Business: Value and role of education

- Business is the main driver of any successful economy
- Business is perhaps unappreciated (and untrusted) in Australia (and elsewhere)
- Business education is important
  - Undergraduate
  - Honours
  - Graduate

A taxonomy of researchers

- Visionaries
- Scientists
- Research Robots
- Glass Bead Game Players
- Pragmatists

Visionary

- Sees questions that others don’t
- Combines profound scientific understanding with amazing creativity
- Provide solutions that later researchers spend years trying to make sense of
  - Albert Einstein
  - More often this personality type is out in the real world

Scientist

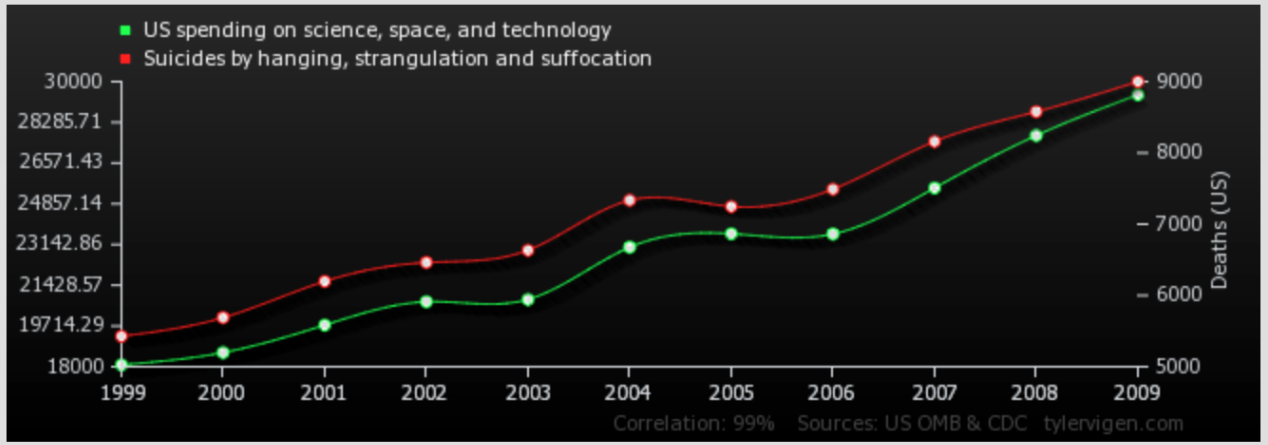
- Applies rigorous methods to tackle important questions; tends to emphasize one particular method based on training
- Aware of limitations of tools that science provides given data available
- We think of “real” scientists as geniuses (e.g., physicists), but arguably social science is more difficult … because the tools are more limited and easier to use poorly
- Some argue that the efficient market hypothesis (EMH) is the most tested empirical scientific hypothesis in the social sciences
  - Accounting researchers had an important role in EMH

“Research robot”

- Purports to apply rigorous methods to tackle important questions
- Most common variant is the p-hacker/HARKer.
  - Obtain data on various variables
  - Trawl the data for correlations
  - Once correlated variables are found (say, *X* and *Y*), develop hypothesis that predicts an association between *X* and *Y*.

Interesting (likely spurious) correlations …

US spending on science, space, and technology
correlates with
Suicides by hanging, strangulation and suffocation



	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
US spending on science, space, and technology *Millions of todays dollars (US OMB)*	18,079	18,594	19,753	20,734	20,831	23,029	23,597	23,584	25,525	27,731	29,449
Suicides by hanging, strangulation and suffocation *Deaths (US) (CDC)*	5,427	5,688	6,198	6,462	6,635	7,336	7,248	7,491	8,161	8,578	9,000

Correlation: 0.992082

Source: tylervigen.com

… become papers

- Despite widespread lamentations of its decline, US spending on science, space, and technology has increased in recent years. Many advocate for even further increases in such spending. An underappreciated element of this debate is the impact of such spending on broad self-perceptions and moods. I adapt the **Merton (1987) model** and predict that increased spending makes the relative decline of the US in science more salient, increasing depression. Consistent with predictions from my model, I find a positive association between **US spending on science, space, and technology** and **suicides by hanging, strangulation and suffocation**. This adds an important, overlooked dimension to contemporary debates on government policy.

“Glass Bead Game Player”

- Treats “research” as a game where publication is the ultimate goal (my term comes from title of novel by Hermann Hesse)
- Typically studies research questions that could not be understood by lay people
- Skill set includes ability to confuse and obfuscate with complex language that even they probably don’t understand
- Might successfully collaborate with Research Robots

RETRACTED ARTICLE: Human reactions to rape culture and queer performativity at urban dog parks in Portland, Oregon

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ABSTRACT

This article addresses questions in human geography and the geographies of sexuality by drawing upon one year of embedded *in situ* observations of dogs and their human companions at three public dog parks in Portland, Oregon. The purpose of this research is to uncover emerging themes in human and canine interactive behavioral patterns in urban dog parks to better understand human a-/moral decision-making in public spaces and uncover bias and emergent assumptions around gender, race, and sexuality. Specifically, and in order of priority, I examine the following questions: (1) How do human companions manage, contribute to, and respond to violence in dogs? (2) What issues surround queer performativity and human reactions to homosexual sex between and among dogs? and (3) Do dogs suffer oppression based upon (perceived) gender? It concludes by applying Black feminist criminology categories through which my observations can be understood and by transferring from lessons relevant to human and dog interactions to suggest practical applications that disrupts hegemonic masculinities and improves access to emancipatory spaces.

ARTICLE HISTORY

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Animal geography; Black feminist criminology; dog park; feminist geography; queer geography; rape culture

RETRACTED

Pragmatist

- More conscious of challenges of doing good social science than the Scientist
- Places greater weight on addressing questions of broader social interest than a Scientist might
- Perhaps willing to trade off rigour for relevance
- May emphasize questions more than methods

Accounting research

- Modern accounting research emerged in late 1960s and 1970s
  - A group of Scientists transformed accounting into a serious academic discipline (finance and economics were going through parallel transformations)
- But Research Robots are proliferating, often teamed up with Glass Bead Game Players
- A researcher can drift into Research Robotics without realising it
- Pragmatists are few and far between
- Challenge is to distinguish science from nonsense

Not just accounting research … issues are widespread.



Essay

Why Most Published Research Findings Are False

John P. A. Ioannidis

Summary

There is increasing concern that most current published research findings are false. The probability that a research claim is true may depend on study power and bias, the number of other studies on the same question, and, importantly, the ratio of true to no relationships among the relationships probed in each scientific field. In this framework, a research finding is less likely to be true when the studies conducted in a field are smaller; when effect sizes are smaller; when there is a greater number and lesser preselection of tested relationships; where there is greater flexibility in designs, definitions, outcomes, and analytical modes; when there is greater financial and other interest and prejudice; and when more teams are involved in a scientific field in chase of statistical significance. Simulations show that for most study designs and settings, it is more likely for a research claim to be false than true. Moreover, for many current scientific fields, claimed research findings may often be simply accurate measures of the prevailing bias. In this essay, I discuss the implications of these problems for the conduct and interpretation of research.

Published research findings are

factors that influence this problem and some corollaries thereof.

Modeling the Framework for False Positive Findings

Several methodologists have pointed out [9–11] that the high rate of nonreplication (lack of confirmation) of research discoveries is a consequence of the convenient, yet ill-founded strategy of claiming conclusive research findings solely on the basis of a single study assessed by formal statistical significance, typically for a *p*-value less than 0.05. Research is not most appropriately represented and summarized by *p*-values, but, unfortunately, there is a widespread notion that medical research articles

It can be proven that most claimed research findings are false.

should be interpreted based only on *p*-values. Research findings are defined here as any relationship reaching formal statistical significance, e.g., effective interventions, informative predictors, risk factors, or associations. "Negative" research is also very useful. "Negative" is actually a misnomer, and the misinterpretation is widespread.

is characteristic of the field and can vary a lot depending on whether the field targets highly likely relationships or searches for only one or a few true relationships among thousands and millions of hypotheses that may be postulated. Let us also consider, for computational simplicity, circumscribed fields where either there is only one true relationship (among many that can be hypothesized) or the power is similar to find any of the several existing true relationships. The pre-study probability of a relationship being true is $R/(R + 1)$. The probability of a study finding a true relationship reflects the power $1 - \beta$ (one minus the Type II error rate). The probability of claiming a relationship when none truly exists reflects the Type I error rate, α. Assuming that c relationships are being probed in the field, the expected values of the 2×2 table are given in Table 1. After a research finding has been claimed based on achieving formal statistical significance, the post-study probability that it is true is the positive predictive value, PPV. The PPV is also the complementary probability of what Wacholder et al. have called the false positive report probability [10]. According to the 2×2 table, one gets $PPV = (1 - \beta)R/(R - \beta R + \alpha)$. A research finding is thus

How to approach research: Ask important questions

- Research Robots and Glass Bead Game Players find research questions in:
  - Small gaps in prior research
  - Contrived theories
  - Availability of data
- Scientists and Pragmatists look for
  - Clear, important gaps in prior research
  - Real-world problems and puzzles

How to approach research: Keep it real

- Research Robots often HARK stories that just aren't plausible
- Glass Bead Game Players don't feel constrained by reality
- Scientists can tend to look for "clever" approaches that sound good in theory, but good Scientists keep it real
- Pragmatists see importance of simple, plausible explanations
  - More of a detective story
  - Transferability of insights (and skills) much higher

Some gratuitous career advice

- Fancy diplomas are vastly overrated
- Skills and networks matter much more
- Getting an interview, etc., is one thing, but in the long run what matters more is how effective you are in “creating value”
- Achieving financial security is relatively easy
- Doing meaningful work is more important, but you need to work out what that means to you

Honours: The opportunity

- The Honours program lets you test the waters
  - No “publish or perish” pressure means you can be a Pragmatist and get a feel for possibly going further in research
- Ability to develop skills relevant to “downtown” careers
  - Statistical learning in trading on fundamental metrics
  - Also “soft” skills such as reasoning, writing and tackling real problems
- Opportunity to tackle questions of real interest
  - Impact of revenue standards
  - Importance of gender diversity on boards
- Become part of a tight-knit community
  - Current and past students