

Better Decision Making: Science or Stories?



Linda Rising

www.lindarising.org

linda@lindarising.org

[@RisingLinda](#)



A short survey

How many are doing some flavor of Agile?

How did your organization decide to do that?

How many looked at the randomized, controlled studies that provided evidence that Agile is better than your current process?



We rely on good stories

- **The short history of our industry is not progress based on scientific experiments.**
- **Instead we jump on the latest bandwagon because we hear good stories.**
- **These are not even really case studies.**



Science vs. Stories

- **Stories are old (at least 20,000 years)**
- **Science is new (around 400 years)**
- **Stories are personal**
- **Science is abstract**
- **You can see the difference in brain scans**
 - **we resonate with stories**



Why test “common sense”?

How many believe that Agile practices don't need formal evaluation because they're...

...so obviously common sense!!

Is medicine a science?

Bloodletting?

Leeches?

Leeches nearly extinct!

But it's common sense!



William Harvey (1578–1657)





We're reluctant to believe science

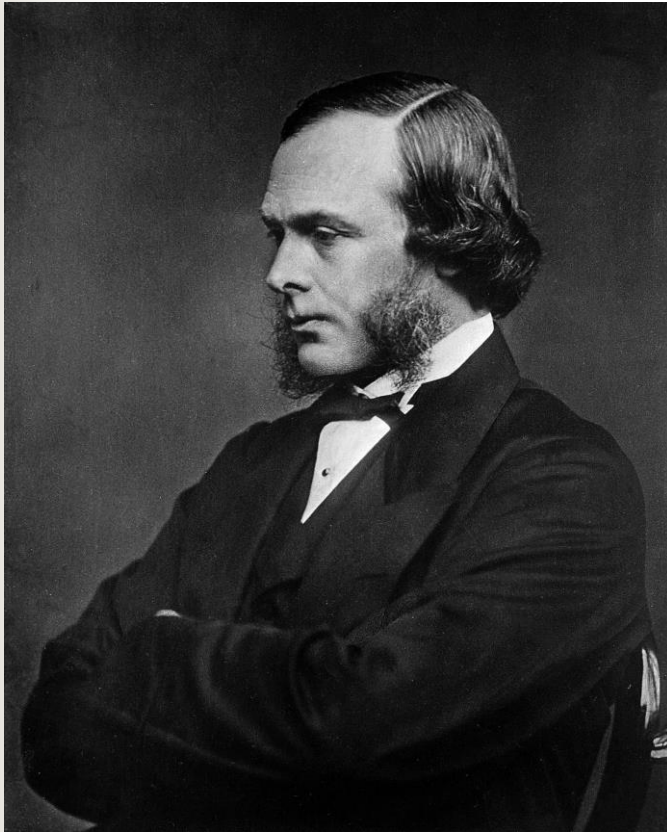
- **Harvey proved bloodletting not effective in 1628**
- **But it remained “best practice—common sense” until the 1920s**
- **Stories trumped science for 300 years**

Ignatz Semmelweis (1818-1865)



Science finally convinced almost everyone...

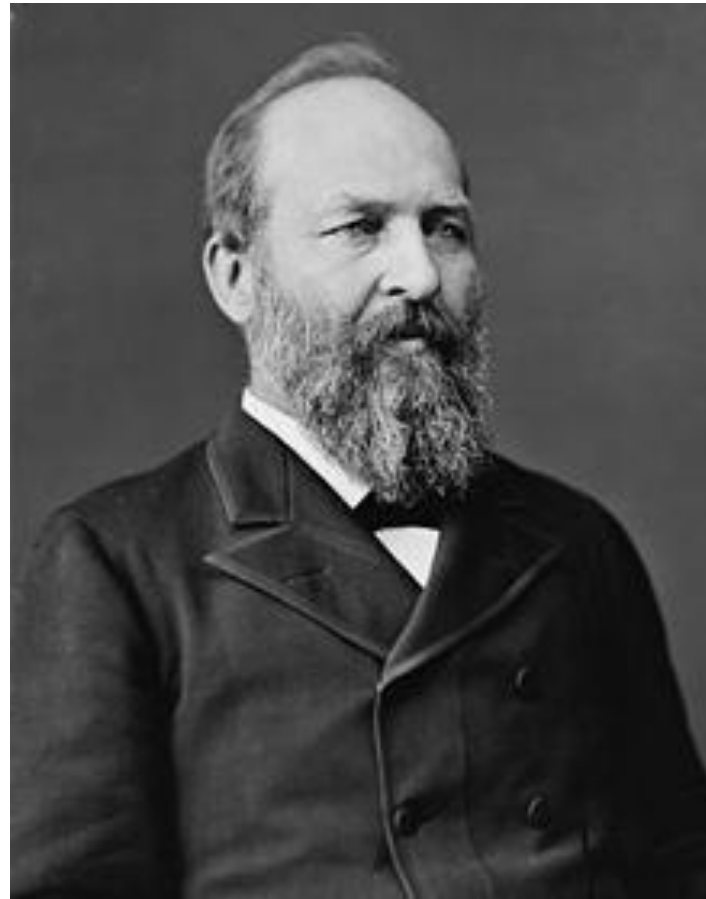
Joseph Lister (1827-1912)



Louis Pasteur (1822-1896)



James Garfield (1831-1881)





Science validates but doesn't always convince

**Semmelweis, Lister, and Pasteur didn't
convince physicians in the U.S. it was the
story of Garfield.**



What if drug companies operated the way we do?

- **Drugs would be offered on the street corner!**
- **They work for me, why not try them for your ailment?**
- **Even drug companies were late in recognizing that controlled experiments needed another “arm.”**



Radomized, double-blind not enough

- **Real treatment + Control not sufficient**
- **Placebo is required**
- **Not instituted until 1950s**



Why do placebos work?

- **Belief**
- **Groupthink**
- **Social pressure**
- **Stories!**



Could Agile be a placebo?

- Given the lack of scientific evidence...
- Does it work because we believe in it?
- Do “true believers” and “high priests” sustain the practices?
- Is this a bad thing?



Science isn't foolproof

- **Many scientific results have been shown at a later date to no longer hold.**
- **Newtonian physics, once thought to be “true,” was later displaced by Einstein’s theories, verified by better measurements.**
- **Unified Field Theory can’t be tested – deep physics + philosophy.**



Scientists also tell stories

Einstein always began with “thought experiments” (stories) and only later verified with physical experiments.



Scientists are biased

- Drug trials are now “double-blind” because it was discovered that if researchers and doctors knew which patients were getting “real” treatment, that would change the outcome.
- Scientists suffer from confirmation bias.
- I wouldn’t believe that – even if it were true!
Anonymous reviewer of a scientific paper

We're natural scientists!





Our educational system?

Science education focuses on what to think about, that is, content, not how to think.

Problems given to students are solvable, when problems in the “real world” often have no solution.

We don't prepare students to think and make decisions.



Organizations don't encourage the scientific method

**We don't have the resources for one
experiment, let alone the repeated
experiments that good science requires.**

**Decision-makers want action not
investigation.**

**Many executives are resistant to the notion
of "experiment."**

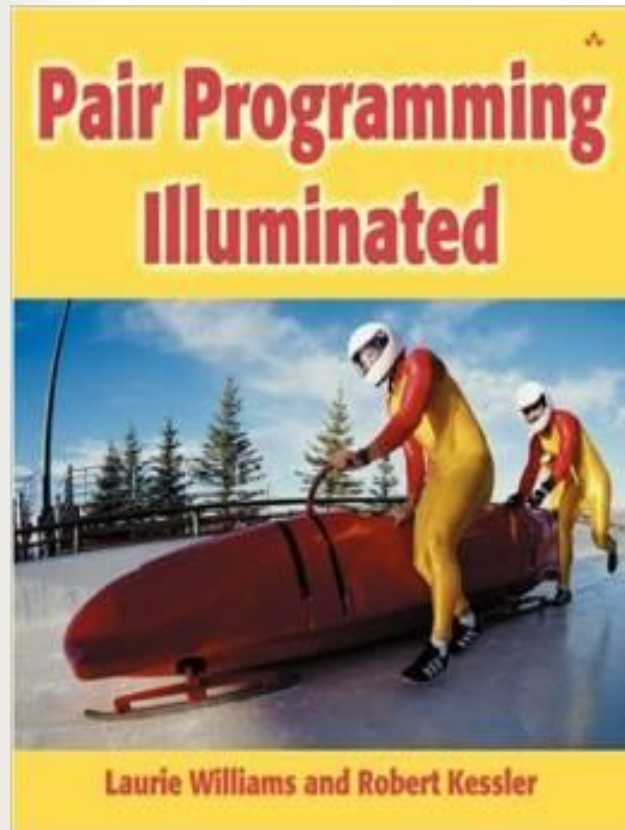


Some parts of organizations do science

Finance and marketing departments will look at data and evidence to understand whether Diet Coke or Coke Zero works for women and men but we don't seem to apply these methods in development. This will likely change with big data and new technologies but it hasn't happened so far to any great degree.

What CAN we do?

Test what we can



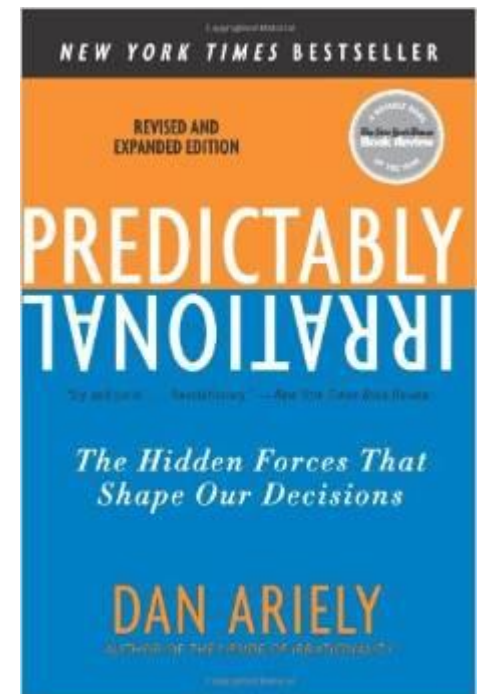
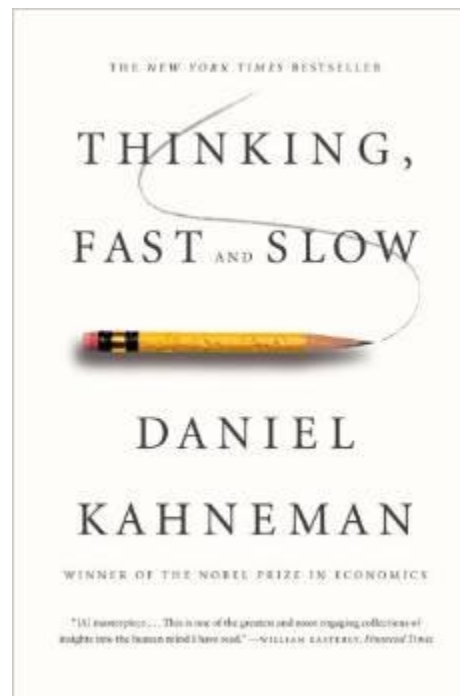
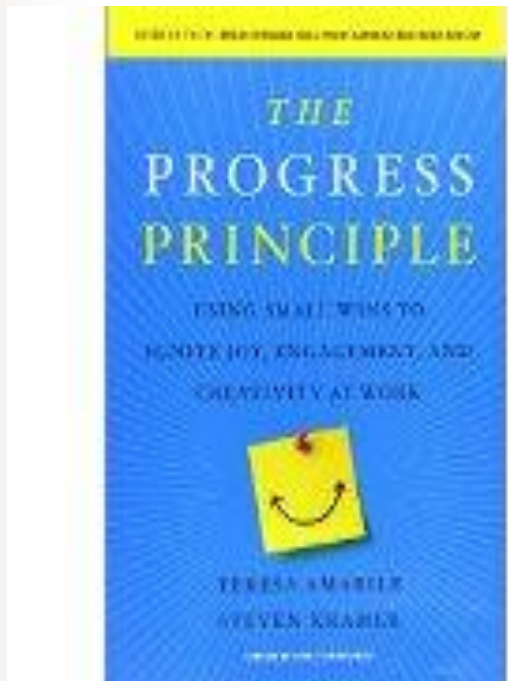
Arlo Belshee

**“Promiscuous Pairing
and Beginner’s Mind:
Embrace Inexperience”**

Jez Humble

**[https://lapm.continuous
delivery.com](https://lapm.continuousdelivery.com)**

Look at outside research





Richard Dawkins

...you needn't actually do double-blind control experiments to [improve]...your cognitive toolkit. You need only understand the principle, grasp why it is necessary, and ...learn:

- Not to generalize from anecdotes.
- How to assess the likelihood that an apparently important effect might have happened by chance alone.
- How extremely difficult it is to eliminate subjective bias
- Not to be seduced by charlatans
- Critical and skeptical habits of thought, which...might save the world.



Do Food...together

Everyone had lunch, tea, coffee together, they spent a lot of time talking and I wondered how anyone was getting any work done! But the conversations were not about the latest movie—they were always talking about science, suggesting ideas for experiments, sharing ideas, critiquing, giving feedback.

Now we eat lunch in our offices alone, doing e-mail. IMHO, this is a lousy way of doing science. You can't learn anything by doing e-mail.

At the Lindau Nobel Laureate Meeting, 2009 chemistry laureate Thomas Steitz recalled the Laboratory of Molecular Biology at Cambridge in the 1960s.



Diversity!

Have more women on the team or involved somehow.

Research shows higher quality collaboration, changes the behavior of the male members, increases group intelligence and overall performance.

<http://hbr.org/2011/06/defend-your-research-what-makes-a-team-smarter-more-women/>



Agile Contributions

The notions of failure and learning have been brought to the table by Agile.

The emphasis has been shifting from blindly following a checklist to stopping after a short iteration to ask questions and learn.

Agile can help move us to a more scientific approach. Each iteration can be framed as a small experiment, in the real sense of the word: hypothesis, field test, reflection on results. Encourage others to validate and share.



Ask questions

- Is this just more bloodletting?
- Is this just a good story?
- Where is the evidence?
- Is there some way I could test some part of this?
- Make the conversation more about “experiment” and not so much about “do it this way.” Be a little skeptical 😊!



We need both 😊!

- **Our best hope is to collaborate with diverse others BOTH sharing stories AND experimenting to test ideas.**
- **“A Final Word about Stories,” *IEEE Software*, March/April 2014.**
- **Please ask for the papers and Powerpoint.**

- **Thanks for listening 😊!**

Now out 😊!

