

A Few Ethical Issues in Educational Intervention Research...

Original thoughts on this topic*:

“We know a thing or two because we’ve seen a thing or two.”

***Actually plagiarized from J. K. Simmons’ Farmers Auto Insurance TV ad, just to provide a preview of an unforgivable ethical violation.**

A Few Ethical Issues in Intervention Research

- “Random” assignment and “do overs”
- Outliers and nonresponders
 - *a priori* decisions and rules
 - scoring response protocols (“blind” scoring)
- Data “massaging” (“fudging” and falsification)
- “Multiplicity,” directional tests, “postdictions,” and hypothesis preregistration (Wagonmakers et al., 2012)

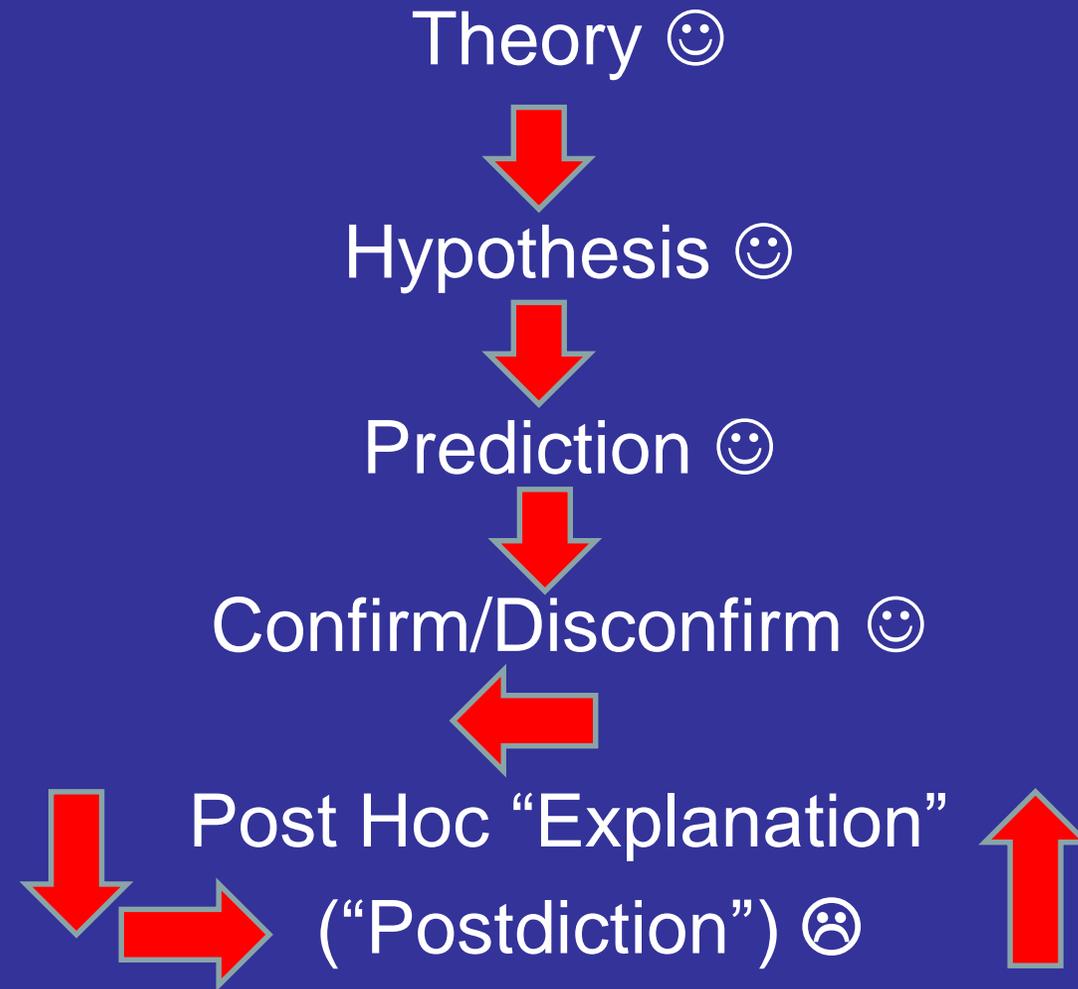
Panter, A. T., & Sterba, S. (Eds.) (2011). *Handbook of ethics in quantitative methodology*. New York: Taylor and Francis.

Probing, Postdicting, and Hypothesis Preregistration: Facts, Alternative Facts, and Fiction

“As David Quammen [science writer and explorer] wrote, ‘Faith comforts, but data persuade: What are called data today, for Darwin were facts’.”

Wesson, R. (2017, p. 208), Darwin’s first theory. Pegasus: New York.

Theories, Hypotheses, Predictions, and Post Hoc “Explanations”



Post Hoc “Explanation”

(From John Platt’s Classic “Strong Inference” Article)

Some cynics tell a story, which may be apocryphal, about the theoretical chemist who explained to his class,

"And thus we see that the C-Cl bond is **longer** in the first compound than in the second because the percent of ionic character is smaller."

Post Hoc “Explanation”

A voice from the back of the room said, "But Professor X, according to the Table, the C-Cl bond is **shorter** in the first compound."

"Oh, is it?" said the professor.

"Well, that's still easy to understand, because the double-bond character is higher in that compound."

A Proposal Well Worth Considering

“[W]e propose that researchers preregister their studies and indicate in advance the analyses they intend to conduct. Only these analyses deserve the label ‘confirmatory,’ and only for these analyses are the common statistical tests valid. Other analyses can be carried out but these should be labeled ‘exploratory.’”

Wagenmakers, E. J., Wetzels, R., Borsboom, D., van der Maas, H. L. J., , and Kievit, R. A. (2012). An agenda for purely confirmatory research. *Perspectives on Psychological Science*, 7, 632–638.



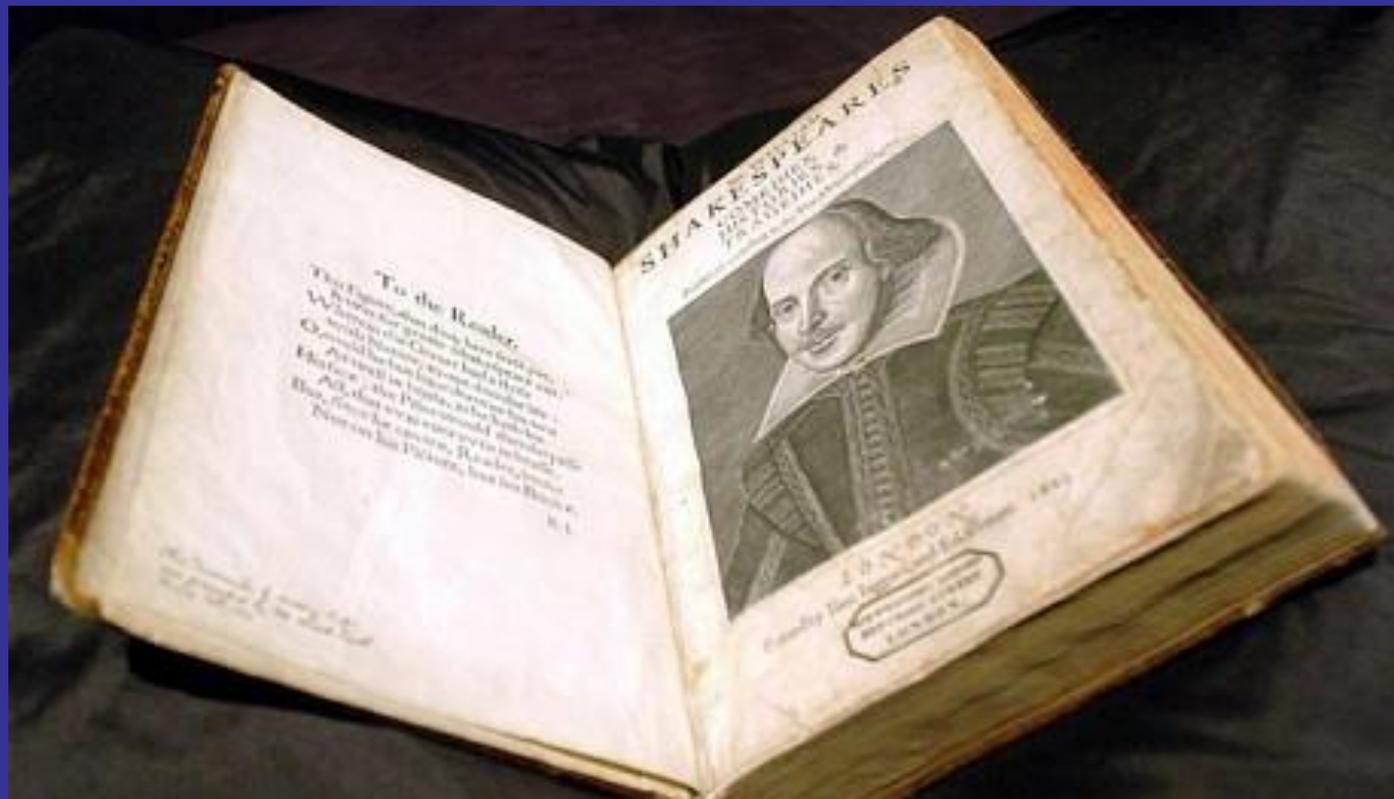
Exploratory Research \longleftrightarrow **Confirmatory Research**

Fig. 1. A continuum of experimental exploration and the corresponding continuum of statistical wonkiness. “On the far left of the continuum, researchers find their hypothesis in the data by post-hoc theorizing, and the corresponding statistics are ‘wonky,’ dramatically overestimating the evidence for the hypothesis. On the far right of the continuum, researchers preregister their studies such that data collection and data analyses leave no room whatsoever for exploration, and the corresponding statistics are ‘sound’ in the sense that they are used for their intended purpose. Much empirical research operates somewhere in between these two extremes, although for any specific study the exact location may be impossible to determine. In the grey area of exploration, data are tortured to some extent, and the corresponding statistics are somewhat wonky.” Figure downloaded from Flickr, courtesy of Dirk-Jan Hoek.

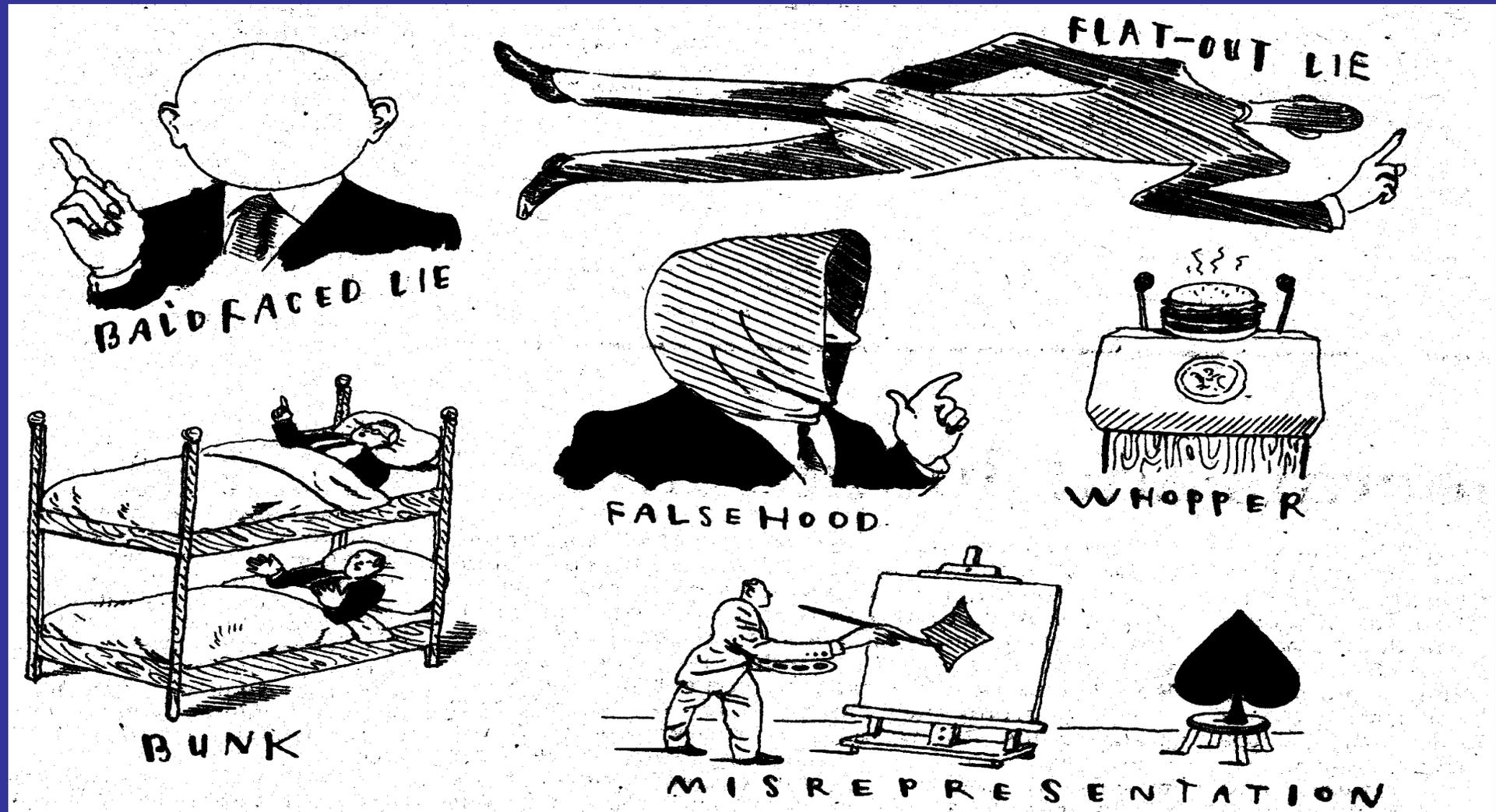
From Wagenmakers et al. (2012)

Monkeys at typewriters 'close to reproducing Shakespeare'

Millions of virtual monkeys have almost typed out the entire works of Shakespeare by bashing random keys on simulated typewriters.



A Few Thoughts About Professional Research and Publishing Ethics



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- Data “massaging” (“fudging” and falsification)
- “Multiplicity,” directional tests, “postdictions,” and hypothesis preregistration (Wagonmakers et al., 2012)
- Selective reporting, negative results, and publication bias
- Duplicate and fragmented (or “piecemeal”) publication
- Professional research/writing expectations and attributions
 - the “data thief” and giving credit where credit is due
 - authorship
 - **plagiarism!!**

Panter, A. T., & Sterba, S. (Eds.) (2011). *Handbook of ethics in quantitative methodology*. New York: Taylor and Francis.

Personally Experienced Examples (Levin, 2011)

- Data too good to be true
- Excuse me, haven't I met you somewhere before?
- Do as I say, not as I do

Author X (Chapter A in Edited Book on Research Ethics, 2000)

“In practice, however, students come to the dissertation with varying degrees of prior experience and expertise. Indeed, in some instances, the dissertation represents the student’s first research project, thus requiring substantial faculty input, or involves the student using a pre-existing dataset of the faculty member. In such cases, the faculty adviser might reasonably expect to be an author should articles derived from the dissertation be submitted for publication. In any case, it is generally expected that the student would have the opportunity to be the principal author on any publication resulting from the dissertation.”

Author Y (Chapter B in Edited book on Research Ethics, 2000)

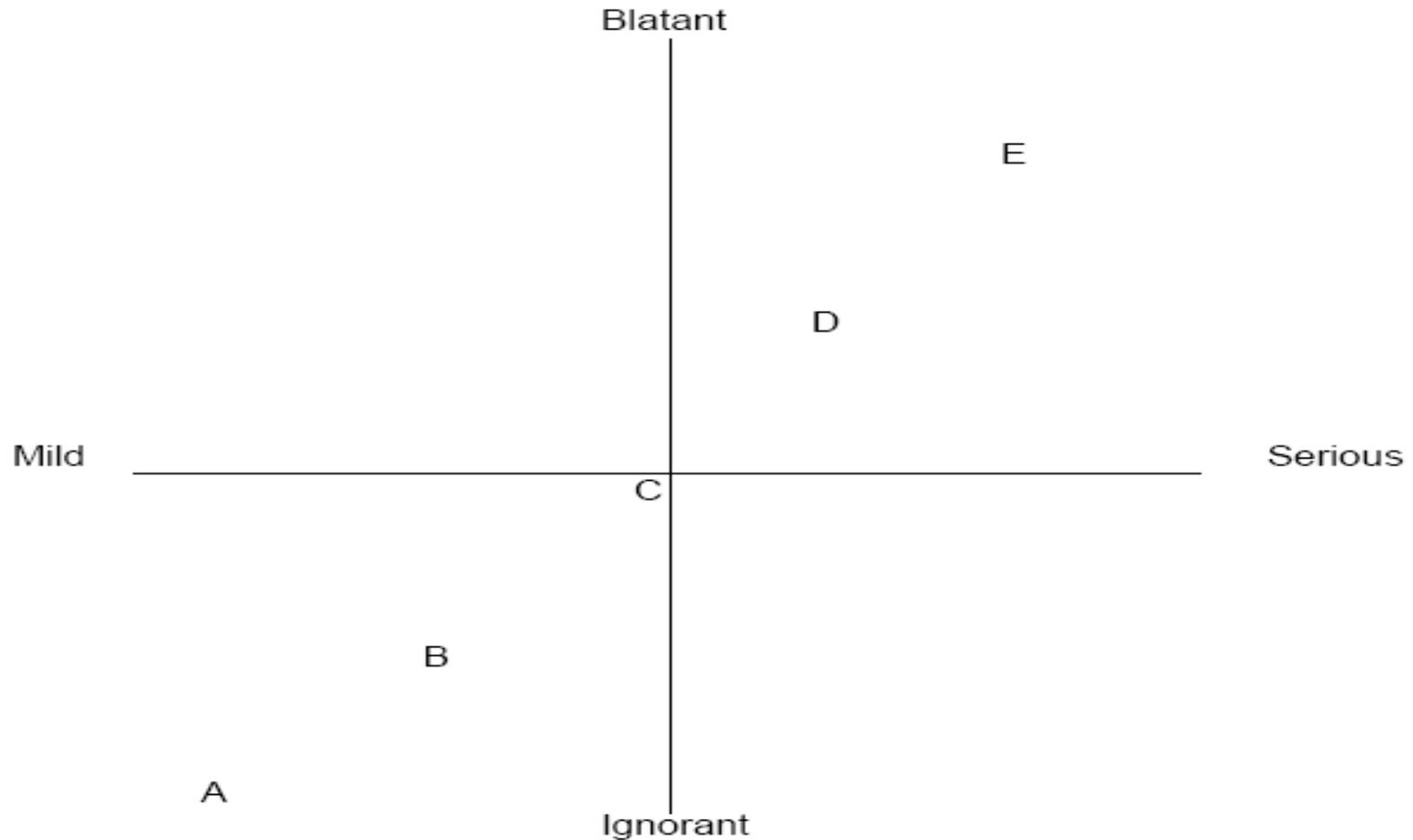
“In practice, students come to the dissertation with varying degrees of prior experience and expertise. In fact, in some instances, the dissertation represents the student’s first research project...Throughout the dissertation process, researcher-supervisors are encouraged to discuss and evaluate together with the student the appropriateness, if any, of supervisor co-authorship, based on their relative contributions to the project. There is the presumption that the student will be listed as principal author on any multiple-authored article that is substantially based on the student’s dissertation or thesis...”

Personally Experienced Examples (Levin, 2011)

- Data too good to be true
- Excuse me, haven't I met you somewhere before?
- Do as I say, not as I do
- Pardon my French!
- Research and writing made easy

See also <http://retractionwatch.wordpress.com/>

Two-Dimensional Representation of Research and Publishing Crimes and Punishments (Levin, 2011)



X axis = Severity of the "crime"

Y axis = Violator's intentionality

A = Point out B = Slap hand C = Reject manuscript D = Expel E = Take legal action

If At First You Don't Succeed...

...Persistence Personified
(A True Story)