User Research for the Internet of Things
UXD Team @af83

Kate Benson & Aurélia Lacombe
Challenge:

How to conduct user research to integrate IoT in users’ daily lives?
THE BRIEF
exercise

nutrition

sleep
POCKETS OF VALUE

USER’S BEHAVIORS:
needs, goals and attitudes

obstacles
leverage

POCKETS OF VALUE

client’s technological competency

OPPORTUNITY MAP

competitors’ positioning strategy

USER’S BEHAVIORS:
needs, goals and attitudes
Save years of life

Mind-body problem

Harmony

Personal subjective evaluation

Healthy sensation

Ethical principle

Transform
CHOICE OF RESEARCH METHODOLOGY FOR IoT
diary and camera
Observational approaches suffer from the intrusive impact of the observer and/or some limitations on the contexts that can be studied...

Mihaly Csikszentmihalyi,
diary method

+ indirect observation over a period of time
+ collects richer data than a survey
+ is mobile
+ enables remote research
+ “real world” behavior in context at a much lower cost
+ reveals patterns difficult to identify otherwise
+ users chronicle events as they happen
+ good preparation for follow-up interviews

- self-reported experiences may be partial or idealized
- difficult to determine objective reality of data collected
observation protocol

duration

frequency

compensation
RECRUITMENT
original hypotheses for behavioral audience segments

- adept at amateur sports, who closely watch their weight and how it impacts their physical activity
- occasionally concerned about wellness, who are starting to work out again and/or beginning a diet after a pregnancy, illness or the holidays
- attentive to their well-being, who watch their weight, exercise and measure their hydration and/or blood glucose levels
- anti-clients (inclined but not buyers), who are aware of their well-being but not interested in weighing themselves or tracking physiological measurements
Recruitment methods
4 ideal users 60 survey respondents 12 candidates
CREATING THE DIARY
The medium you use should be something that can be shared quickly, keeps everything in the same place and doesn’t require too much of a learning curve.

Aidan Bryant,
Senior UX researcher at UserTesting.
**Digital**

- you can supervise the study from a distance
- change your instructions
- it's inexpensive

**Paper**

- permits obtaining of all sorts of information
- can be taken anywhere
- filled out at any moment of the day

**But**

- it requires an internet connection
- requires specific equipment
- imposes a certain rigidity in data collection

**But**

- the cost of printing and sending
- delays due to the mail
- lack of visibility on the study’s evolution
The best way to collect confidences
Mix qualitative data

What have you done today to feel well?

What caused a feeling of malaise?
Mix qualitative data with **quantitative data**
show and tell
Quoi : Douches
Où : à la maison
Commenter : Mon rituel du matin pour se relaxer.

Quoi : Repas avec des collègues
Où : À côté du travail
Photo : n° 152369
Commenter : Repas en terrasse pour un jeûne.

Quoi : Jogging
Où : Au stade
Photo : n° 152370
Commenter : Ça vide l'esprit et j'essaye.

Quoi : [blank]
Où : [blank]
Commenter : [blank]
test
Do’s

• coach your participants to receive satisfying data through clear instructions, a user manual and a pre-filled template

• reassure participants by explaining to them that their data will remain strictly confidential

• encourage them to express themselves: « everything you tell us is important, whether it be positive or negative. »

Don’ts

• leave too little space for « diarists » to write freely about their everyday experiences

• pay participants before receiving the completed dairy with photos

• send them a poor quality document that participants won’t take pride and care to complete
idealized vision of wellness

actual wellness behaviors
diary + telephone interviews + survey + show + tell and
the WWWWH

the 5 whys

vs.
Processing data into key findings
SEGMENTATION AND PERSONAS
The *elastic user* must bend and stretch and adapt to the needs of the moment. However, our goal is to design software that will bend and stretch and adapt to the user’s needs... Real users are not elastic... In our design process, we never refer to « the user. » Instead, we refer to a very specific individual: a *persona*.

Alan Cooper,
Pioneer of the persona technique.
 personas
mapping users along behavioral scales
Real people and behaviors are... complex. Simplifying it with attributes does a disservice to those who will attempt to design with the data in the future.

Indi Young,
March 2015.
a better segmentation using attitudes and behaviors
EXAMPLE PERSONA

#4

«Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident.»

Age
20

Residence
Maine

Family situation
Twin sister, single

Occupation
Ictyoreum

User type

ATTITUDES
- Eredam tempor Serenissimus ex duce, cœcis ignis populorum in Phoenix omni retributis, pulchra melioratis imperi rebus maxima nobilissima ac leges, inquit quos potest suffragiisque superbissimo aliis bene credere.
- Coloni omne retinens, pulchra melioratis imperi rebus maxima nobilissima ac leges, inquit quos potestuffragiisque superbissimo aliis bene credere, quot operis operis pulchrae melioratis imperi rebus maxima nobilissima ac leges.

NEEDS
- Qualesque occurre lingua patris nilo, aliquis ortus orbisim mare hostisque solu ut quod habere non paginium caritatis et dolores praecepit omne societatem consilium. adeoque delecto quidem ut se, neque diligit quousque neque se ab aliquo aliter.
- Hinc regiones praeestat sedebitis aliquis invadere praeestat dux et aliae aliae voluta adirem qui in alia in alia, in alia in alia et alia

GOALS
- Barba cunctis in Anthracis conditum Moxenos nunc præsum au Espartalius flere est esse ducesque, securi meretissimi opusculi, ut
- Suberba quibusque Sperantula in alios minores ad mundus magna præcolum fortunae sinam meliorate ad commercioque quidem locis rationaliter.
- Seres aliquae plebicae neque dicem diastromas fauce, cum secundo aliaque damnum reducunt sed aequa. Administrum societatis neque semper inherem similis volat, adhibita et conscribendum antiquum renum adhuc solius volat. ut fortunam simul multos que ad romanum valoris non nullae argumentum colligit, non

BEHAVIORS
- Cupidatet es aequissime solutis esse quosdam colloci euntes, salbat dolores ut Archeus et cum aliam studiosi, dicit quod doctores adiecti superiorem.
- Vidi/es erasem quiescere aequissime aliquo neque dicem diastromas fauce, cum merito saniores sedebitis seque de rebus multis animis. Merito meritus iuris, atque in alia
- Atque est erasem quiescere aequissime aliquo neque dicem diastromas fauce, cum qui saniores sedebitis seque de rebus multis animis.
- Quae simplices, simplices simul in hanciam sedebitis, sit sedebitis, sicut et alia est erasem quiescere aequissime aliquo neque dicem diastromas fauce, quando quia saniores sedebitis seque de rebus multis animis.

PAIN POINTS
- Accipitrem enim sius aestipet, sit immunda vel esse amplexus imperii jubet et INCIDUNT
- Incidunt saniores qui rhetorica aequissime aliis spasmis, dicem diastromas fauce, cum qui saniores sedebitis seque de rebus multis animis

OPPORTUNITIES
- Suberba quibusque Sperantula in alios minores ad mundus magna præcolum fortunae sinam meliorate ad commercioque quidem locis rationaliter.
- Adhibita et conscribendum antiquum renum adhuc solius, ut fortunam simul multos que ad romanum valoris non nullae argumentum colligit, non

ABOUT SÉVERINE

At vero eos et accusamus et justo adiuvandissimus dolorem qui blanditiis praesentium voluptatum deleniti atque corrupti quos dolores et quos molestias excepturi sint occaecati cupiditate non provident, similique sunt in culpa qui officia deserunt mollitia animi, id est laborum et dolorum fuga. Et harum quidem rerum facilis est et expediátur distinctio. Nam libero tempore, cum soluta nobis est eligendi optio cumque nihil impedit quo minus id quod maxime placeat facere possimus, omnis voluptas assumenda. Iste eum nihil tenetur a sapientia delictus ut aut recidie.
GENERATING OPPORTUNITY MAPS
Desires, difficulties and personal tools…

investment areas

paths for improvement
A **Quest** is anything you can do to get closer to your **Epic Win**.

Jane McGonigal, game designer, from *SuperBetter*.
… but following the same user journey.
EXAMPLE PERSONA

#4

Investment areas

Paths for improvement

trigger
measurement
Diagnostic/advice
action
validation
obstacle

opportunity #1
opportunity #2
etc.

practice #2
practice #1
etc.

OBJETS CONNECTÉS
• non ergo erunt homines deliciis
• si quando de amic, quam nec usu nec ratione habent cognitam, disputabantia
An opportunity? It’s...

A service,
a functionality,
a technology,
a tone of voice,
an objet,
a partnership,
etc.

creates a value proposition,
pays,
Improves brand image,
distinguishes from the competition,
retains customers,
etc.

that

improves ease of use,
is pleasing,
assists,
fulfills a clear need for the target audience,
etc.

and

creates a value proposition,
pays,
Improves brand image,
distinguishes from the competition,
retains customers,
etc.
Summary:

*Why user research is crucial to integrating IoT in users’ daily lives*
to recap...

- complex and costly research
- study day-to-day intimate behavior
- design a medium that encourages people to confide
- understand behaviors, track the truth
- synthesize information into actionnable tools
- combine user research with business goals

recruit wisely: candid and expressive participants
collect quantitative and qualitative data over a period of time
provide participants with a diary, to show and tell their daily activities
reveal information about real practices with the WWWWH
build personas to convey users’ needs, pain points and motivations
produce opportunity maps for each persona to propose innovative solutions
Our experiences are a bigger part of ourselves than our material goods (...) We consume experiences directly with other people, and after they're gone, they're part of the stories that we tell to one another.

Thomas D. Gilovich,
Chair of Psychology, Cornell University.
merci

Kate Benson  
kate.benson@af83.com

Aurélia Lacombe  
aurelia.lacombe@af83.com