Hello
Field research: The nitty gritty of the real world

Photos: Paul Gould
Knowledgeable pursuit

Junior bookworm

Bryan Elementary School sixth grader Paul Gould, son of Ken and Ingrid Gould, recently picked up five school trophies for reading 375 books during the past school year. Paul said he does not know exactly how fast he reads but an average size book will take him less than two hours to complete. This summer, he expects to read 250 books in one of his favorite reading spots — a comfortable tree limb just outside his house.
Most people start out as designers . . . before unlearning that awesomeness
“Everyone designs who devises courses of action aimed at changing existing situations into preferred ones.”  

HERB SIMON
Survival of the Fittest

How the Science of Design Can Save Your Neck
Evolution
Connected
Social media network connections among Twitter users

Diagram: Marc Smith (CC by 2.0)
Open APIs: Growth is accelerating

Total APIs over time

- 8 Years
- 9 Months
- 18 Months
Data Scientist: The Sexiest Job of the 21st Century

Abstract

Key to the effective use of big data are the analytical professionals known as "data scientists," who can both manipulate large and unstructured data sources and create insights from them. Data scientists are difficult to hire and retain, but their skills will be necessary to any organization wishing to profit from big data.

Keywords: big data; data scientists; business analytics; Data and Data Sets; Mathematical Methods; Jobs and Positions

Format: Print

Citation:

Fast
New Transatlantic Cable Built to Shave 5 Milliseconds off Stock Trades

Hibernian Atlantic is building an undersea fiberoptic cable that will stretch from New York to London. The purpose of this engineering feat? To allow computers to complete financial transactions 5 milliseconds faster than their competitors. Finance is now increasingly dominated by automated trading, and to a computer 5 milliseconds is an eternity.
HOW ONE SECOND COULD COST AMAZON $1,000 IN SALES

RESEARCH ON U.S. NET HABITS SUGGESTS THAT IF THIS SENTENCE TAKES MORE THAN A SECOND TO LOAD, MANY CITIZENS WILL HAVE CLICKED AWAY ALREADY. IF YOU’VE GOT THE PATIENCE (OR ARE EUROPEAN) READ THIS SHOCKING DATA ON NOT DAWDLING.

BY: KIT EATON
Massive

10 quintillion transistors were produced, which was . . . 250x the grains of rice consumed in the world. 1 grain or 125,000 transistors cost the same!
2007
“There is no chance that the iPhone is going to get any significant market share. No chance.”
— Steve Ballmer, CEO: Microsoft

2012
iPhone sales exceeded all revenue of Coca-Cola and McDonalds—combined.

Source: Bloomberg Businessweek, 9 September 2013
Complex
1900

Technology used to be:

- Expensive
- Rare
- For experts

Try it yourself. Click on the arrows below.

- **Calories Burned**
  - Target: 2170 Calories
  - Actual: 2372 Calories

- **Calories Burned Per Minute**
  - From: 6:30 AM
  - To: 12:00 AM
  - Calories Burned: [Graph]

- **Calories Consumed**
  - Total: 1920 Calories
  - Current: 1152 Calories

- **Calorie Balance**
  - Total Calorie Balance: 120 Calories
  - Current Calorie Balance: 1220 Calories

- **Physical Activity**
  - Total Activity: 0:45

- **Steps Taken**
  - Total Steps: 8000 Steps

- **Sleep Duration**
  - Total Sleep: 8:00

- **Weight**
  - Current Weight: 128 LBS
  - I have lost: 11 LBS

Know your body. Change your life.

The four sensors in our little Armband pull data off of your body at a clip of 5,000 data points per minute. All of that data gets categorized and analyzed and delivered to you in an easy-to-understand way. With this info you can unlock secrets of your body and determine what you should do (or stop doing) to lead a healthier life.

Learn More
Founded by Fred Rogers, Family Communications is a non-profit committed to creating projects for children, their families and those who support them. It is our privilege to continue Fred Rogers’ work and expand it to reach new audiences.
Humans cope by putting things in boxes (and by hoping for magic bullets)
Interdisciplinary teams bring fresh perspectives and break down barriers

- Information Design
- Interaction Design
- Animation/Filmmaking
- Architecture

- Software Engineering
- Electrical/Mechanical Engineering
- Computer Science
- Mathematics

- Human/Computer Interaction
- Ethnography
- Anthropology
- Cognitive Psychology

@paulkgould
Taming complexity

- **Ease of Use**: Hammer
- **Power**: Apollo Landing

@paulkgould
Taming complexity

- **Ease of Use**
  - Hammer

- **Power**
  - Human Vision
  - Apollo Landing
Applying Human-Centered Design

Innovating for People
CHARACTERSTICS OF INNOVATIVE PEOPLE
(KEY BEHAVIOR TRAITS)

- Empathetic
- Persistent
- Curious
- Experimental
- Risk Enthusiast
- Problem Framer
- Pattern Finder
- Networker
- Imaginative
- Collaborative
- Humble

SKILLSET OF INNOVATIVE PEOPLE
( THE DISCIPLINE OF HUMAN-CENTERED DESIGN )

- Looking
- Observing Human Experience
- Understanding
- Analyzing Challenges & Opportunities
- Making
- Envisioning Future Possibilities

A-ha!
PAUL’S THREE KEYS TO DOING AWESOME THINGS:

GET ENGAGED
DON’T BE AN IDIOT
PLACE MANY SMALL BETS
YOU DON’T KNOW EVERYTHING
GET ENGAGED

(INVOLVE AND UNDERSTAND DIVERSE PEOPLE)
Understanding users in context helps identify user needs—even if unspoken
What’s going through their minds?
Prototypes evolve through testing with users
We create information-centric interfaces that allow for direct-manipulation of information, polymorphic presentation of information, and fluid collaboration.

"The greatest advance in technology for command and control in the past 30 years." — Gen. Paul F. Gorman, US Army (Ret.)
SILOS AND ONE-OFF PRODUCTS ARE BRITTLE
DON’T BE AN IDIOT
(WORK ARCHITECTURALLY)
The system should not be what you’re delivering
The system should not be what you’re delivering

Stuff

System Architecture

Information Architecture

User Interface Architecture

Oooo!
The system should not be what you’re delivering

How To Think

System Architecture

Information Architecture

User Interface Architecture
Make rough and ready prototyping to test concepts
IT’S NOT GOING TO BE RIGHT THE FIRST TIME
PLACE MANY SMALL BETS

(APPROXIMATE THE EXPERIENCE EARLY)
Early Flight
SILENT FOOTAGE
Name that dude:
It's going to cost you somewhere, sometime...
We build simple prototypes as quickly and as early as possible to test thinking and hypotheses
Usability testing with paper prototypes
How about you?
Gallup Student Poll Fall 2012
Engagement of Male and Female Students by Grade

- % Engaged males
- % Engaged females

GALLUP
October 28, 2011

Majority of American Workers Not Engaged in Their Jobs

Highly educated and middle-aged employees among the least likely to be engaged

by Nikki Blocksmith and Jim Harter

WASHINGTON, D.C. — Seventy-one percent of American workers are "not engaged" or "actively disengaged" in their work, meaning they are emotionally disconnected from their workplaces and are less likely to be productive. That leaves nearly one-third of American workers who are "engaged," or involved in and enthusiastic about their work and contributing to their organizations in a positive manner. This trend remained relatively stable throughout 2011.

### Gallup Employee Engagement Index

<table>
<thead>
<tr>
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<th>Quarter 4 2010</th>
<th>Quarter 1 2011</th>
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<tr>
<td>% Engaged</td>
<td>28</td>
<td>30</td>
<td>30</td>
<td>29</td>
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<tr>
<td>% Not engaged</td>
<td>53</td>
<td>52</td>
<td>51</td>
<td>52</td>
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<tr>
<td>% Actively Disengaged</td>
<td>19</td>
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**GALLUP**

Findings are from a special Gallup Daily tracking series conducted on an ongoing basis since the fourth quarter of 2010 to measure American workers' engagement levels. Gallup's employee engagement index is based on worker responses to 12 workplace elements with proven linkages to performance outcomes, including productivity, customer service, quality, safety, and profit. Further research shows significant linkages between engagement at work and **health and well-being**.

Americans' levels of engagement at work are generally consistent with Gallup's trends on workplace engagement from various studies since 2000. The current percentage of engaged employees is similar to the historical high of 30% in 2001 to 2002 and 2006 to 2007. The percentage who are actively disengaged is near the high of 20% recorded in 2007 and 2008.

Highly Educated and Middle-Aged Workers Less Likely to Be Engaged
Competent

Engaged

Dropout

Automaton

Entertained
THREE KEYS TO DOING AWESOME THINGS:

GET ENGAGED
DON’T BE AN IDIOT
PLACE MANY SMALL BETS
That’s larger than me . . .

That’s me!

Exploratory
Experimental
Expressive
Empathetic
Engaged