PhD

A guide for enthusiasts

Riccardo Tommasini

Who I AM

- Assistant Professor in Data Management
- Lecturer of Data Engineering
- Data System Group Member
- Crossfitter
- Allnighter

#NobodyWorksLikeUs

#OnceYoureThere


How it started!


How it ended!


How it (actually) ended!

Phd ain’t a title or a degree
phd is becoming
who you’re meant to be…

Emanuele Della Valle

My Advisor (and mentor (and friend))

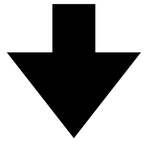
- Invented **Stream Reasoning**
- Innovates in academia and industry (more here)
- Read my thesis (twice!)

The chronicle of an announced divorce

- Fabien Gandon

Research Cycle

Start Here!



VISION

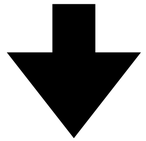
EXECUTION

DISSEMINATION

Research Cycle

VISION

Start Here!



EXECUTION

FORMULATION

- research questions
- requirement analysis
- design

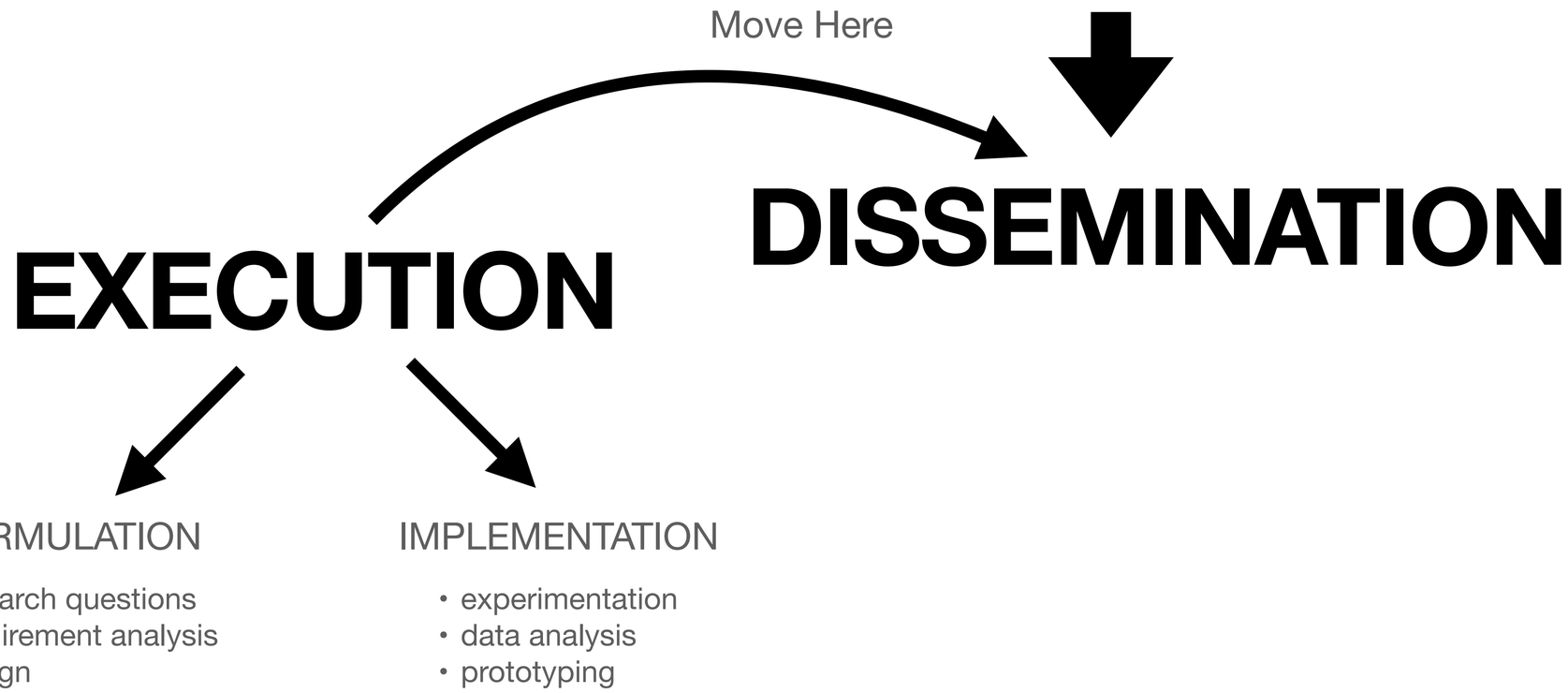
IMPLEMENTATION

- experimentation
- data analysis
- prototyping

DISSEMINATION

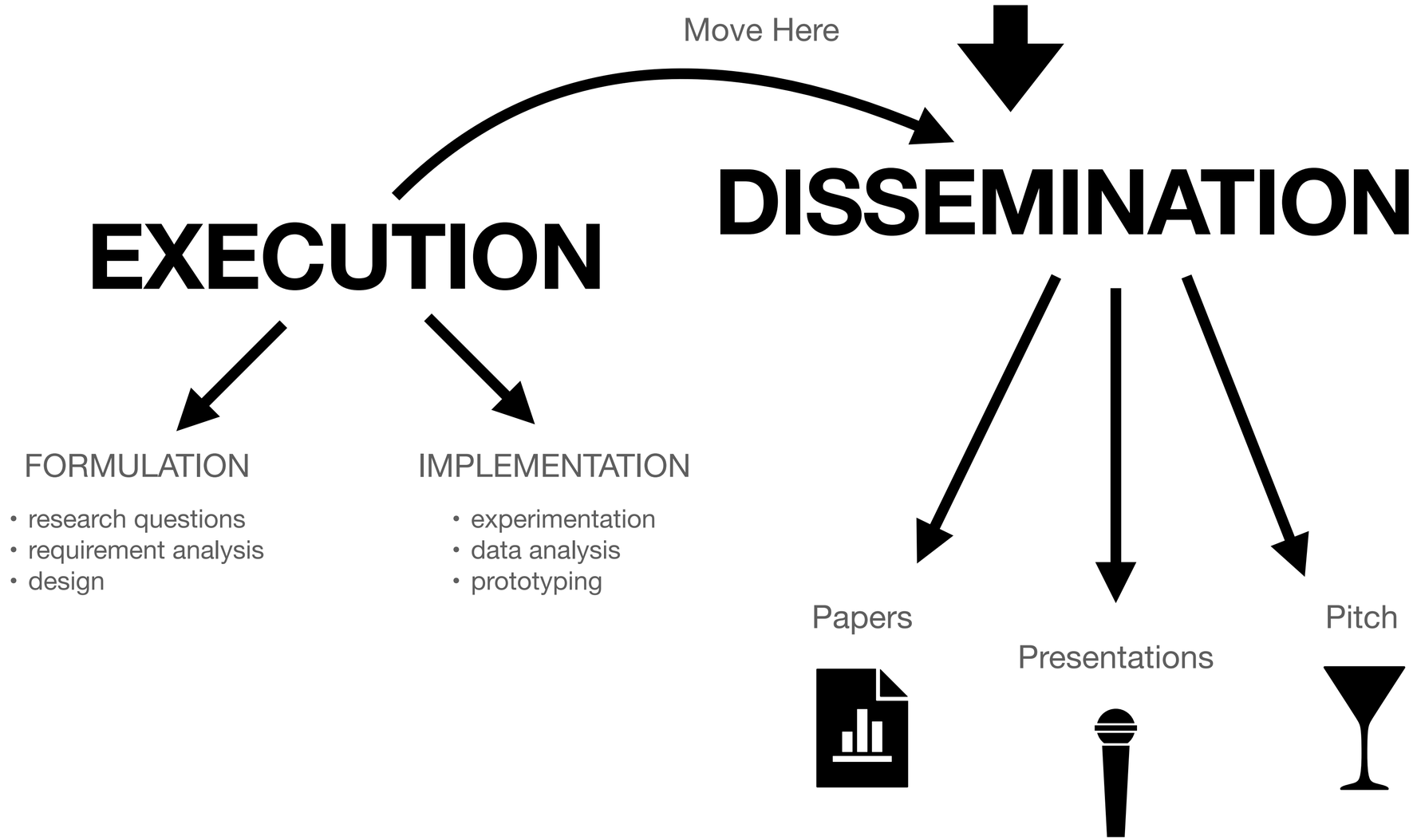
Research Cycle

VISION



Research Cycle

VISION



Research Cycle

VISION

Move Here

EXECUTION

FORMULATION

- research questions
- requirement analysis
- design

IMPLEMENTATION

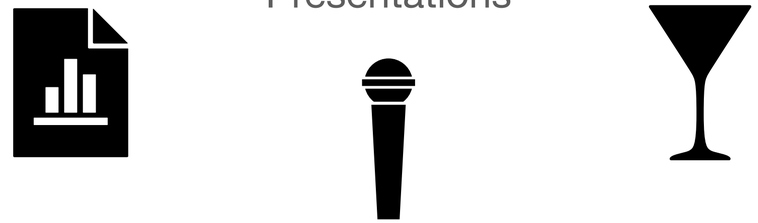
- experimentation
- data analysis
- prototyping

DISSEMINATION

Papers

Presentations

Pitch



End Here!

Research Cycle

VISION

Move Here

EXECUTION

FORMULATION

- research questions
- requirement analysis
- design

IMPLEMENTATION

- experimentation
- data analysis
- prototyping

DISSEMINATION

Papers

Presentations

Pitch

End Here!


LEFT
EXIT 12
His vision
Your vision

More links at the end!

How to Have a Bad Career in Research/Academia

Richard Hamming

``You and Your Research''

Transcription of the
Bell Communications Research Colloquium Seminar
7 March 1986

J. F. Kaiser
Bell Communications Research
445 South Street
Morristown, NJ 07962-1910
jfk@bellcore.com

Communications Research Colloquia Series, Dr. Richard W. Hamming, a Professor at the Naval Postgraduate School in Monterey, California and a retired Bell Labs scientist, gave a very interesting and stimulating talk, ``You an
gineering Center on March 7, 1986. This talk centered on Hamming's observations and research on the question ``Why do so few scientists make significant contributions and so many are forgotten in the long run?'' From his ins
l very pointed questions of scientists about what, how, and why they did things, studied the lives of great scientists and great contributions, and has done introspection and studied theories of creativity. The talk is about what he

rmation in the talk more widely available, the tape recording that was made of that talk was carefully transcribed. This transcription includes the discussions which followed in the question and answer period. As with any talk, t
t listen to the tape recording to recapture that part of the presentation. While the recording of Richard Hamming's talk was completely intelligible, that of some of the questioner's remarks were not. Where the tape recording wa
d identify the questioner, I have checked with each to ensure the accuracy of my interpretation of their remarks.

DR. RICHARD W. HAMMING

Communications Research Colloquium Series, Dr. Richard W. Hamming of the Naval Postgraduate School in Monterey, California, was introduced by Alan G. Chynoweth, Vice President, Applied Research, Bell Communicatio

etings colleagues, and also to many of our former colleagues from Bell Labs who, I understand, are here to be with us today on what I regard as a particularly felicitous occasion. It gives me very great pleasure indeed to introdu
ys been know to all of us.

e greats in the mathematics and computer science arenas, as I'm sure the audience here does not need reminding. He received his early education at the Universities of Chicago and Nebraska, and got his Ph.D. at Illinois; he then
ick - when I joined Bell Labs in their physics research organization. In those days, we were in the habit of lunching together as a physics group, and for some reason this strange fellow from mathematics was always pleased to j
re stimulating, I can assure you.

ths have not been very close over the years, nevertheless I've always recognized Dick in the halls of Bell Labs and have always had tremendous admiration for what he was doing. I think the record speaks for itself. It is too lon
ch tell of various areas of mathematics and computers and coding and information theory, three are already well into their second edition. That is testimony indeed to the prolific output and the stature of Dick Hamming.

must have been about ten years ago - at a rather curious little conference in Dublin, Ireland where we were both speakers. As always, he was tremendously entertaining. Just one more example of the provocative thoughts that he
t bear, and maybe computers have thoughts that people cannot think." Well, with Dick Hamming around, we don't need a computer. I think that we are in for an extremely entertaining talk.

Your Research'' by Dr. Richard W. Hamming

I doubt if I can live up to the Introduction. The title of my talk is, ``You and Your Research.'' It is not about managing research, it is about how you individually do your research. I could give a talk on the other subject - but its
e of describing great research I'll occasionally say Nobel-Prize type of work. It doesn't have to gain the Nobel Prize, but I mean those kinds of things which we perceive are significant things. Relativity, if you want, Shannon's in

lo this study? At Los Alamos I was brought in to run the computing machines which other people had got going, so those scientists and physicists could get back to business. I saw I was a stooge. I saw that although physically I was the same, they were different. And to put the thing bluntly,
st from me. I saw Feynman up close. I saw Fermi and Teller. I saw Oppenheimer. I saw Hans Bethe: he was my boss. I saw quite a few very capable people. I became very interested in the difference between those who do and those who might have done.

s, I came into a very productive department. Bode was the department head at the time; Shannon was there, and there were other people. I continued examining the questions, ``Why?'' and ``What is the difference?'' I continued subsequently by reading biographies, autobiographies, asking pe
ied to find out what are the differences. And that's what this talk is about.

portant? I think it is important because, as far as I know, each of you has one life to live. Even if you believe in reincarnation it doesn't do you any good from one life to the next! Why shouldn't you do significant things in this one life, however you define significant? I'm not going to define it
ause that is what I have studied. But so far as I know, and I've been told by others, much of what I say applies to many fields. Outstanding work is characterized very much the same way in most fields, but I will confine myself to science.

ividually, I must talk in the first person. I have to get you to drop modesty and say to yourself, ``Yes, I would like to do first-class work.'' Our society frowns on people who set out to do really good work. You're not supposed to; luck is supposed to descend on you and you do great things by c
houldn't you set out to do something significant. You don't have to tell other people, but shouldn't you say to yourself, ``Yes, I would like to do something significant.''

Principles of effective research
Technical note 0404

Michael A. Nielsen[1,*]

[1]*School of Physical Sciences and School of Information Technology and Electrical Engineering, The University of Queensland, Brisbane, Queensland 4072, Australia*

(Dated: July 27, 2004)

I. OVERVIEW

This essay is intended as a letter to both myself and others, to hold up in the sharpest possible terms an ideal of research I believe is worth working toward. I've deliberately limited the essay to ten pages, hoping that the resulting omissions are compensated by the forced brevity. This is a rather personal essay; it's not the sort of thing I'd usually make publicly available. I've made the essay public in order to heighten my commitment to the project, and in the hope that other people will find it stimulating, and perhaps offer some thoughts of their own.

A. Integrating research into the rest of your life

Research is, of course, only a part of life, and must be understood in relation to the rest of life. The foundation of effective research is a strong *motivation* or *desire* to do research. If research is not incredibly exciting, rewarding and enjoyable, at least some of the time, then why not do something else that is? For the purposes of this essay, I'll assume that you already have a strong desire to do research[2].

Motivation and desire alone are not enough. You also need to have the rest of your life in order to be an effective researcher. Make sure you're fit. Look after your health.

Feed Your Head

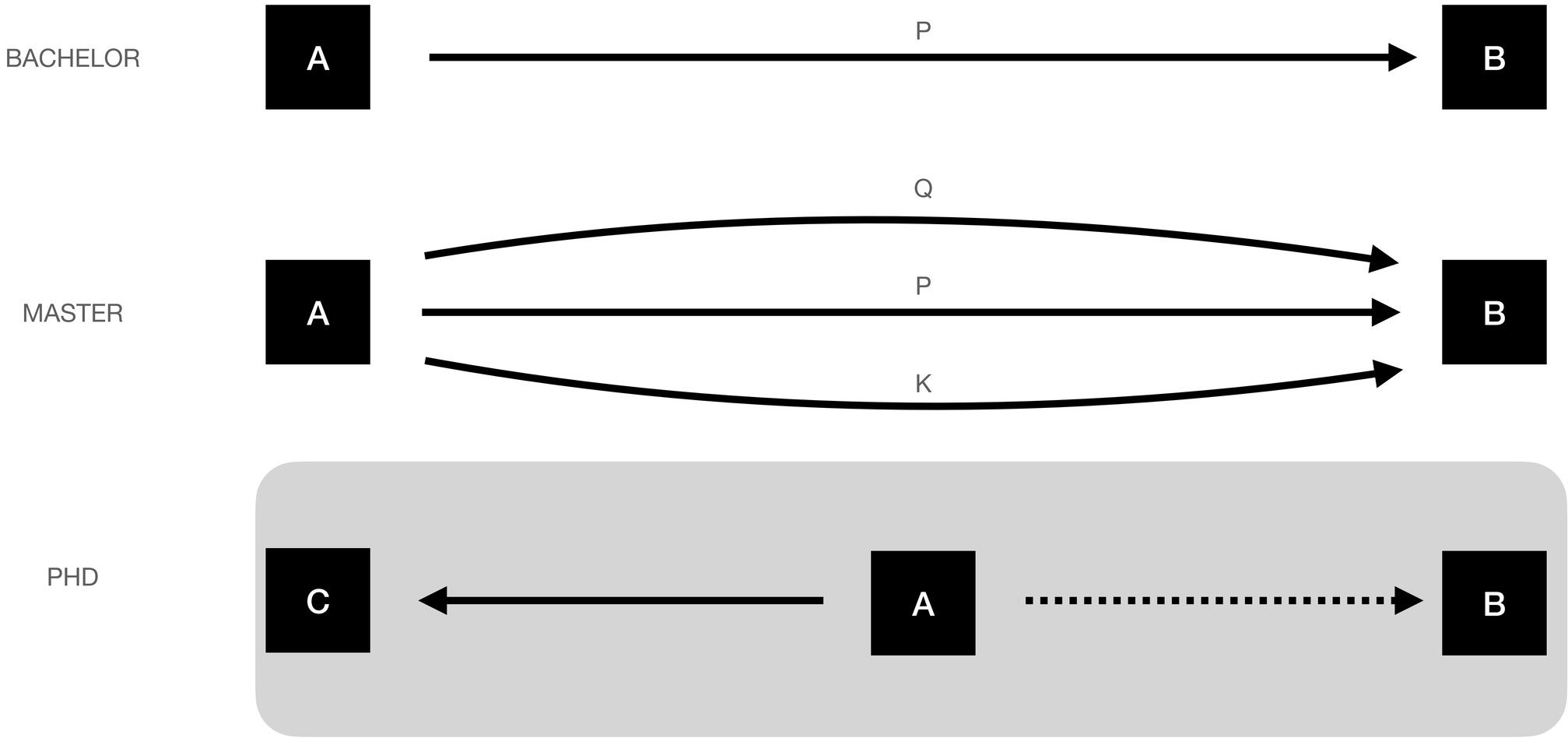
A Wish

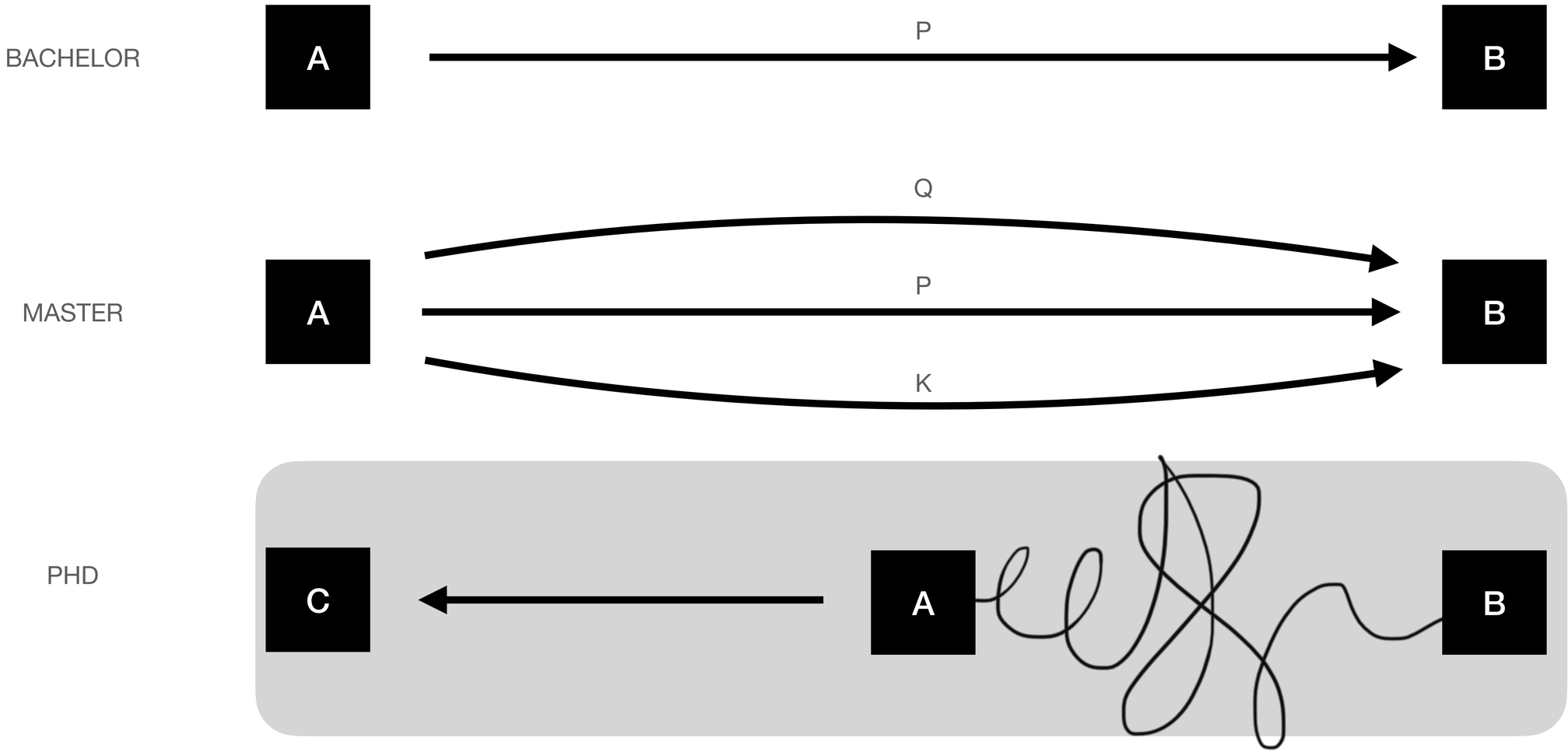
- “Errors are the portals of discovery”

  — James Joyce

- […] Two roads diverged in a wood, and I — I took the one less traveled by, and that has made all the difference.

  — Robert Frost


BACHELOR
A
P
B
MASTER
Q
A
P
B
K
PHD
C
A
B

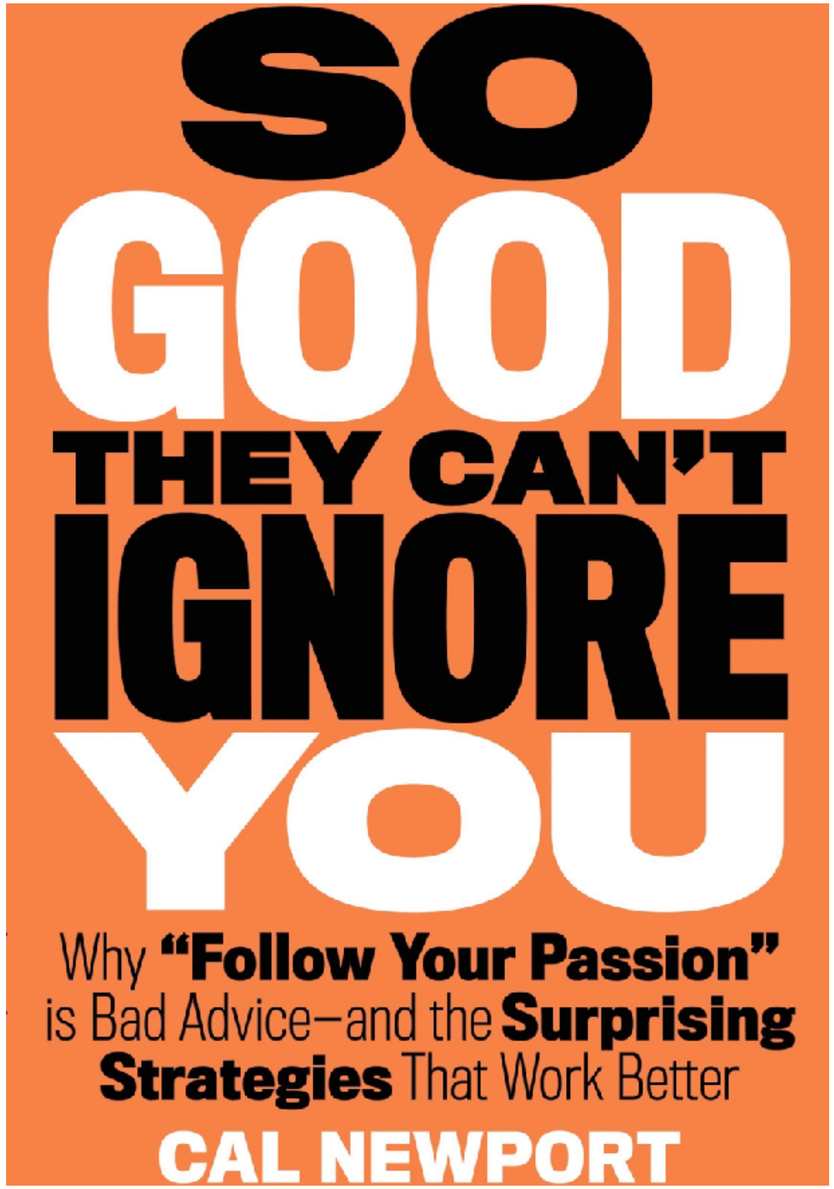

BACHELOR
A
P
B
MASTER
Q
A
P
B
K
PHD
C
A
B

Career

A Method

- Job market is just a market:
  - Rare and valuable skills (talent) are capital
  - control* & money are currency
- Follow your passion is a bad advice
  - Control that’s acquired without career capital is not sustainable.
  - You can build “capital” by adopting a craftsmanship mindset
- A unifying mission to your working life can be a source of great satisfaction.

*control over what you do, and how you do it

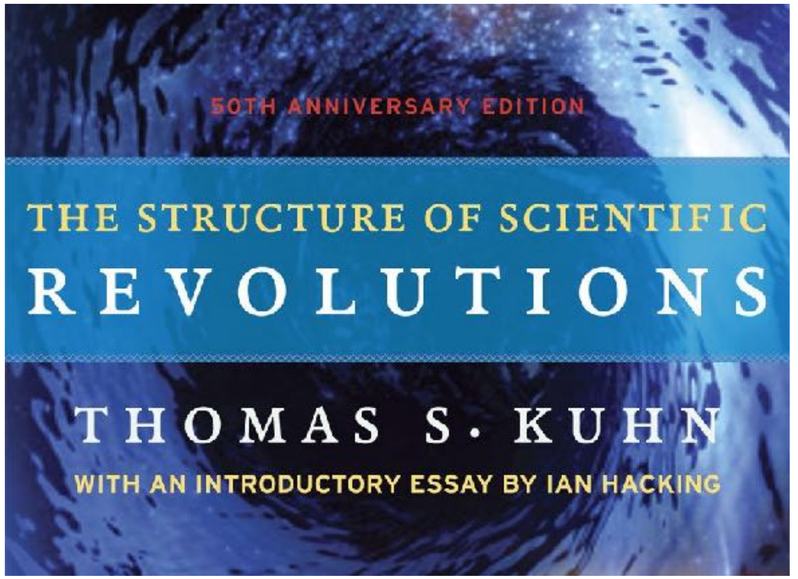


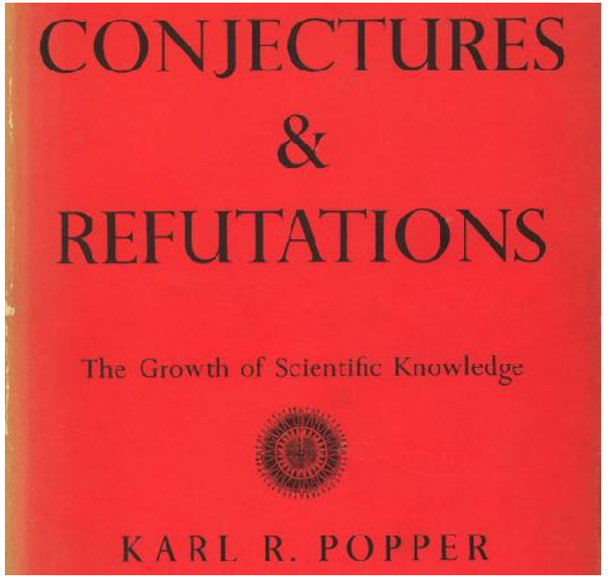
Pillars

Paradigm: Characteristics

Ontology	What is the nature of the "knowable"? Or What is the nature of reality?
Epistemology	What is the relationship between the knower (the inquirer) and the known (or knowable)?
Methodology	How should the inquirer go about finding out knowledge?

Guba (1990)



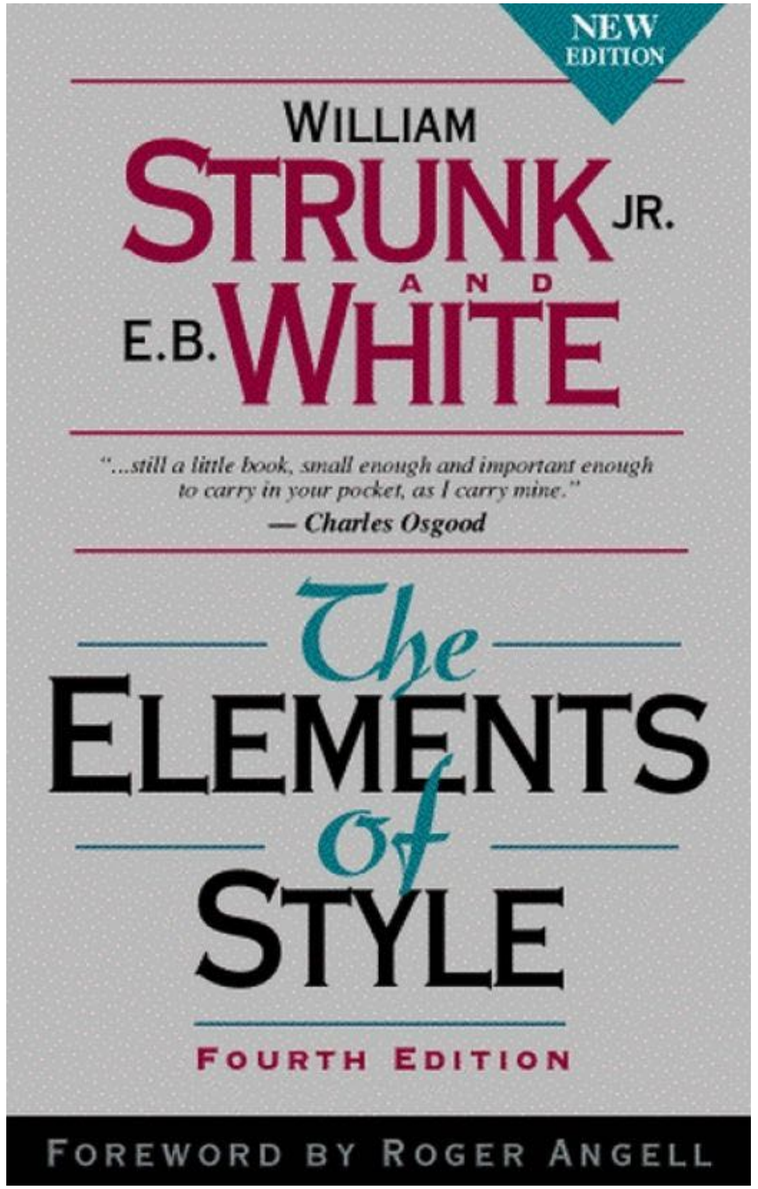


Communication

A Skill

- My inclination is to attack a problem by building a narrative [1]
- If you want to persuade, appeal to interest not to reason

  — B. Franklin
- The medium is the message [2]

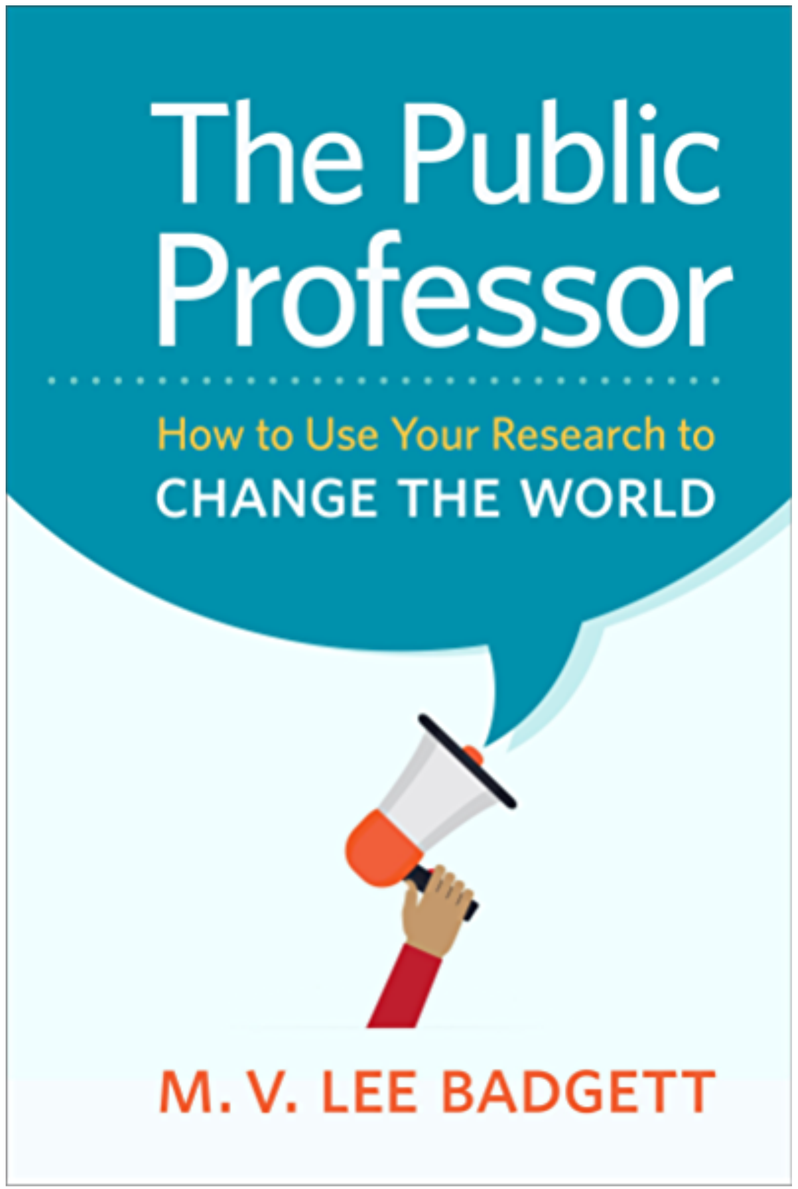


[1] Range: Why Generalists Triumph in a Specialised World - David J. Epstein - 2019
[2] Understanding Media: The Extensions of Man - Marshall McLuhan - 1964

How I feel when I write 'thus' on an essay

Impact
A Goal

- Academia (Research) is a people business
  - Not a paper business
  - Not a grant business
- Impact is measured on your relationships
- Consider working on your core values

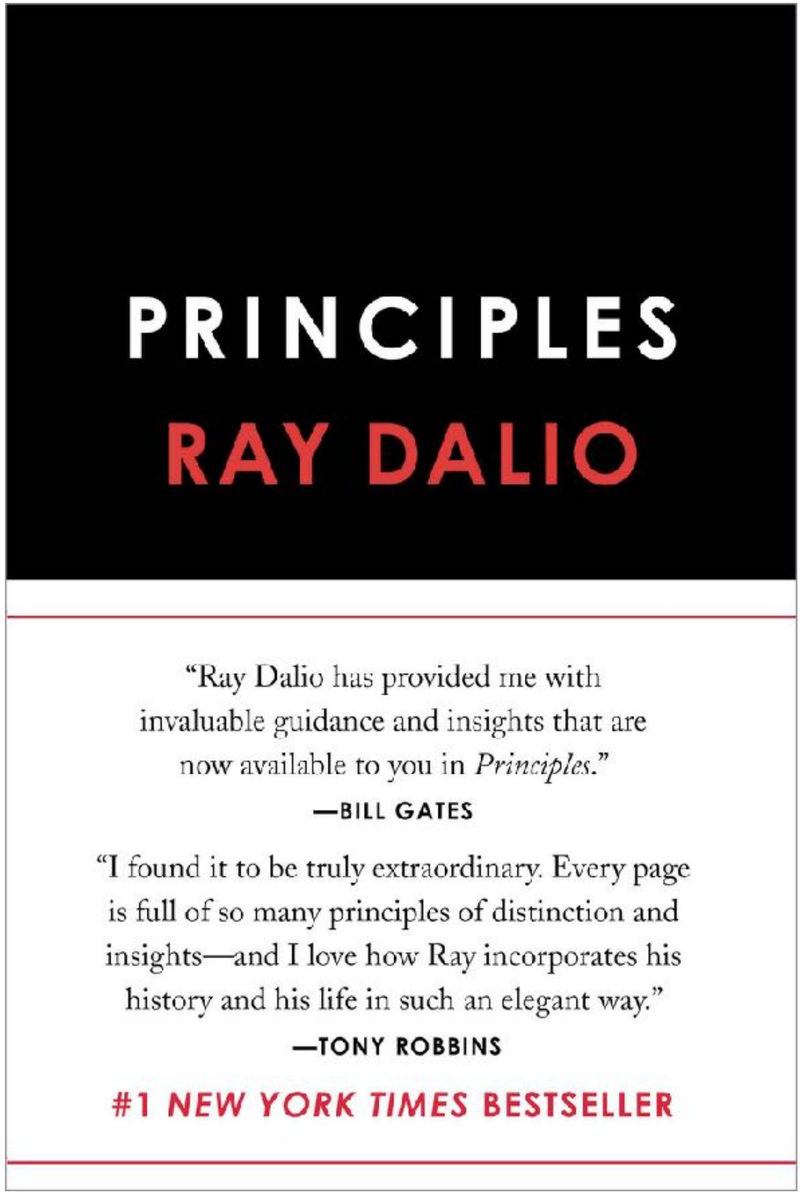


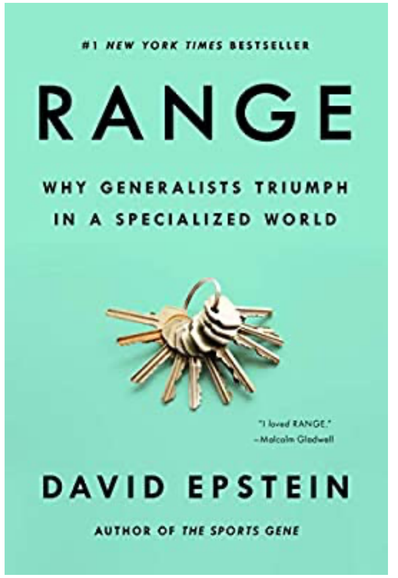
Quality and Knowledge

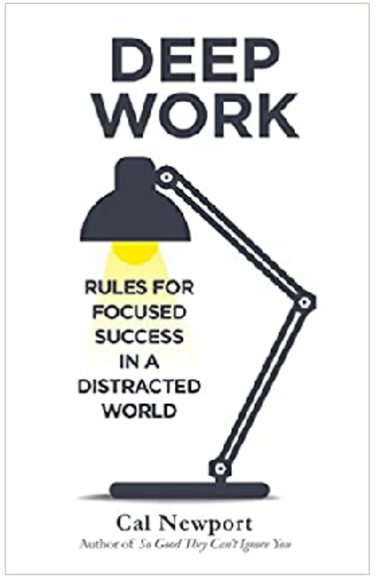
*I value the **quality** of my **work**, the **quality** of my **experiences**, and the **quality** of my **relationships**.*

*I value **knowledge** because it is the foundation of **understanding** and fuels my **ambition**, **creativity**, **independence**, and **intuition**.*

https://blog.colinbreck.com/understanding-our-core-values-an-exercise-for-individuals-and-teams/


PRINCIPLES
RAY DALIO
"Ray Dalio has provided me with invaluable guidance and insights that are now available to you in *Principles*."
—BILL GATES
"I found it to be truly extraordinary. Every page is full of so many principles of distinction and insights—and I love how Ray incorporates his history and his life in such an elegant way."
—TONY ROBBINS
#1 NEW YORK TIMES BESTSELLER

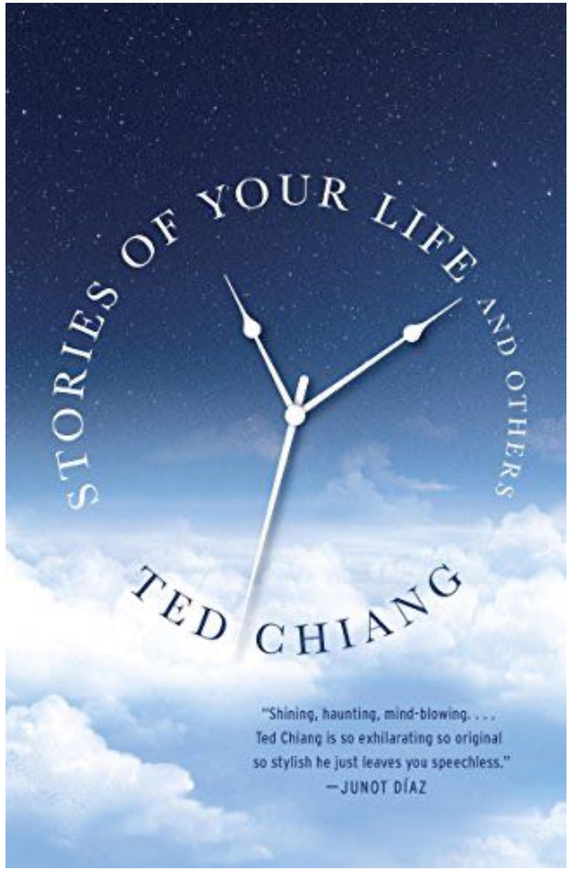

#1 NEW YORK TIMES BESTSELLER
RANGE
WHY GENERALISTS TRIUMPH IN A SPECIALIZED WORLD
"I loved RANGE."
—Malcolm Gladwell
DAVID EPSTEIN
AUTHOR OF THE SPORTS GENE

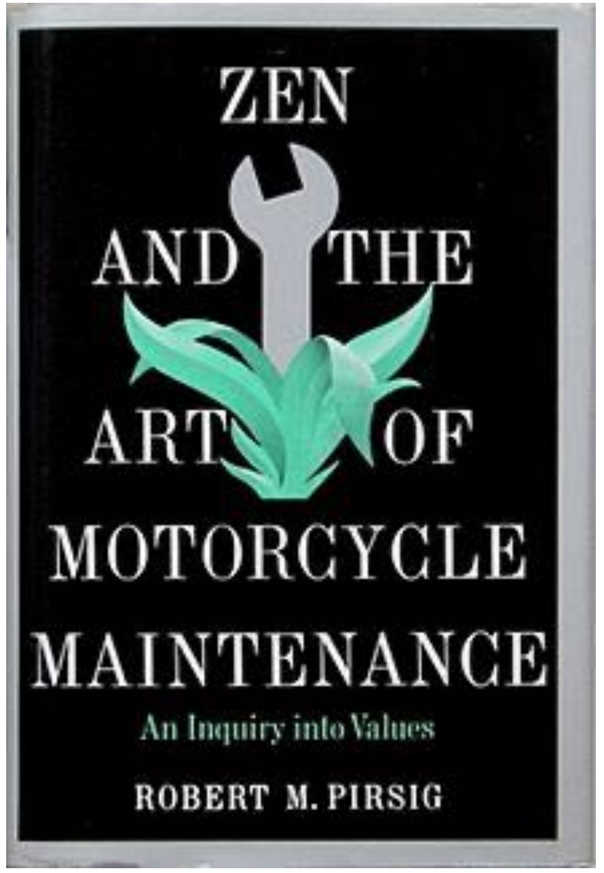

DEEP WORK
RULES FOR FOCUSED SUCCESS IN A DISTRACTED WORLD
Cal Newport
Author of So Good They Can't Ignore You

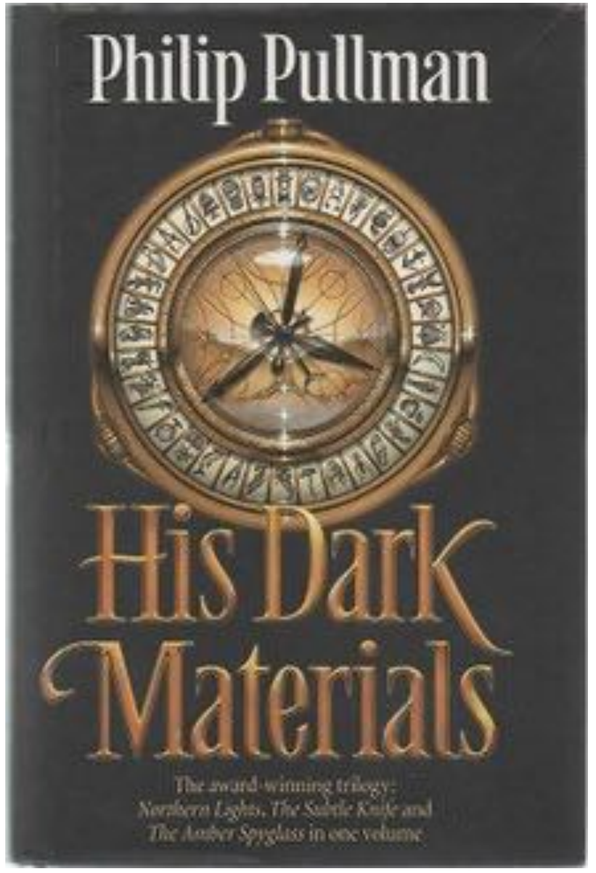
Enthusiasm

It spells the difference between mediocrity and accomplishment

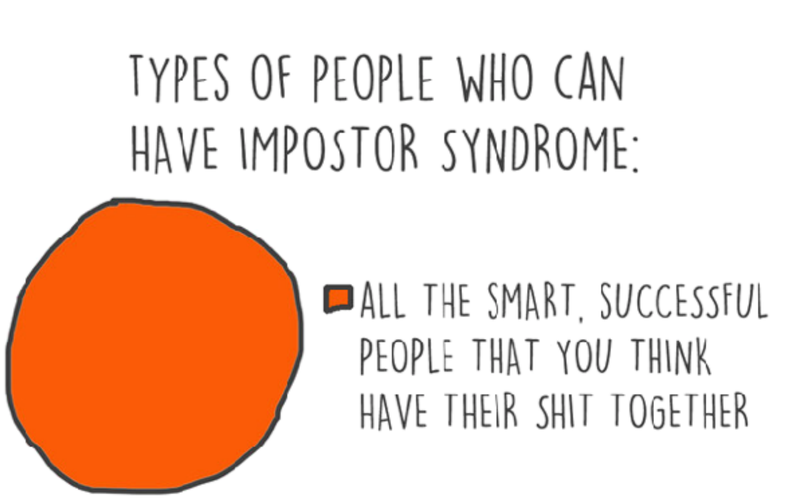
—Norman Vincent


STORIES OF YOUR LIFE AND OTHERS
TED CHIANG
"Shining, haunting, mind-blowing. . . .
Ted Chiang is so exhilarating so original
so stylish he just leaves you speechless."
—JUNOT DÍAZ

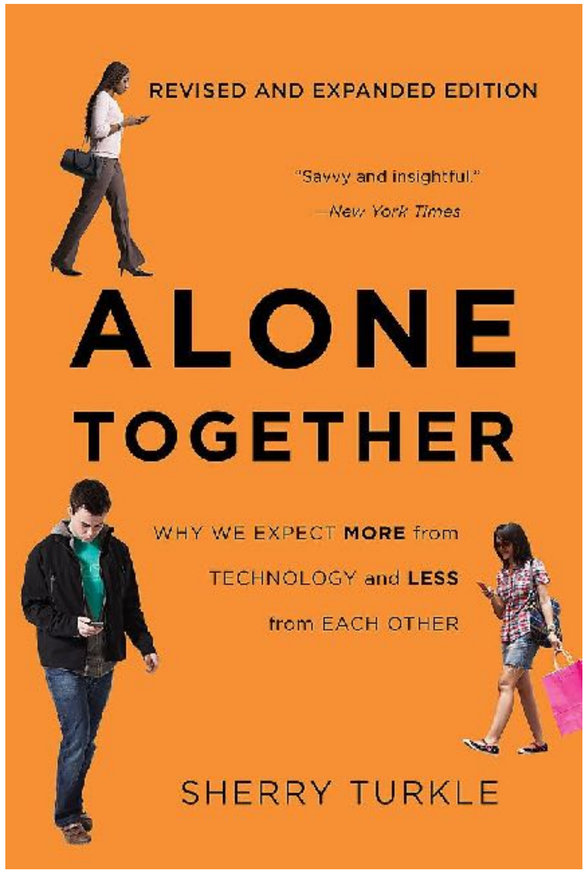

ZEN
AND THE
ART OF
MOTORCYCLE
MAINTENANCE
An Inquiry into Values
ROBERT M. PIRSIG

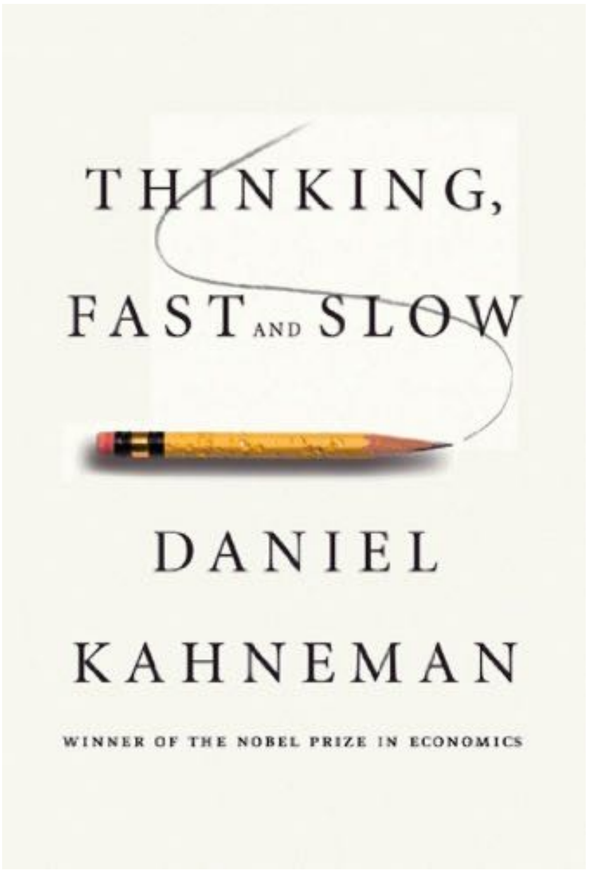

Philip Pullman
His Dark Materials
The award-winning trilogy:
Northern Lights, The Subtle Knife and
The Amber Spyglass in one volume

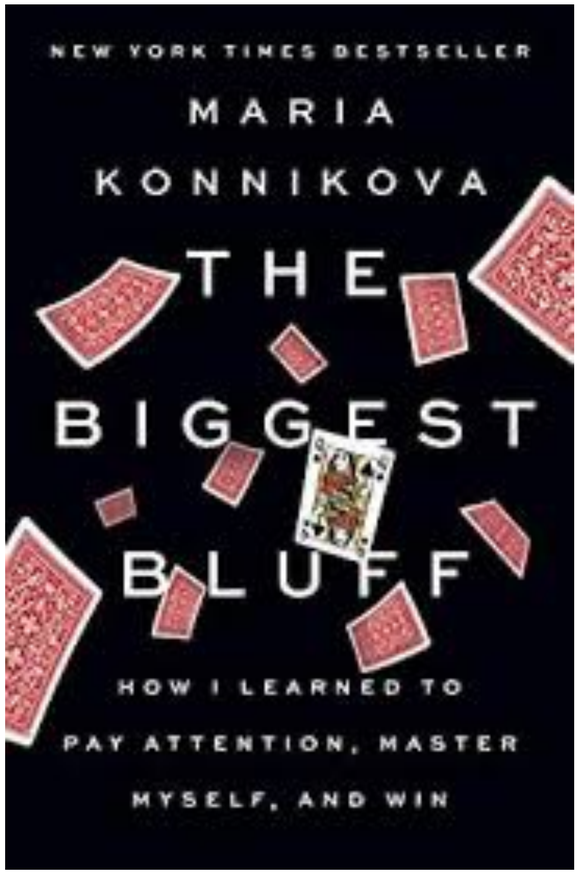
There is a Dark Side


TYPES OF PEOPLE WHO CAN HAVE IMPOSTOR SYNDROME:
ALL THE SMART, SUCCESSFUL PEOPLE THAT YOU THINK HAVE THEIR SHIT TOGETHER


SOLVE
Mental Health
DISCUSS


REVISED AND EXPANDED EDITION
"Savvy and insightful."
—New York Times
ALONE
TOGETHER
WHY WE EXPECT MORE from
TECHNOLOGY and LESS
from EACH OTHER
SHERRY TURKLE

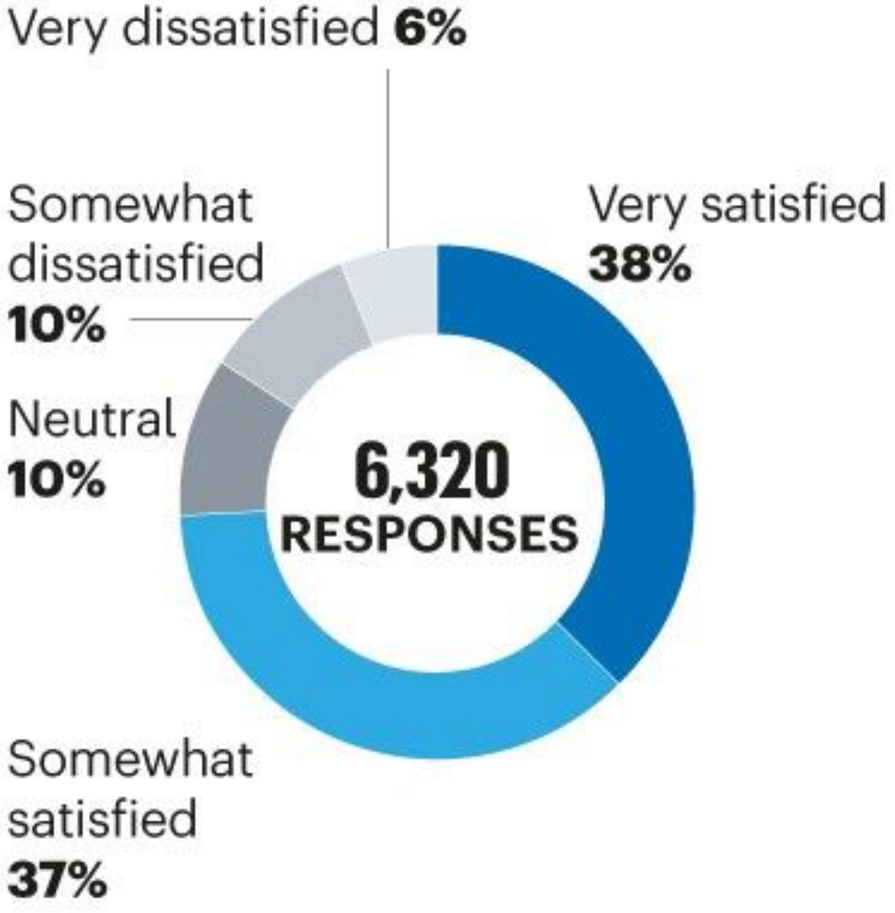

THINKING,
FAST AND SLOW
DANIEL
KAHNEMAN
WINNER OF THE NOBEL PRIZE IN ECONOMICS


NEW YORK TIMES BESTSELLER
MARIA
KONNIKOVA
THE
BIGGEST
BLUFF
HOW I LEARNED TO
PAY ATTENTION, MASTER
MYSELF, AND WIN

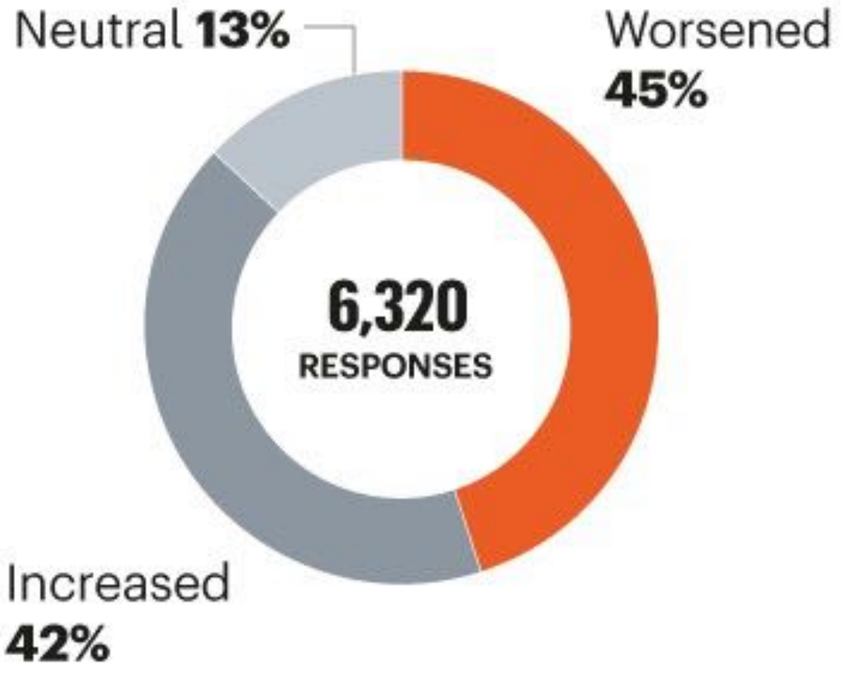
SUSTAINED SATISFACTION

A majority of respondents are still glad they decided to pursue a PhD, although the attitudes of some have worsened over time.

Q: How satisfied are you with your decision to pursue a PhD?



Q: Since the start of your graduate school experience, has your level of satisfaction increased, worsened or remained the same?



Assorted Meme

For PhD Survival


I WANT TO BE
a good researcher
PRETEND YOU'RE
a good researcher
WHEN DO I STOP
PRETENDING?
NEVER
HIPM
under review
THIS COMIC MADE POSSIBLE THANKS TO OWEN LOPEZ
@MrLovenstein • MRLOVENSTEIN.COM


It ain't much, but it's honest work


MUSIC BAND
HOW DO YOU DO, FELLOW KIDS?


HIPM
under review
When advisors send me to conference