Communication and Sales: A Scientist’s Perspective

Dr. Peter S. Fiske
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UC Berkeley - PIEP
Let’s start with a simple math question…

A bat and a ball together cost $1.10

The bat costs $1.00 more than the ball

How much does the ball cost?

$0.10?
\[ X + Y = 1.10 \]
\[ X = Y + 1.00 \]
\[ (Y+1.00) + Y = 1.10 \]
\[ 2Y = 0.10 \]
\[ Y = 0.05 \]
\[ (X = 1.05) \]

50% of undergraduate students at MIT, Princeton and Harvard get this simple math problem wrong…
We think that we behave like this:
But much of the time, we actually behave like this:
Limbic System

- Limbic cortex (mood)
- Septal area
- Thalamus
- Hippocampus (memory)
- Amygdala (emotions, such as fear/anxiety)

Hypothalamus (limbic output)
We are highly evolved social animals…

- We are designed to pick up on subtle queues that signal fitness, power, and fecundity
- We are highly biased toward social behavior and cooperation
- We are predisposed to favor those genetically similar to ourselves (selfish gene theory)

As a result, we are in a constant dialog between our forebrain (governing executive function) and our limbic system (governing emotion and reaction)
Daniel Kahneman (Nobel Prize – Economics, 2002)

System 1
- Fast, automatic
- Instinctive, stereotypical
- Emotional, subconscious

System 2
- Slower, Effortful
- Deliberative, Infrequent
- Logical, Conscious

Scientists live in a world of System 2 thinking…

However, when we request that certain reviewers be excluded from reviewing our papers, we also acknowledge that we live in System 1 too…
Most of our decisions are based in System 1

System 2 is lazy, and spends most of its time rationalizing and being a spokesman for System 1

Effective communicators recognize that BOTH systems must be addressed to have maximum effect
Scientists and Engineers ideal sales pitch:

- Deeply research your prospect and present a case ideally suited to their needs
- Provide the prospect with detailed features about the product
- Explain the features and the significant benefits they create
- Show the prospect a cost/benefit analysis and a return-on-investment (ROI) calculation
- Ask the prospect how many they would like to order

If the prospect questions the value of one or more features, or questions the ROI calculation, refute their arguments and reaffirm your claims.
Effective Sales Requires Appealing to BOTH Mental Systems...

System 1
- Trustworthy, Believable
- Authoritative
- Interesting
- Sympathetic/Safe
- Funny

System 2
- Credentials
- Demonstration of Knowledge
- Understanding of the Perspective of Others
- Wit
How do most salespeople sell?

- The “Solution” (70%)
- Chemistry (10%)
- Understands Me/My Business (10%)
- Politics (10%)

From RogenSI 2012
Why Do People Choose?

Politics: 20%
Understands Me/My Business: 20%
Chemistry: 20%
The “Solution”: 40%
Knowing Your Audience

- Understanding their communication styles
- Understanding their motivations and values
Communication styles of others…

**People**
- High energy
- Big picture
- Visionary
- Competitive
- Creative Thinker
- Ego driven
- Low attention to detail
- Ambitious
- People-people
- Value relationships
- Sociable
- Like meetings
- Team-oriented
- Like consensus
- Avoid conflict
- Unassuming

**Amiable**
- Outcomes-oriented
- Values their time
- Yes/no answers
- Impatient
- Objective driven
- Direct
- Don’t mind conflict
- Often a decision maker
- Like options, evidence
- Methodical
- Value accuracy
- Often a key influencer

**Expressive**
- Driver
- Process-oriented
- Attention to detail
- Low sense of urgency
- Risk-averse
- Analytical
- Task
- Tell
- Ask

From RogenSI 2012
How important is it for me to stay focused on the big picture?

How important is it that we’re seen as providing a visionary, forward-looking approach?

How important is safety/maintaining consensus?

How much does this person enjoy non-business conversation?

What results will be provided?

How much will it cost?

When can I get out of here?

How important is precision and detail to my audience?

Have our ideas been tested?

Where did our ideas come from?

From RogenSI 2012
What does my audience (client) value?

• What are they proud of?
• Who are they loyal to? Why?
• What excites/bores them?
• What past career successes are they trying to replicate?
What makes my message stand out?

1. Clarity

2. Relevance (bridging from what you are saying to why your listener should care)
Communication is also Non-Verbal

1. Eye contact & facial expressions
2. Voice
3. Words & language
4. Gestures & movement
5. Body language & posture
6. Energy
7. Attire

This stuff takes practice!
• We are dramatically influenced by the non-verbal communication of others

• We can “hack” our own limbic system by adopting physical poses that connote confidence, power and pride
  – Pen in teeth

“Fake it, and you will make it”
Good presenters think about what they are saying…

Great presenters think about what the audience is hearing.
“Here is our offer and here is why it is best for you”

“Here are your challenges and opportunities and the criteria needed for a ‘best‘ solution – and here is that solution and our credentials for delivering it.”
When is “Selling” actually Manipulation?

• When one is trying to convince someone to do something that is not in their real interests
  – (using System 1 against System 2)

• When one is misrepresenting the facts
  – Exaggeration, omission, lies

• When one is exploiting known “bugs in the software”
  – Anchoring – irrelevent numbers as influencers
  – Loss aversion
  – Availability heuristic - racism
Recognizing System 1 “bugs” in your own decision-making

• **Loss-aversion**
  - 90% to 100%, 45% to 55%, 0% to 10%
    • Equal increase in utility but…
    • People place disproportionate value on going from 90% to 100%
Recognizing System 1 “bugs” in your own decision-making

- Anchoring
  - People are influenced by irrelevant numbers
    - German judges give harsher sentences after rolling dice and getting a high number
Recognizing System 1 “bugs” in your own decision-making

• **Availability heuristic**
  - People judge the probability of events by how easy it is to think of an example
    • Overestimation of the odds of airplane crashes
    • Underestimation of automobile crashes
  - Letter “K”
    • If a random word is taken from a text in English, is it more likely to begin with the letter K or have the letter K as the third letter?
Telling stories is powerful Jedi magic

- Stories invite the listener to be in the narrative
- Stories disarm a listener’s urge to “get to the ending”
- Stories promise pleasure and entertainment through a vicarious experience
- System 1 operates on stories
A protocol for telling a good story about yourself: STAR

- ST – Situation or Task
- A – Action
- R – Result
A few other “humanizing” tips for meeting people...

- Make eye contact – a good protocol for delivering the right amount of eye contact: make a mental note of the color of the other person’s eyes
- Give a good handshake – if you are uncertain whether your handshake qualifies, test it on friends
- Have professional-looking business cards
Ph.D. Selling Advantages and Liabilities

What do most people think of when they see Ph.D.?
Constructing a bio

Biography for Dr. Peter S. Fiske

Dr. Peter S. Fiske is the Chief Technology Officer of PAX Mixer Inc. and PAX Water Technologies as well as VP for R&D for parent company PAX Scientific, Inc. In his various roles, Fiske manages day-to-day operations for PAX Water and PAX Mixer, overseeing all aspects of Sales, Marketing and Product Development. Under his leadership, PAX Mixer Inc. won a prestigious 3-year, $2M Advanced Technology Program award from the Department of Commerce.

Prior to joining the PAX Companies, Fiske was co-founder of RAPT Industries, Inc., a start-up based on technology from Lawrence Livermore National Laboratory, where Fiske was a staff member for 6 years. Fiske identified the technology while at LLNL and, as a second-year evening M.B.A. student, developed the business plan for RAPT which won first place in the third annual U.C. Berkeley Business Plan Competition in 2001. Fiske and his partners subsequently closed a series A round of investment and since then have raised over $12M in government funding from the DOD, NIST and NASA. Fiske led negotiations to license a portion of the technology to a major semiconductor equipment manufacturer, and led the first sales of products. Fiske was CEO of the Company from May, 2001 to April, 2004.

Fiske is the author of 20 technical articles, most in international peer-reviewed journals including SCIENCE. He presently serves on Rep. Ellen Tauscher’s (CA-10) Small Business Advisory Committee where he works with other small business owners and Congressional staffers to evaluate and propose legislative initiatives to increase the growth and economic vitality of the East Bay of the San Francisco Bay Area.
Managing Your E-persona

- Facebook – for friends
- Linked In – for colleagues and professional friends
- Your/your group’s website
  - Post your papers
  - Post your bio
  - Don’t post your CV
- Vanity Google

You can link to me at Linked In (Peter Fiske – Put Your Science to WORK)
Peter Fiske: The Art of the Whip

What better way to commemorate Pride than with leather icon Peter Fiske? Few men in our community are more loved, respected and celebrated than this month’s presenter at the Leatherman’s Discussion Group in San Francisco.

A friend of LDG from the beginning — 15 years ago — Peter will bring a selection from his legendary collection of rare and unusual whips, talk about buying whips, using them safely, and the art of the single tail, from administering marks of pleasure to making a hot scene happen with your whip.

Daddy Peter Fiske has been a leatherman since March 1964. He is a Stonewall veteran and member of Stonewall Veterans Association (SVA) New York, NY. Peter is SF Leather Daddy XXI and he is Chairman of Delta International, Chairman Emeritus of the 15 Association, and a co-founder of the Breast Cancer Emergency Fund (BCEF) of SF. His community service includes: board member and president of SF AIDS Emergency Fund and board member of SF LGBT Pride.

Peter’s awards include two Pantheon of Leather Awards and one Pantheon Lifetime Achievement Award. Peter has also been honored with the Hugh Cash Award by ABE San Francisco and by SF LGBT Pride with the TIDE.
CEO
PAX Water Technologies, Inc.
November 2008 – Present (4 years 7 months)

PAX Water Technologies, Inc. is the leader in energy-efficient water quality tools for the potable water distribution system. PAX Water is the winner of numerous awards and has been featured in Fast Company, Business 2.0 and the New York Times. Under his leadership, PAX Water has more than doubled growth each of the past 3 years and is about to launch 2 new products for the water industry.

1 recommendation

Paula Chambers
Founder of The Versatile PhD

I had the good fortune to attend one of Peter's presentations at a university and was completely blown away, both by the importance of his message and the excellence of his presentation style. I saw his one-hour talk, "Putting Your Science to Work..." View↓

Author and Lecturer
Put Your Science to WORK!
1994 – Present (19 years)

Dr. Fiske is also a nationally-recognized author and lecturer on the subject of leadership and career development for young scientists and engineers. He is the author of To Boldly Go: A Practical Career Guide for Scientists (AGU Press, 1996). A new edition, Put Your Science to Work was published in December of 2000. From 1996 to 2000 he wrote the career advice column Tooling Up, read by over 60,000 scientists and engineers monthly and has lectured on the subject of career development for scientists to over 8,000 young scientists and engineers in the US and the UK. He presently writes the monthly on-line column Opportunities for the American Association for the Advancement of Science and, with fellow scientist/entrepreneur Dr. Geoff Davis, keeps an active dialog with the science community.
Skills & Expertise

- Business Development (28)
- Entrepreneurship (27)
- Public Speaking (18)
- Start-ups (7)
- Product Management (5)
- Mergers & Acquisitions (5)
- Engineering (3)
- Strategy (2)
- Strategic Planning (1)

Education

University of California, Berkeley - Walter A. Haas School of Business
MBA, Finance and Law
1999 – 2002

Stanford University
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- **Ciemniewska, Alicja**
  Analyst/Software Engineer - Poznan Supercomputing and Networking Center
- **Czaplicki, Dominik**
  Research associate - Jagiellonian University
- **Grega, Michal**
  Assistant Professor, PhD. Eng. - AGH University of Science and Technology
- **Katzer, Jacek**
  Researcher and lecturer - Koszalin University of Technology
- **Michalski, Jakub**
  organizer - Plug and Play Poland.com
- **Pajdak, A. Michal**
  CMO - CSI Polish Institute
LinkedIn Etiquette

From Hojjat Nasr, Ph.D. View Profile »
Lead Multiphysics (Fluid/Thermal/Structural) Engineer at CD-adapco | Experienced in Aerospace & Defense, Oil & Gas
3 shared connections

I'd like to add you to my professional network.

- Hojjat Nasr, Ph.D.

Accept
LinkedIn Etiquette

From Matthew Hedayat
Independent
4 shared connections

Hi Peter,
Nice meeting you at the UCSD on Saturday.

- Matthew Hedayat; PD., PE., MBB.
LinkedIn Etiquette

From Rachel Tsui
President of Oxbridge Biotech Roundtable San Diego, NSF Graduate Research Fellow at UCSD
6 shared connections

Hi Peter,

It was great to meet you last Saturday at the UCSD PhD Careers Conference. I really appreciated your moderation of the panel and your keynote address!
Regards,
Rachel Tsui

Accept
Wrapping it all up…

• Because we are Homo sapiens, we are subject to a range of behaviors and biases

• These behaviors and biases MUST be addressed if we are to have maximum effect with our communication

• Effective communication requires that you not only understand your subject but also that you understand your audience
  – Understand and sympathize with their needs, fears, opinions, and desires

• Everything you do communicates something about yourself
  – Manage your image, behavior and “E-persona” with intention
Some final thoughts…

• If we taught PhDs how to REALLY communicate…
  – Would we have such a vocal opposition to things like evolution, global warming, and vaccines?
  – Would we be experiencing the current level of ambivalence toward science funding from our politicians?

• Effective communication, like science itself, is an extraordinarily empowering tool

• Use it for good
References, Reads and Recommendations

- **Prof. Daniel Kahneman**
  - *Thinking Fast and Slow* (2011)
- **Prof. Amy Cuddy**
  - [http://www.ted.com/talks/amy_cuddy_your_body_language_shapes_who_you_are.html](http://www.ted.com/talks/amy_cuddy_your_body_language_shapes_who_you_are.html)
- **Dr. Robert Cialdini**
- **Star Trek (Original Series)**
- **Star Wars**