Treat grant as an opportunity
  – To bring bright minds together
  – To work with amazing people and learn from them

• Identify the key expertise needed
  – Look for the best to fill the roles/holes
  – Cold calls, social circles, references

• How does the grant help each collaborator
  – What’s in it for them? (Hint: Beyond the “obvious”)
The Vetting Process

• Problem selection
  – Potential for CS Dissertations
  – Otherwise, can recommend a software company

• An ideal health collaborator
  – Is an early (first) adopter
  – Has desire to learn and treat as peers (not service providers)
  – Has capacity and resources to conduct research (user studies) with newly developed technologies
The Engagement Process

• Understand the needs in others’ disciplines
• Patience, patience, and patience
  – Patience to learn other disciplines
  – Patience to develop working systems
  – Patience to publish in top-tier venues in native discipline
• Earn collaborators’ trust and faith
• Generous in sharing credit and forgiving of others
  – Who publishes what, where, when and with whom
• Develop a shared terminology
  – E.g., Gold standard, ground truth, artifact, model
• When does a research work conclude?
  – Publication may not indicate completion