Quantified Self Community & Context

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GOALS:

1. Establish a narrative that places the Quantified Self into more meaningful context

After discussing our ideas with Ernesto Ramirez, he noted that people have some fundamental misunderstandings about what the quantified self actually means. This makes sense, because the community is fairly new, and has a seemingly high barrier to entry (considering the fancy tools and analyses associated with the quantified self.) We wanted our infographic to clarify the term, and also provide historical context that would make the community feel more accessible, and make their formation more understandable.

2. Clarify the process for quantifying yourself

Many people believe that self-quantification is excessively difficult or inconvenient. We wanted to get back to the question-and-answer origins of the movement, and get audiences to think less about the gadgets and statistics, and instead consider the questions that lead a person to using specific gadgets, running certain experiments, and employing subsequent statistical methods. We also wanted to show how simple some quantification can be.

3. Clarify the goals of the quantified self & put a face to the community

The quantified self can be scary - people think of tech utopias, gross nutrient shakes, and the idea of being reduced to numbers. We wanted to highlight people alongside the data, creating a safer, friendlier version of the community for people to consider.

4. Illustrate the development of user communities around the world as a key part of the quantified self trend.

The quantified self isn't just a bunch of brogrammers in the bay area; while our conversations highlighted interesting diversity of thought in the quantified self community, we wanted to show this geographic diversity and help people realize that they could very likely fit in; this is particularly important for promoting diversity across metrics like race, gender, and class.
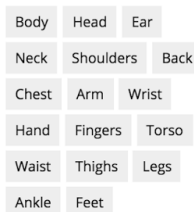
Related Work

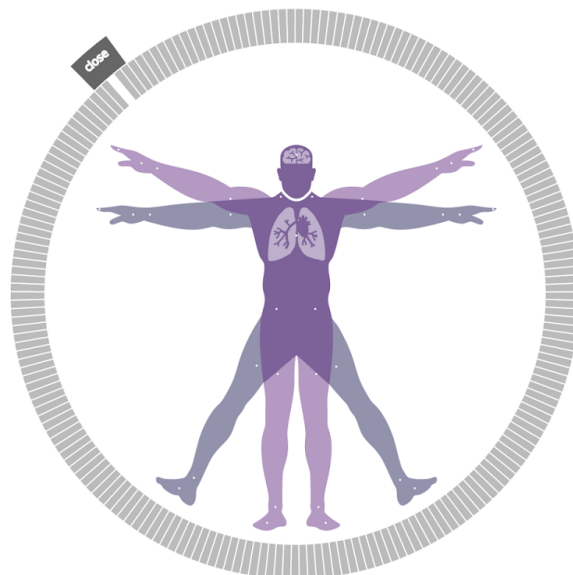### WHERE ARE WE NOW IN THE INDUSTRY?

Domain

FITNESS

LIFESTYLE

MEDICAL

Location Worn

Body   Head   Ear

Neck   Shoulders   Back

Chest   Arm   Wrist

Hand   Fingers   Torso

Waist   Thighs   Legs

Ankle   Feet

Percent Displayed

100%

of 206 Total Products

Selected Product

LASTER PRO MOBILE DISPLAY

The Pro Mobile Display, designed by Laster Technologies, is a wireless augmented reality device. Information around the user surroundings will be displayed on the glasses without blocking the field of vision. This wearab...

Componentry
Gyroscope, Accelerometer, GP
Microphone, Magnetometer

Price
No Announcement Yet

Availability
Undisclosed

1. Visualizing Wearable Technology by Faith Hutchinson, Suhaib Syed, and Tim Meyers (process document)

This final project clarified wearable technologies through visualization.

We were inspired by the narrative aspect of the project, because it used qualitative data to contextualize the quantitative data. We also liked how the animations draw user attention to particular elements. Finally, we also appreciated how interactive elements of this piece could engage the user.
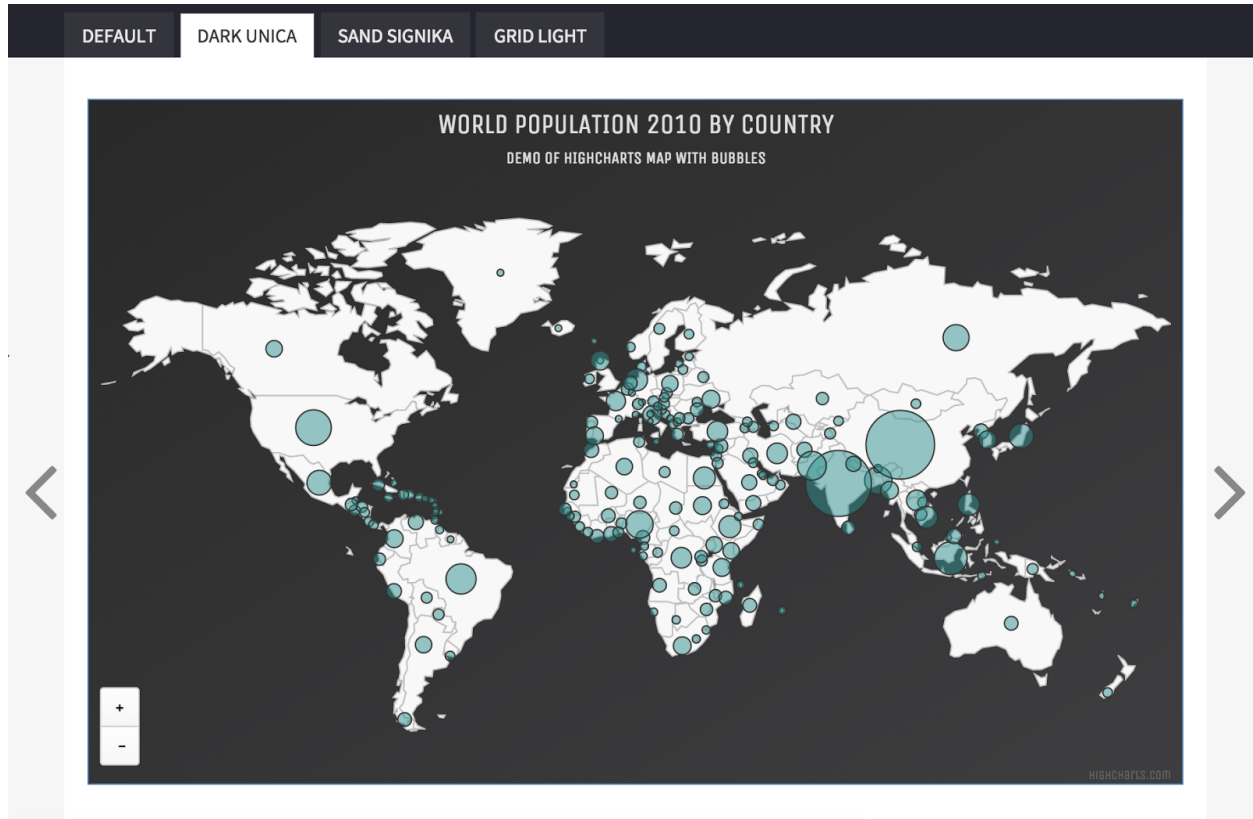
2. Highmaps

We were inspired by how a world map could show the geographic distribution of Quantified Self meetups. The size of the bubble could reflect the number of members of the meetup. In our final work, we also encoded "years since founding" of the meetup as color onto each bubble.

Ultimately, we ended up using Tableau to implement our map. We initially tried using Highmaps, but the documentation was a major roadblock to our progress.
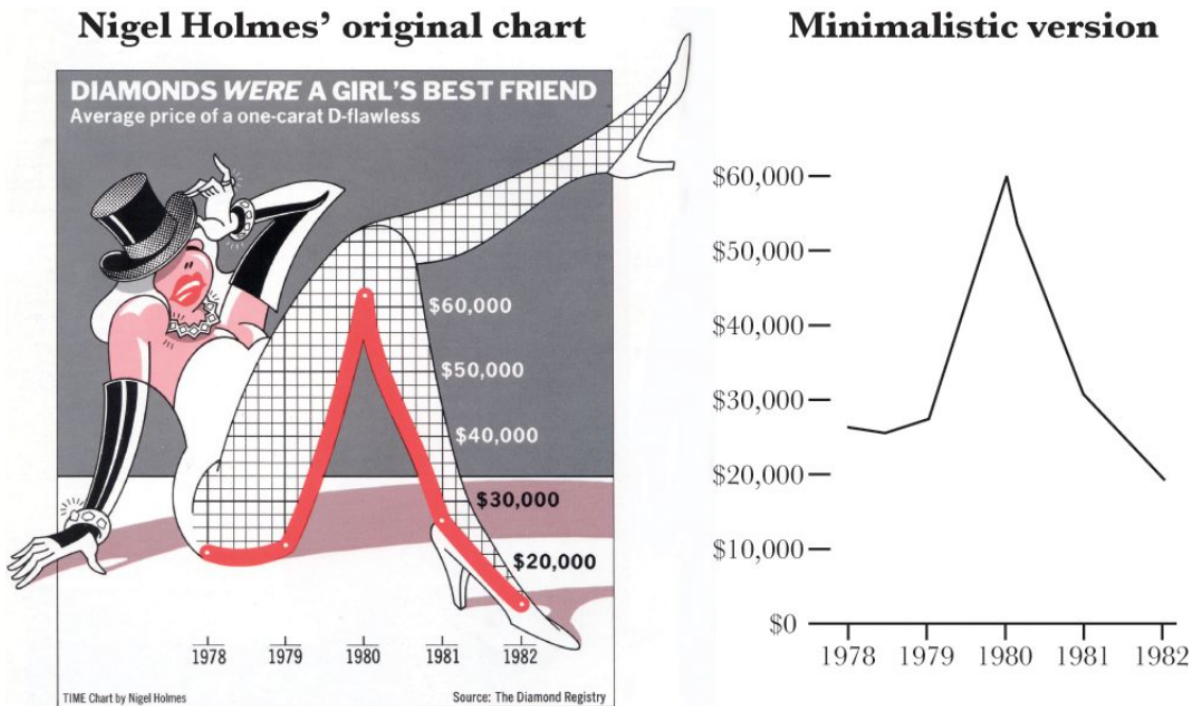
Figure 3.15. The original graphic is not very appealing, but the stripped-down version was not easily remembered.

3. **"Chapter 3: The Beauty Paradox: Art and Communication" from The Functional Art: An introduction to information graphics and visualization by Alberto Cairo**

We had the data to create a global map of the Quantified Self meetups, but we realized this wouldn't convey anything more than a geographic distribution. We wanted to make something that could inform the public about elements of Quantified Self--the broader tech trend, the process, and the community.

Cairo's work inspired us to take a more journalistic approach to this project. It's not enough to just have data, but you also need context to it. To achieve this, we conducted an expert interview with Ernesto Ramirez, a Quantified Self community organizer. We also conducted web research. We chose to clarify, rather than simplify our data.

We created scaffolding for our story by first each individually drafting narratives. Then, we printed each out, cut each section into pieces, and collaborated on crafting a single narrative. We then put this into a paper prototype.

The copy and aesthetic of our narrative were chosen to reflect the friendliness, approachability, and empathy behind our subject matter
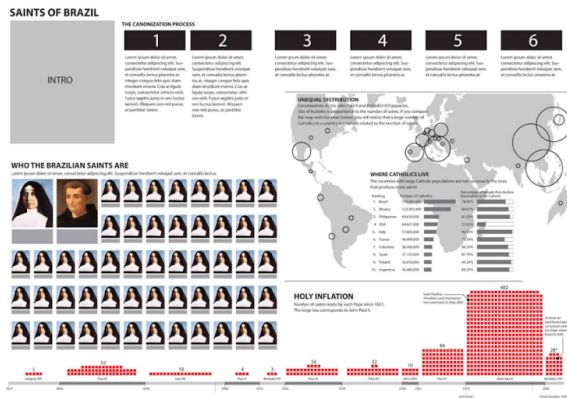
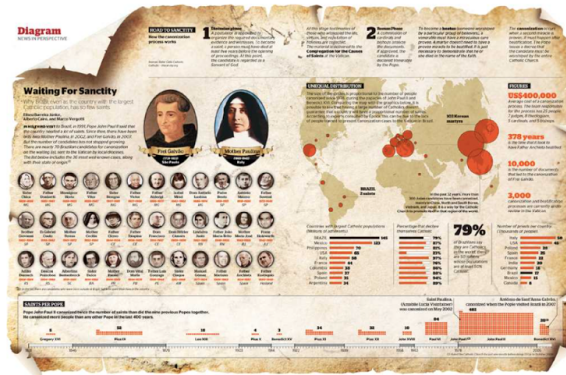Figure 8.1. First layout for the Brazilian Saints project.

Figure 8.2. Brazilian Saints project, as published by *Época*, São Paulo, Brazil. Translated from Portuguese.

4. "Chapter 8: Creating Information Graphics" from The Functional Art: An introduction to information graphics and visualization by Alberto Cairo

This chapter describes the process of researching and creating an infographic, and highlights the ways that simple visualizations can still effectively tell a story. We wanted to piggyback on this infographic element, and provide visualizations that could put the quantified self into better context.

Color Palette
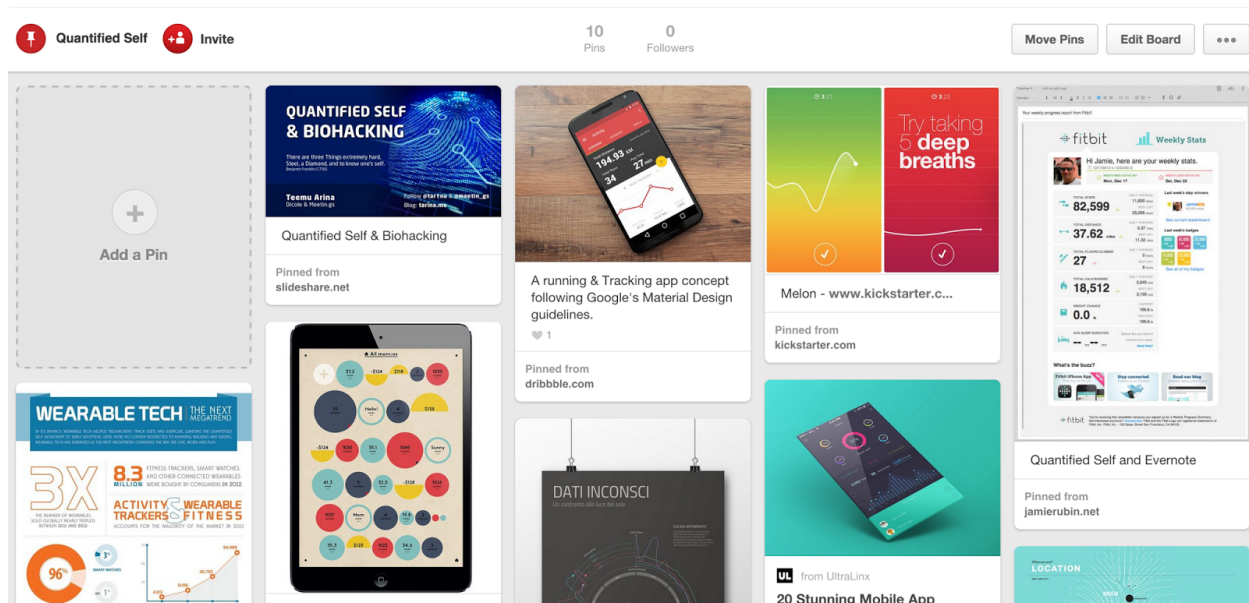
5. Collection of Design Inspiration using a Pinterest Account

After paper prototyping our initial concept, we began to think about the aesthetic of our narrative. We began to look for inspiration. We created a Pinterest account and searched for images based on queries like

"quantified self". We primarily looked for image that could give us inspiration in our choice of color pallete, type, animations, and photo assets.

6. The Rise of Quantified Self video

In our design research, we stumbled upon this video that describes what quantified self is. We drew inspiration from the colorful, friendly visual style and the playful animations for our own narrative.
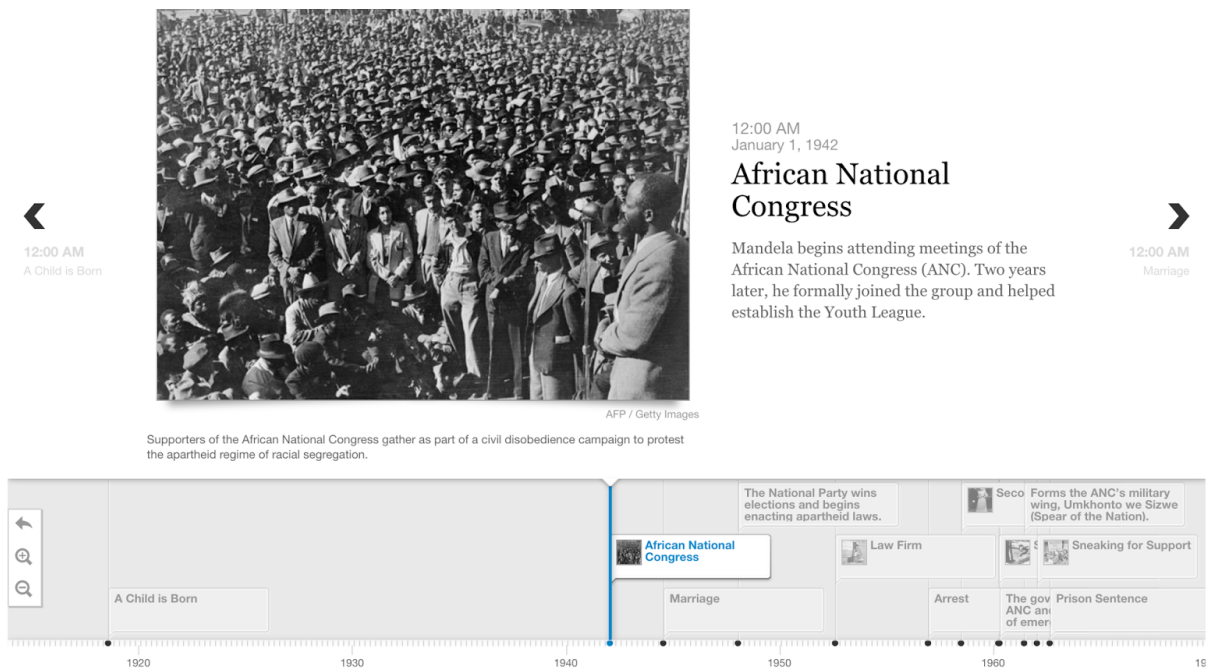
7. Nelson Mandela Timeline
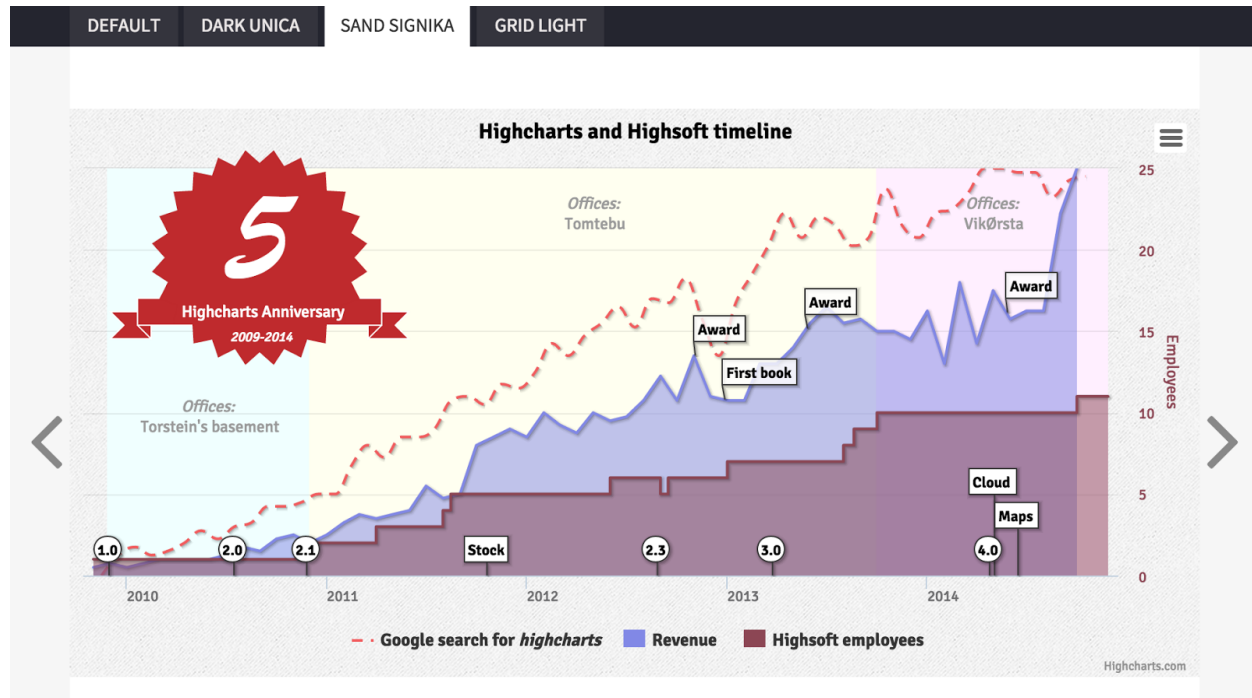
This visualization had an excellent and informative timeline. Showing events over time is a useful way to see how quantified self has changed over time and we liked the look and feel of this particular timeline on time.com. We used timeline.js to implement a similar timeline to show the evolution of quantified self.

8. Highcharts Advanced Timeline

A Highcharts Advanced Timeline combines multiple timelines, interactivity, and chart-junky functionality.

Our jaws dropped when we stumbled upon this very late into our project. We found the use of chart junk to be memorable, especially for an off-the-shelf tool. Being able to compare multiple trends over time on the same graph is also useful. Marti suggested that the convergence of several trends may explain the rise of Quantified Self. In future work, visualizing Google N-gram data of these trends on this timeline could add value to our narrative.

9. How Much Data Will Humans Create & Store This Year?

We wanted our project to be an interactive narrative that had the look and feel of an infographic similar to this one. We liked how the use of color, sectioning, and typography created a sense of visual flow.

10. Moves App

This app measures footsteps and physical activity. We wanted to translate that into the digital equivalent of "activity", which is mouse movement. This inspired us to display mouse activity, to put the idea of "quantified self" across quickly and in an engaging manner.

The Visualization
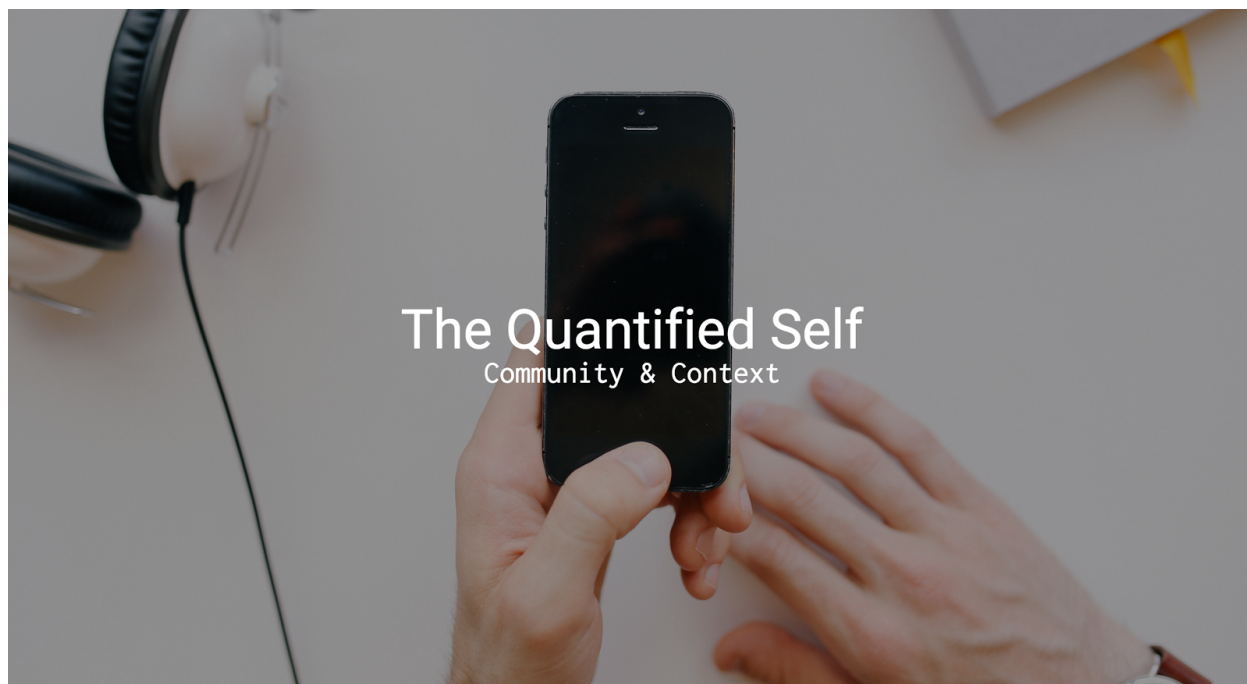
Section 1: Title

Section 2: A quick definition

Quantified Self is also a broader tech trend that has grown as sensors have become cheaper & more ubiquitous.

From *Behaviorism,* Vol. 9(1), Spring 1981.

SELF-EXPERIMENTATION: A CALL FOR CHANGE[1]

Allen Neuringer
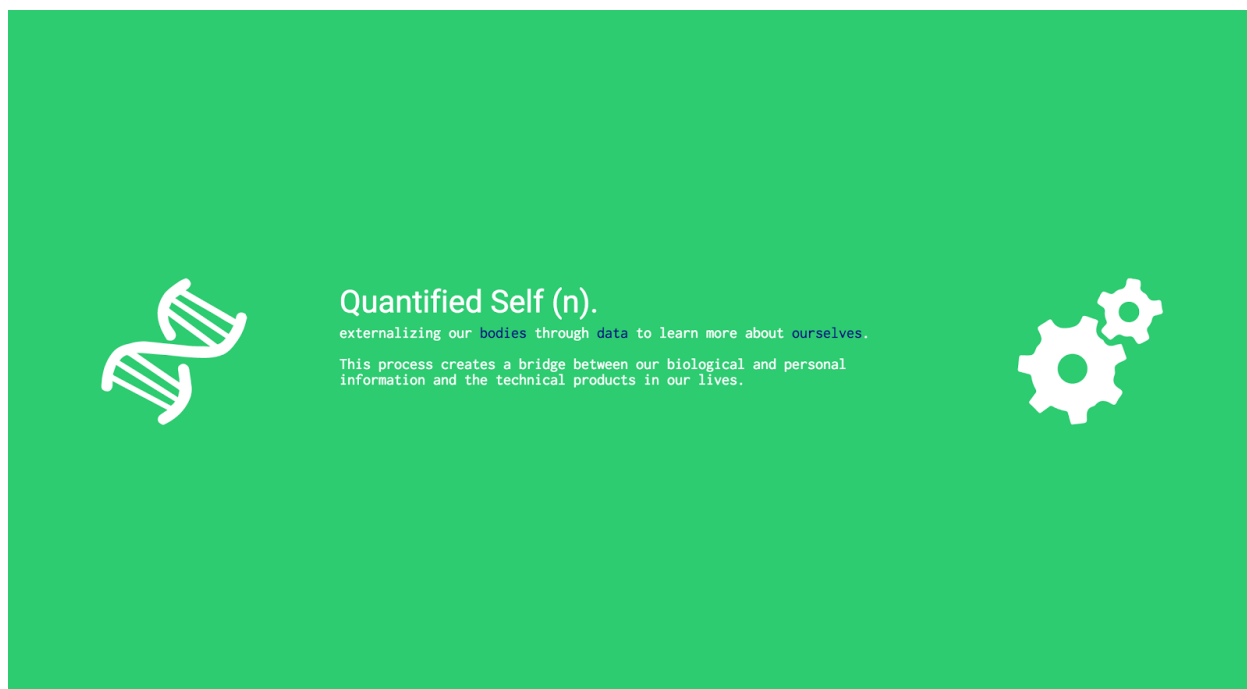*Reed College*

Few behavioral psychologists spend much time experimentally analyzing their own behaviors. Perhaps they study animals in operant chambers, or people in laboratories, classrooms, or hospitals, but rarely, if ever, do they study themselves in quite the same manner. To the contrary, they generally do what others do, layman and scientist alike, and strive to lead a good and effective life, try to raise their children well, and hope things will change for the better. Some even fight with spouse or colleagues and attempt to solve problems, at least for the moment, in alcohol, orgasm, or acid.

Although scientists by profession, behavioral psychologists generally leave their science at work, in the laboratory or the office. Nine-to-five scientists, they neither bring science home nor turn it on the substance of their ongoing lives. The main point of this paper can be phrased as an hypothesis: if experimental psychologists applied the scientific method to their own lives, they would learn

"Self-Experimentation: A Call for Change" is Published

In his paper, Neuringer presents a history and philosophy of self-science. "The solution to many of our problems is a continuous process of discovery and change," he wrote.

12:00 AM
Forget-Me-Not: A "Biography-Generating" Device

http://quantifiedself.com/history/

Section 3: A timeline of quantified self events.

The purpose of the timeline is to provide historical context. It's a sketch to give an understanding of when quantified self communities, products, and research events happened.

We noticed that quantified self communities started developing around 2008, corresponding with the release of commercial wearables like Fitbit. We included a lot of content for this time. Prof. Hearst provided us with older historical events. At one point, we considered adding more content to the pre-2008 section of the timeline, as it is sparse. Prof. Ryokai suggested that keeping this section sparse would communicate to the user that few people were working in the space at the time.

The quantified self is more than just tools, though; it's about asking good questions and finding smart answers.

Weight in 2015

It's easier than ever to find interesting patterns in commonly collected data; here, a person notices their weight increasing.

Sandwiches v. Weight

Based on our observations, we can start to ask new questions about ourselves to find correlations and trends; here, that an increase in visits to the local sandwich shop is correlated with weight gain.
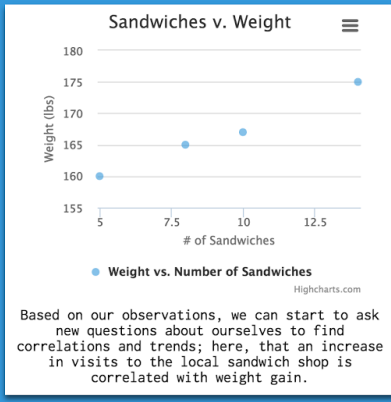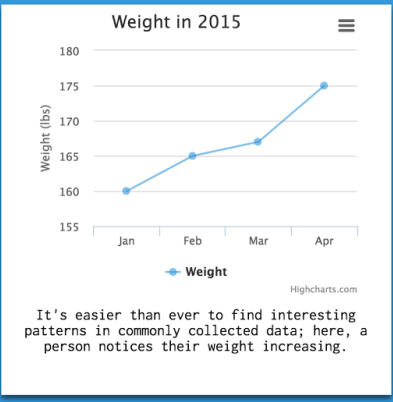
	A	B	C
1	Date	Time	Why I Went to Montague's
2	4/6/2015	11:59 AM	invited by Ricky
3	4/8/2015	1:07 PM	craving Dutch Crunch
4	4/10/2015	3:46 PM	craving Dutch Crunch
5	4/13/2015	4:31 PM	on the way home

Spreadsheet entries with qualitative data can be analyzed for patterns to explain why weight gain may have occurred.

Section 4: A quick rundown of the questioning process in the Quantified Self; moves through trends, correlations, and qualitative data.

All of these tools and questions often create some misconceptions; quantified self is not about:

Tech Utopianism

Reducing people to data

Creating superhumans

Section 5: A slide that talks about some common misconceptions about the quantified self. We felt it was important to include this after our conversation with Ernesto. The need was for this slide was further validated during our project showcase, since people found it useful and informative.

Section 6: A rundown of our personal data, allowing people to glean insights about us while also providing a wide variety of questions and responses a person might find in quantified self; uses various visual principles to make the page work, including similarity of colors, and proximity of the graphs as established by cards. Data is pulled in a single call from a local JSON that contains cleaned data from various sources. We used Highcharts for these.

The first QS meetup happened in Kevin Kelly's basement, the community has grown across the world ever since.

Section 7: A map of quantified self meetups showing geographical distribution, age of the meetups, and size of the groups (number of members).

## Quantify Yourself

x coordinate	y coordinate	mouse move count
60	424	517

Congratulations, you are quantifying yourself! See how easy it is?

You can also join the Quantified Self community: Bay Area Meetup Group

Section 8: Provides a fun and easy quantification metric, as well as (an unstyled D:) direction to Bay Area meetup groups. This is meant to provide some interactivity while also getting people to think about opportunities for quantification.

Trends: QS, Wearables and Wearable Computer
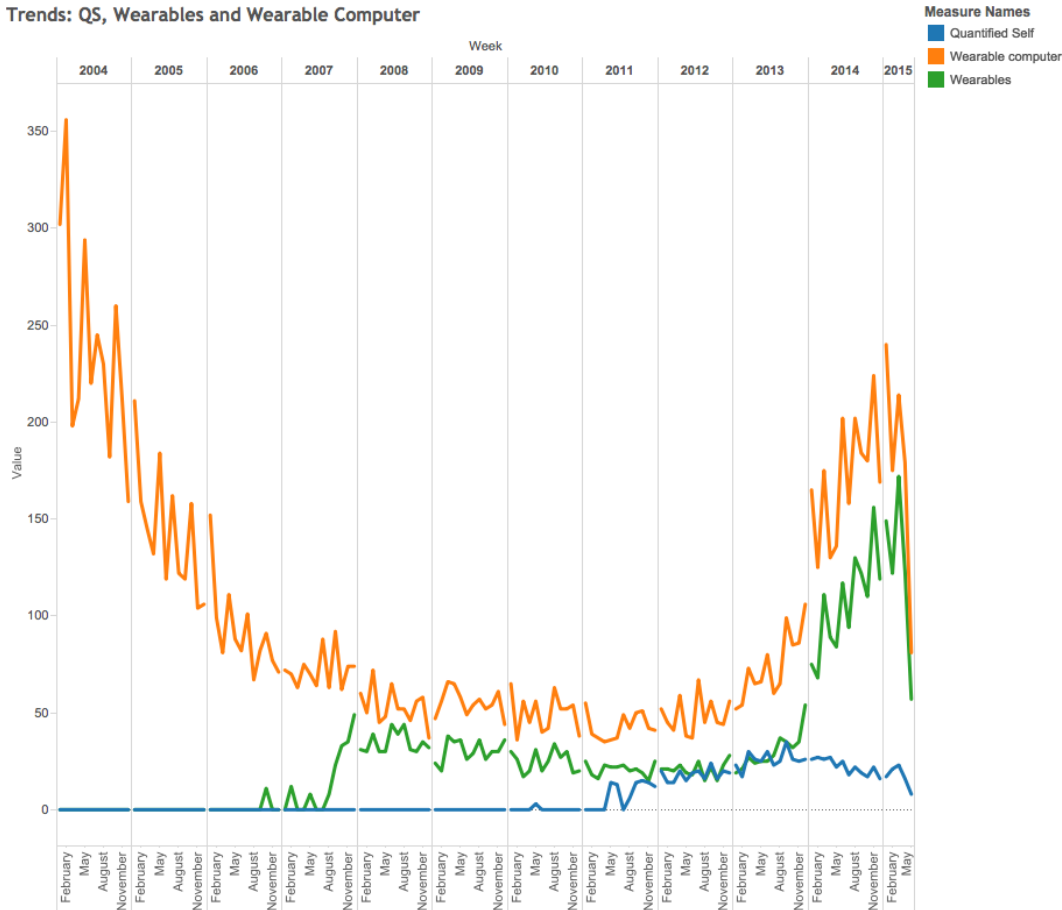
Future additions: We took Marti's feedback during the project showcase, and used Google n-gram data to analyze usage trends of the terms "quantified self", "wearable computer" and "wearables". Additionally, we have interesting visualizations of meetup events, and would like to present that data; fitting it into our narrative has proven to be challenging, though.

Data & Sources

Section 6: Personal visualizations

- Andrew visualization 1 - daily computer usage
  - The "productive time" and "unproductive time" classification of data came from using RescueTime.
- Andrew visualization 2 - smoothie trips vs. cost
  - This data came from examining my bank statements over time.
- Andrew visualization 3 - good sleep vs. bad sleep weeks
  - This data came from my narrative infographic assignment. I had examined weeks when I got enough sleep vs. weeks I didn't sleep well. The data was captured by my Jawbone UP.

- Ashwini visualization 1 - All Time Blog Hits
  - Blogger profile from www.blogger.com
- Ashwini visualization 2 - Soundcloud Hits
  - Soundcloud profile
- Ashwini visualization 3 - The Internship Struggle
  - Excel spreadsheet and personal diary

- Ricky visualization 1 - Daily Steps via Argus & Apple Health
- Ricky visualization 2 - Time Asleep vs. Sleep Quality via Sleep Cycle
- Ricky visualization 3 - Portfolio Traffic

Section 3: Timeline

In the early part of the timeline, we focused on research-related events. Around 2009, a boom in quantified self e included many more events on the timeline starting around 2009 to reflect the boom in quantified self communities and products. This data came from assorted web resources (as referenced in the timeline.)

Section 7: Quantified Self Meetups Geographic Distribution

The list of Quantified Self meetups are found on the side bar of QuantifiedSelf.com, as well as through the Meetup API.

For each meetup, we collected...

- Name of meetup
- Founding date

- Number of members
- City
- URL

To plot these meetups in Tableau, the longitude, latitude coordinates of each meetup were collected from GPS Visualizer.

Section 4: Quantified Self Process Visualizations

This data was inspired by Andrew's personal experiences of eating too many Montague's sandwiches this semester and noticing that he was developing a "Santa belly".

Tools

- Web page: HTML, CSS, JS, fullpage.js (for the slide-like effect), timeline.js
- Git and GitHub for version control
- Data wrangling tools
  - Kimono for scraping
  - Excel, Python for cleaning/transformation
- Visualization tools
  - Tableau was used for the global map, EDA
  - Highcharts was used for personal visualizations and the example graphs
- jquery .mousemove() to track and display mouse movement
- Photoshop & Illustrator for visual assets

Process

Design Strategy: focused on developing a narrative

We knew we had some data from the meetup API, but we didn't exactly know what to do with it, or how to supplement it; we decided to invoke the methods we learned from the Dow et al. article on Prototyping Dynamics, and we came up with independent visions for the project. Ricky developed the idea for a QS meetup dashboard that focused on maps and stories coming from each location, but Ashwini and Andrew both had components for a more narrative infographic. As a team, we moved forward with the narrative infographic idea, trying to highlight our inner Cairo to tell a great story.

Investigation

In the spirit of Cairo, we did a surprising amount of investigation, interviewing Ernesto Ramirez, a quantified self movement thought leader, as well as Meena Natarajan, a PhD student at the I School who has expertise in the area of quantified selfers. We also went to the web to try and find lots of different content; this particularly informed our timeline.

Paper prototyping the narrative and flow.

Yet again, we developed independent narratives. Once we brought them together, we created small "modules" for the information our narrative conveyed, and then found common trends, outliers that didn't serve a useful purpose, and then established an overall flow for the content - our story was of primary importance to us.

Data wrangling to collect all the visualization data

Once we had our story set out, we worked to cement data, or scrape together the data that could illustrate our specific points. This proved to be surprisingly difficult. We encountered awkwardly formatted HTML that didn't lend itself to scraping, messy data sets, and vacuums of data that we would have expected to be pretty standard. We cleaned up what we could, and tried to find interesting ways to convey points that didn't have underlying quantitative data.

Design research

We created a pinterest account, as well as a rough style tile to guide our design. We chose a bright, flat design-inspired color palette that contrasted the matrix-style quantified self visual assets, and departed from the oddly masculine fitness resources that we collected. We believe this helped make our infographic familiar, and goes with the theme of dispelling quantified self myths. To meet some of the users' expectations, though, we used Inconsolata, a friendly monospaced font (it invokes ideas of the terminal/DOS while erring towards humanism) as well as Roboto, Google's sans serif font for Android, which is geometric while still sporting friendly, open curves. All of this contributes to a tech feel, while not coming across as elitist.

Front end dev for building the visualizations

We used git and github for version control, and built our HTML and CSS from scratch. We wrote very little vanilla javascript, instead relying on the jQuery library, as well as plugins like fullpage.js for creating "slides" and timeline.js for… Well, for our timeline. We also used the Highcharts API and Tableau API for displaying our data. For highcharts, we made a custom JSON of personal data for neat preprocessing and efficient access; our personal data code makes a single call to the JSON file, and could easily be expanded to further data or built to substitute in new data and visualizations.

Usability testing

Our testing showed that our visualizations tended to be strong, but our story still needs work; along the way, we've grown further and further away from our audience as our own understanding of quantified self has grown and matured, which makes it difficult to catch all of our jargon. We made quite a few changes to copy, and removed a number of points that simply didn't feel like they contributed to our broader goals; in general, however, our visualizations were successful, and we were happy with the general effect that our project had; some people left knowing more about quantified self, while some people actually changed their opinions, thinking more critically about their conflation of the terms "quantified self" and "wearables".

Usability Tests & Interviews

Ernesto Ramirez - "People don't get who we are"

Our early conversations with Ernesto Ramirez indicated that the quantified self community faces a lot of PR issues - namely, that people conflate the term 'wearables' with 'quantified self'. This helped guide our project early on, and we moved away from creating a dashboard, and instead considered how we could use the principles and techniques we learned in information visualization to tell a better story about the quantified self.

Meena Natarajan - "Your project around visualizing QS meetup activity is novel."

Our visualization has some meta-aspects to it; we're telling a story about visualizations that we're creating, and trying to scrape together sources that articulate broader values and ideas in the quantified self community. This interview suggested that our infographic fulfilled a use and could help create meaning in a community that lacks it.

A first year MIMS student - "What?"

This usability test highlighted a need for more concrete text. Our infographic meandered through abstract definitions and concepts, and that isolated our target audience of uninitiated quantified-selfers. We clarified our content, pared down ideas we couldn't articulate clearly, and hopefully have a stronger project for it.

Exhibition - Casual Feedback

Our infographic lacked some heft, and simple tools like Google's n-gram could have articulated some of the broader trends in quantified self and allowed for useful inferences.

Contributions (1 = minimal involvement, 2 = moderate involvement, 3= major involvement.)

	Andrew	Ashwini	Ricky
Research	3	3	3
Timeline	2	3	1
Map	3	1	1
Personal Data Page	1	2	3
General Site Content	2	2	2
Documentation	2	2	3
Narrative	3	3	3
Paper Prototype	3	3	3
Usability Testing	3	3	1
Mouse move counter	1	3	1