



From my project:

# DevOps Applied to Everything

## Campbell's Law Applied to Everything

Slides:

<https://dcarpent74.github.io/random-blog/devops-e/Campbells-law-e.pdf>

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# DevOps Applied to Everything?

What IS DevOps anyway?!?!?!?

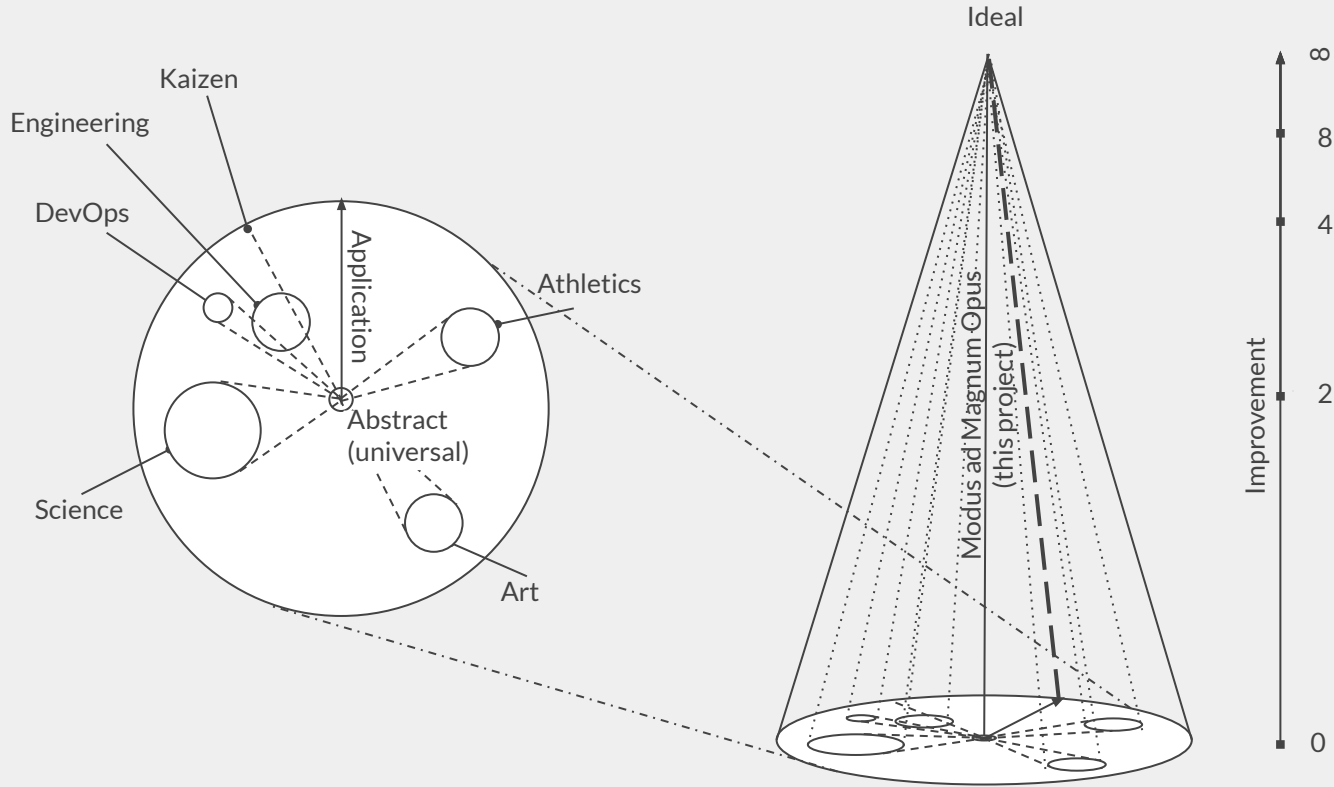
- Just the mundane (i.e. what the job-title usually requires):
  - Public cloud
  - Open source -> industry standard tooling
  - Automate everything
  - CI/CD
  - Whatever “agile” means...
- What are you up to these days? :
  - Making stuff better?
  - Finding the shortest path to your “exit strategy”?
  - Seeking FAANG?
  - Just “black pill” / Being replaced by (or absorbed into) AI?

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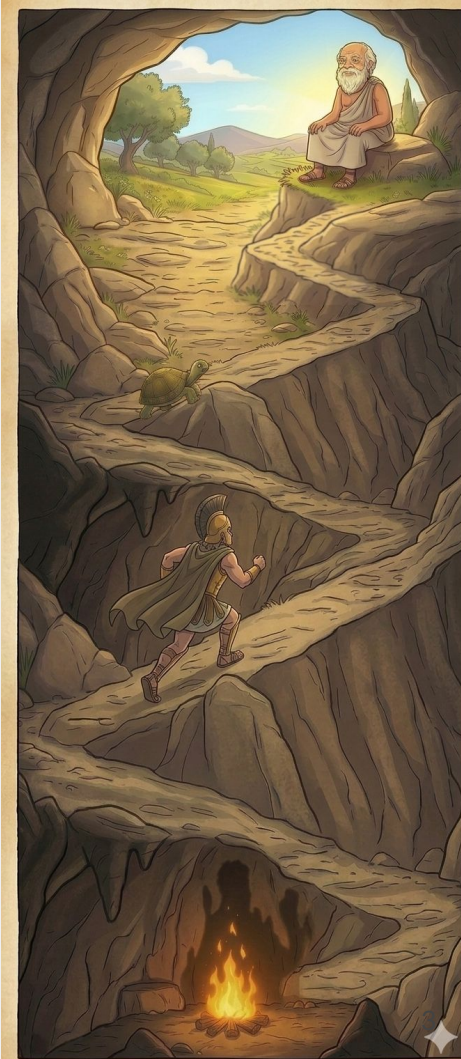
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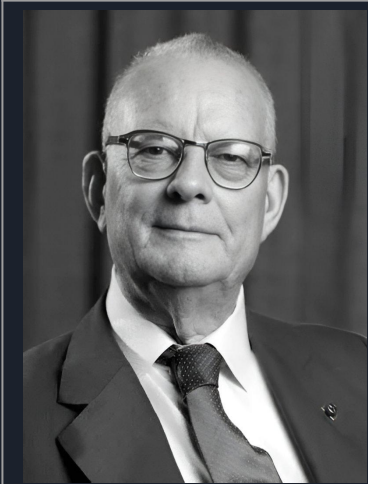
# What I am really asking:



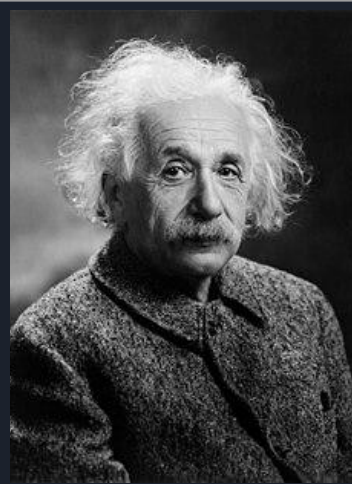
Is there a pattern among principles that lead to more ideal outcomes in human activity regardless of the domain?



Is there a pattern among principles that lead to more ideal outcomes in human activity – regardless of the domain?



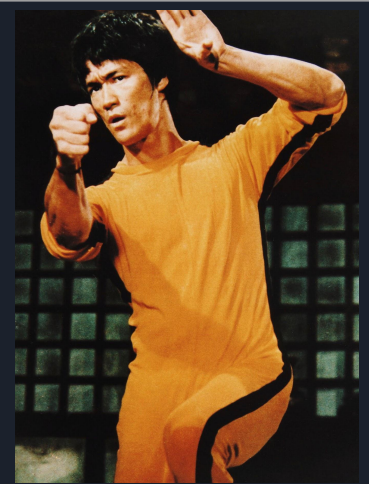
W. Edwards Deming



Albert Einstein



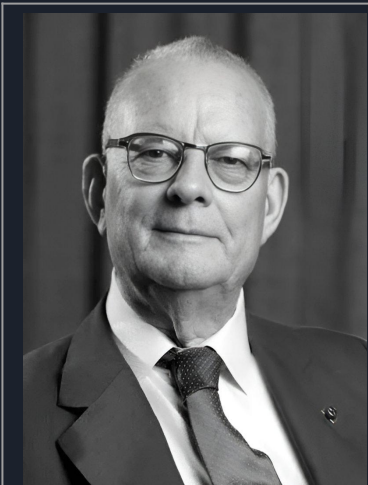
J. S. Bach



Bruce Lee

Maybe there are other sources that we need to learn from.

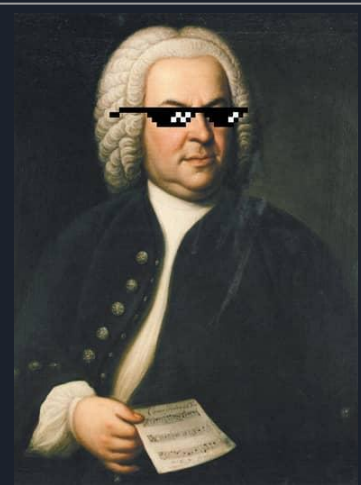
# DevOps Gurus... ???



W. Edwards Deming



Albert Einstein



J. S. Bach

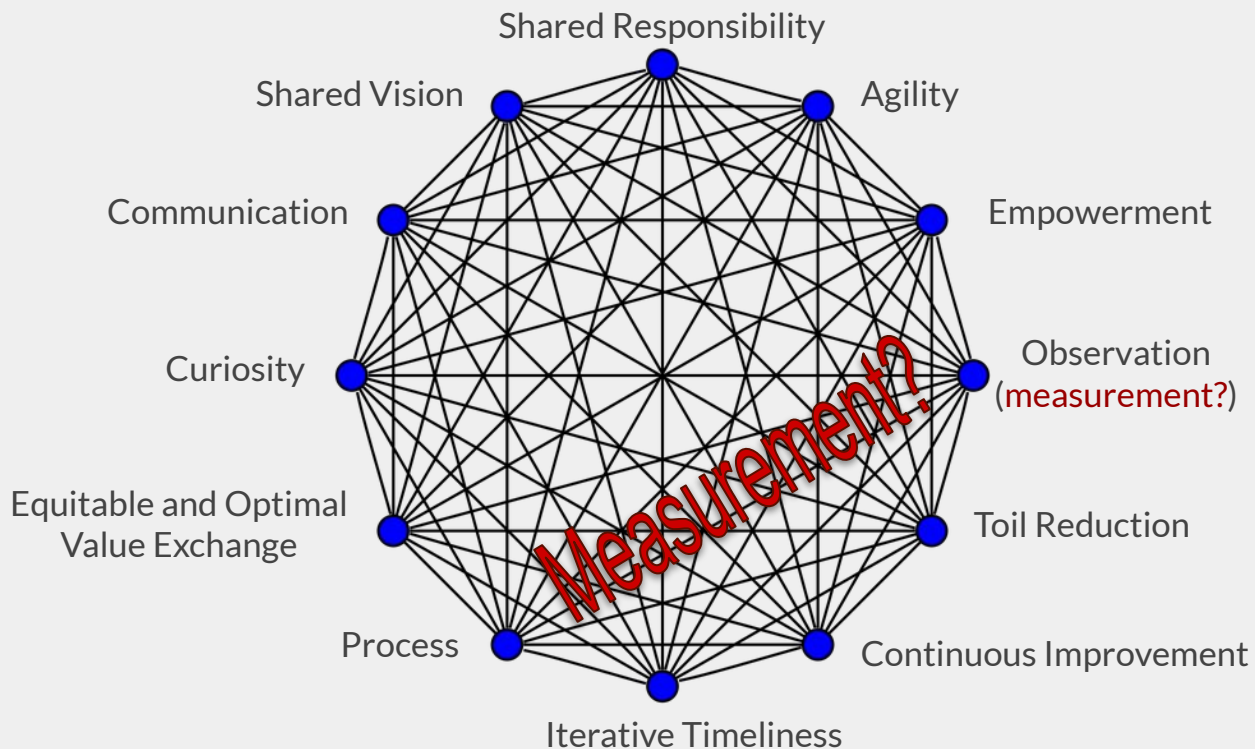


Bruce Lee

It is obvious to some the influence of Deming on the aspirations of the DevOps movement...

Should the others also inform how we think about DevOps? ...And more?

# Looking for Pillars of Better DevOps



Is measurement a pillar or a more general concept? Actually, it is hard to tell.

# What is measurement?

## Fundamental Quantities:

- Amount (mol)
- Mass (kg)
- Length (m)
- Time (s)
- Temperature (K)
- Electric Current (A)
- Luminous intensity (cd)

## Derived Quantities:

- Frequency ( $\text{Hz} = \text{s}^{-1}$ )
- Force ( $\text{N} = \text{m} \cdot \text{kg} \cdot \text{s}^{-2}$ )
- Pressure ( $\text{Pa} = \text{N} \cdot \text{m}^{-2}$ )
- Energy ( $\text{J} = \text{N} \cdot \text{m}$ )
- Power ( $\text{W} = \text{J} \cdot \text{s}^{-1}$ )
- Electric Charge ( $\text{C} = \text{s} \cdot \text{A}$ )
- Electric Potential ( $\text{V} = \text{W} \cdot \text{A}^{-1}$ )
- Electric Resistance ( $\Omega = \text{V} \cdot \text{A}^{-1}$ )
- Celsius Temperature ( $^{\circ}\text{C} = \text{K} - 273.15$ )

## Levels of Measurement (Scale):

1. Nominal
2. Ordinal
3. Interval
4. Ratio
5. Absolute

## Concepts:

- Validity and Reliability
- Bias and Error
- Accuracy and Precision
- Procedure and Process
- Uncertainty
- Observer Paradox

# Measurement applied to Everything

## Other measurements:

- Taxonomy
- Classification
- Words
- Structured Language
- “How we connect ideas”

Measurement is a (or maybe even THE) fundamental tool humans use for epistemology

Epistemology: How we know what we know.

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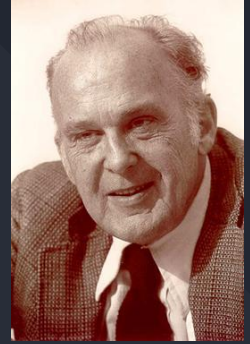
Things go wrong... Even when we measure,  
sometimes our systems seem to misbehave.



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# Campbell's Law

Donald T. Campbell - psychologist and social scientist



"The more any quantitative social indicator is used for social decision-making, the more subject it will be to corruption pressures and the more apt it will be to distort and corrupt the social processes it is intended to monitor."

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# Eliyahu M. Goldratt



Author of *The Goal* and creator of the Theory of Constraints

"Tell me how you will measure me, and I will tell you how I will behave"

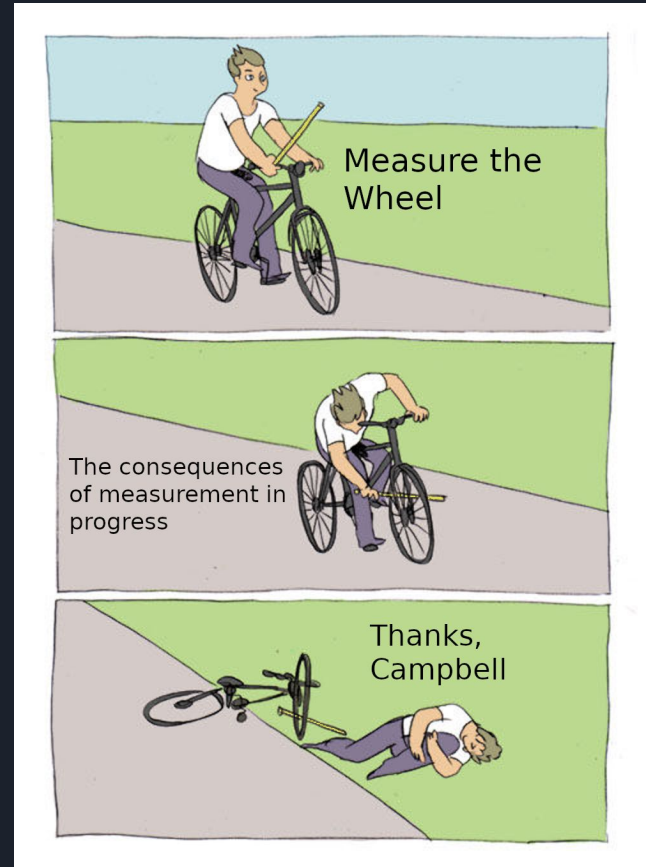
- **Behavioral Manipulation (Gaming the System):**  
If you measure employees on local efficiencies, they will behave in ways that satisfy the metric.
- **Destructive Metrics:**  
"Cost Accounting is enemy number one of productivity."

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Measurement can,  
and often does,  
corrupt all kinds of systems.



Principle:

The Observer Paradox

**PARTICLES: BECOMES WAVE**

**HUMANS: OBSERVE THEM**

**PARTICLES:**



# CAMPBELL'S LAW

ELECTIONS!

measure

VOTES

THE MORE A METRIC COUNTS FOR REAL DECISIONS

THE GREATER THE PRESSURE FOR CORRUPTION

THE MORE IT DISTORTS THE SITUATION IT'S INTENDED TO MONITOR

CRIME CRACKDOWN!

measure

CRIME RATES  
UNSOLVED CASES

CORRUPTION CORRUPT

UNDER REPORTING!  
CRIME DOWNGRADING!  
PLEA BARGAINING!

CORRUPTION CORRUPT

TACTICAL VOTING!

GERRY MANDERING!

FAKE NEWS!

PARAPHRASED

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# GOODHART'S LAW

WHEN A MEASURE BECOMES A TARGET, IT CEASES TO BE A GOOD MEASURE

IF YOU MEASURE PEOPLE ON...

NUMBER OF NAILS MADE

WEIGHT OF NAILS MADE

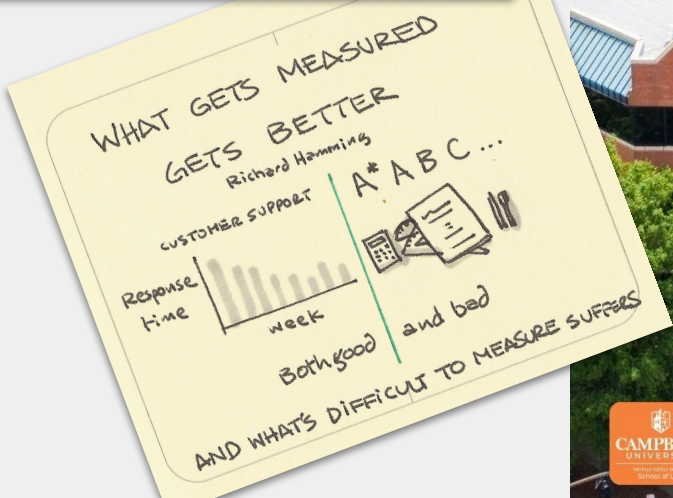
THEN YOU MIGHT GET

1000'S OF TINY NAILS

A FEW GIANT, HEAVY NAILS



sketchplanations



Campbell Law  
Virtual  
Tour

It's Everywhere!!!



## THE COBRA EFFECT

WHEN WELL-INTENTIONED MEASURES BACKFIRE



**INTENTION**

REDUCE COBRA POPULATION

**ACTION**

A BOUNTY FOR DEAD COBRAS!

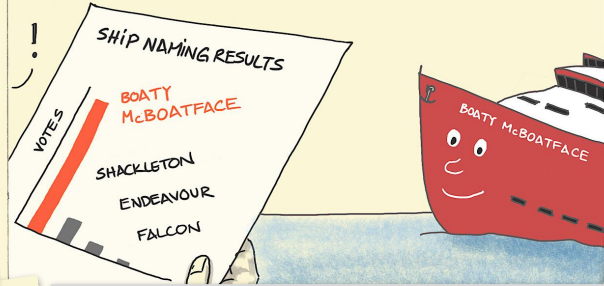
**EFFECT**

PEOPLE START COBRA FARMING

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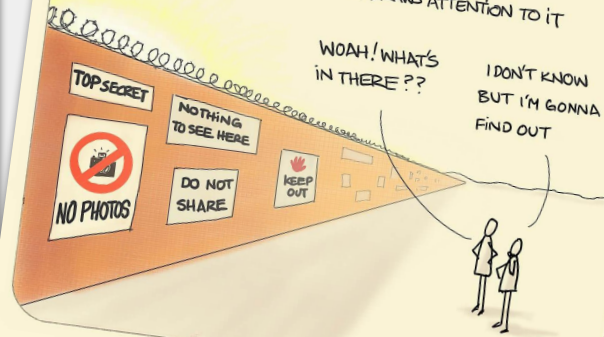
## THE BOATY McBOATFACE EFFECT

OFFERED THE CHOICE OF A JOKE CANDIDATE PEOPLE WILL VOTE FOR IT AS IT'S FUN, SUBVERSIVE AND THEY WANT TO SEE WHAT WILL HAPPEN



## THE STREISAND EFFECT

TRYING TO SUPPRESS SOMETHING DRAWS ATTENTION TO IT



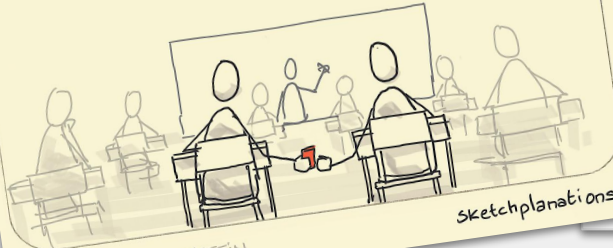
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## THE TRANSPARENCY PARADOX

THE MORE TRANSPARENT THE WORKSPACE



THE MORE PRIVATELY PEOPLE BEHAVE



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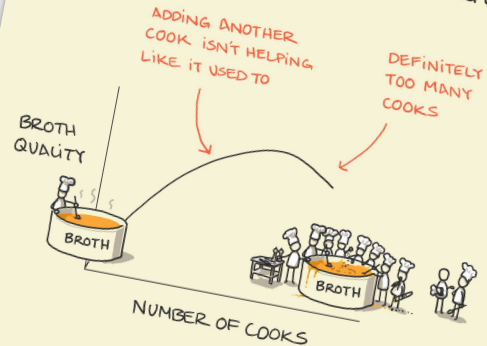
FROM ETHAN BERNSTEIN

## Variation of Goodhart's Law - by John Cutler:

"In environments with high psychological safety, trust, and an appreciation for complex sociotechnical systems, when a measure becomes a target, it can remain a good measure because missing the target is treated as a valuable signal for continuous improvement rather than failure."

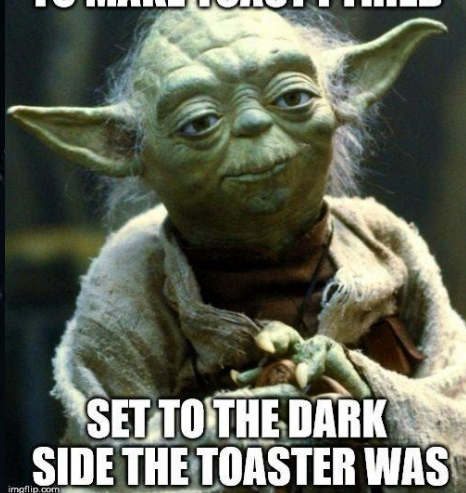
## LAW OF DIMINISHING RETURNS

AT SOME POINT MORE OF THE SAME STOPS PAYING OFF



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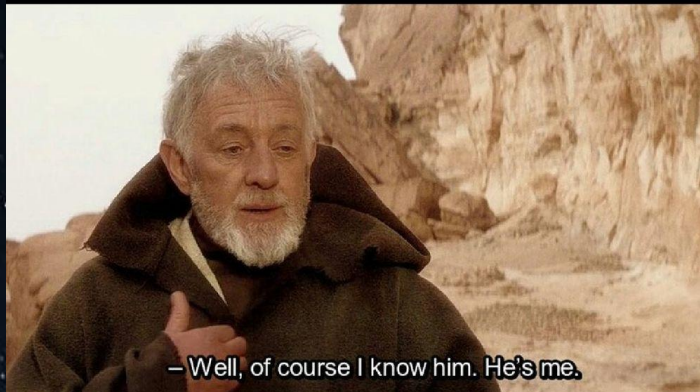
**TO MAKE TOAST I TRIED**



**SET TO THE DARK  
SIDE THE TOASTER WAS**

imgflip.com

**When they ask if you know who's been  
spamming the chat with Star Wars memes:**



— Well, of course I know him. He's me.



**HINDSIGHT**

Those really were the droids you were looking for.

**The more you tighten your grip, Tarkin,  
the more star systems will slip through your fingers.**

**I'll try spinning. That's a good trick.**

## W. Edwards Deming - Rare Full-Length Interview - February 1984

<https://www.youtube.com/watch?v=0yGhR1ybmN8>

"Management is unaware that they have a job...  
... Management, for the most part, have no idea what their job is."

"You cannot learn the job of management on the job...  
... They can learn only by listening to somebody on the outside."

- W. Edwards Deming




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Find great teachers in whatever field you can...

- How do you know they are a great teacher?
- Do their accomplishments model the kind of achievement you aspire to?
- Do they model a desire to learn?
- Do they produce students who model achievements comparable to their own?
- Does their teaching motivate you to improve?
- Does the teaching extend beyond content and model the learning process in practice?

The value of genuine diversity (diversity that is more than "skin deep")


- Does their teaching challenge your assumptions and your thinking?
- Can you see beyond the differences in their focus and yours to the wisdom of their practice?
- Do others outside their field also value their teaching?
- Has their teaching "transcended" the typical borders of ethnicity, class, culture and politics?

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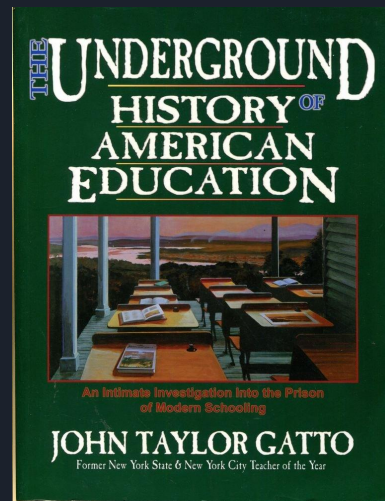
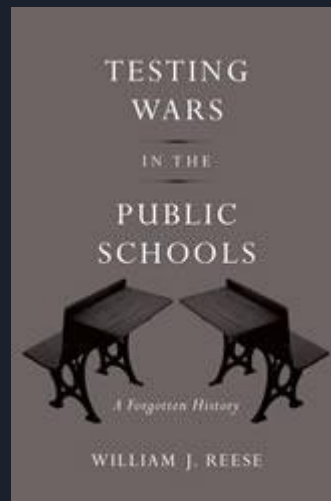


Challenge your thinking...

by challenging how you think about learning.

<https://history.wisc.edu/publications/testing-wars-in-the-public-schools-a-forgotten-history/>

<https://www.amazon.com/stores/author/B001K7S0AE>



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# Measurement is about Epistemology

## Fun with R: The Tarkin Effect

( <https://www.organizingcreativity.com/2021/12/fun-with-r-the-tarkin-effect/> )

```
ggplot() +  
geom_jitter(aes(x = seq(.01,1,.01), y = seq(.01,1,.01)), color = "Red") +  
labs(title = "Tarkin Effect", subtitle = "(from «Star Wars: Episode IV»)",  
x = "tightness of grip", y = "star systems slipping through fingers",  
caption = "Princess Leia Organa: «The more you tighten your grip,  
the more star systems will slip through your fingers.»") +  
scale_x_continuous(labels = scales::label_percent()) +  
scale_y_continuous(labels = scales::label_percent()) +  
theme_minimal() +  
theme(text = element_text(size=20),  
plot.subtitle = element_text(size=14),  
plot.caption = element_text(size=10))  
ggsave("tarkin.png", width=16, height=16, units = "cm", dpi = 300)
```



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