

# Faux Numbers & Deceptive Data: *Issues and Classroom Activities*

MARC ISAACSON

2017 NNN CONFERENCE PRESENTATION

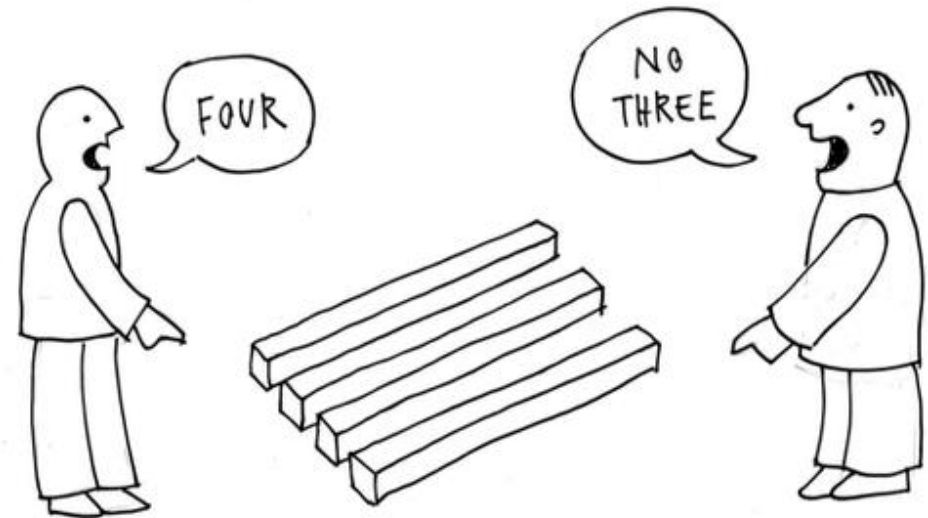
BARNARD COLLEGE, NEW YORK

**FAKE**  
**NEWS**



# Fake Numbers vs. Faux Numbers

“EVERYTHING WE HEAR  
IS AN OPINION, NOT A FACT.  
EVERYTHING WE SEE  
IS A PERSPECTIVE, NOT THE TRUTH”  
— MARCUS AURELIUS —



# Information Literacy

## Broad Umbrella for:

- Statistical Literacy
- Quantitative Literacy
- Media Literacy
- Visual Literacy
- Research Literacy
- Etc

## Common Thread:

Preparing students to become critical thinkers and more informed citizens

“World awash in numbers”





# Producers of Statistics



# Consumers of Statistics





# First Day of Class Survey Question

Where  
do  
Statistics  
come  
from?







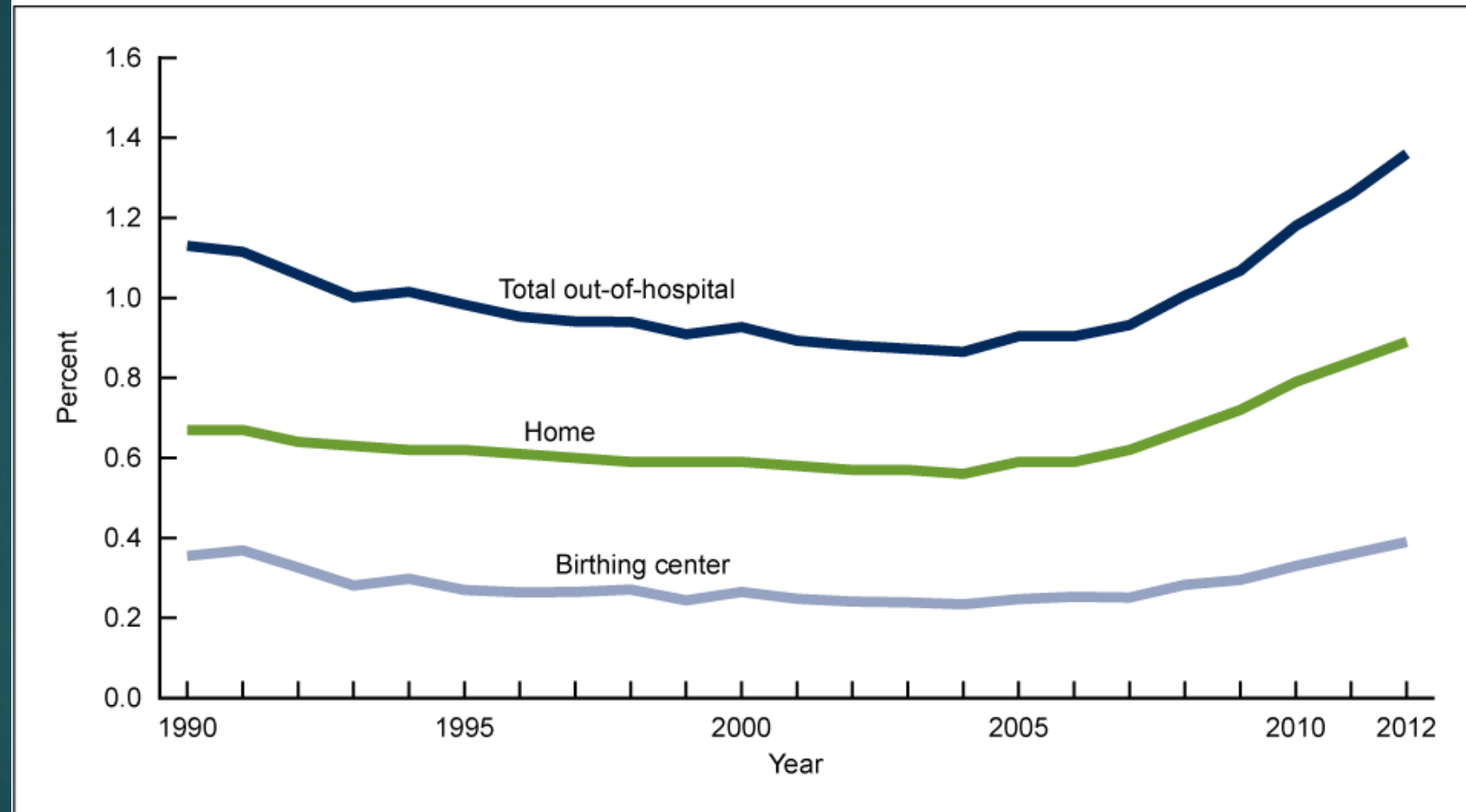
Saying “Statistics Come From Data”  
is like saying  
“Babies Come from Hospitals”



- It's true but leaves out the interesting details

# Side Bar: How many are doing it?

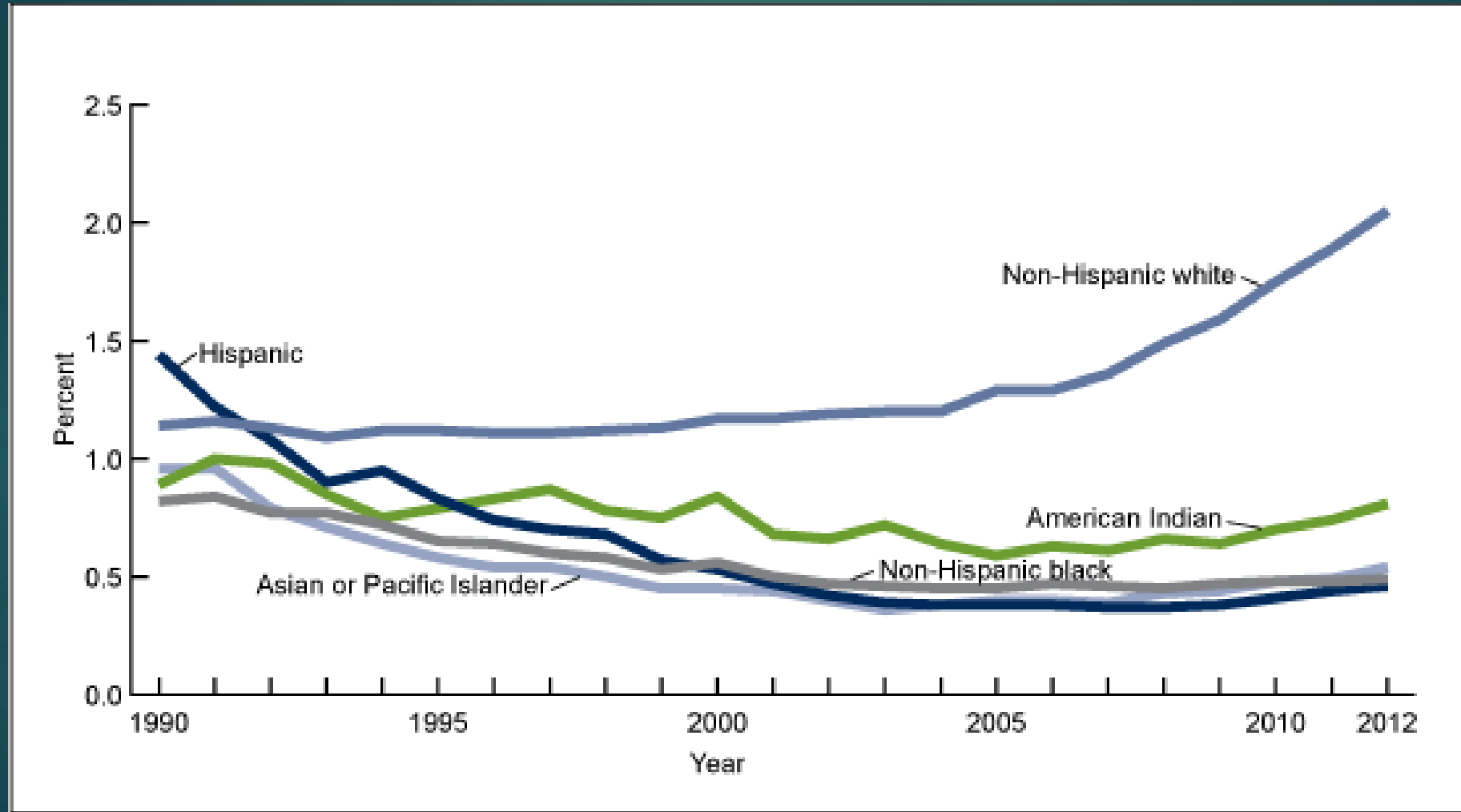
Figure 1. Percentage of births occurring out-of-hospital: United States, 1990–2012



NOTE: Out-of-hospital births include those occurring in a home, birthing center, clinic or doctor's office, or other location.

SOURCE: CDC/NCHS, National Vital Statistics System, birth certificate data.

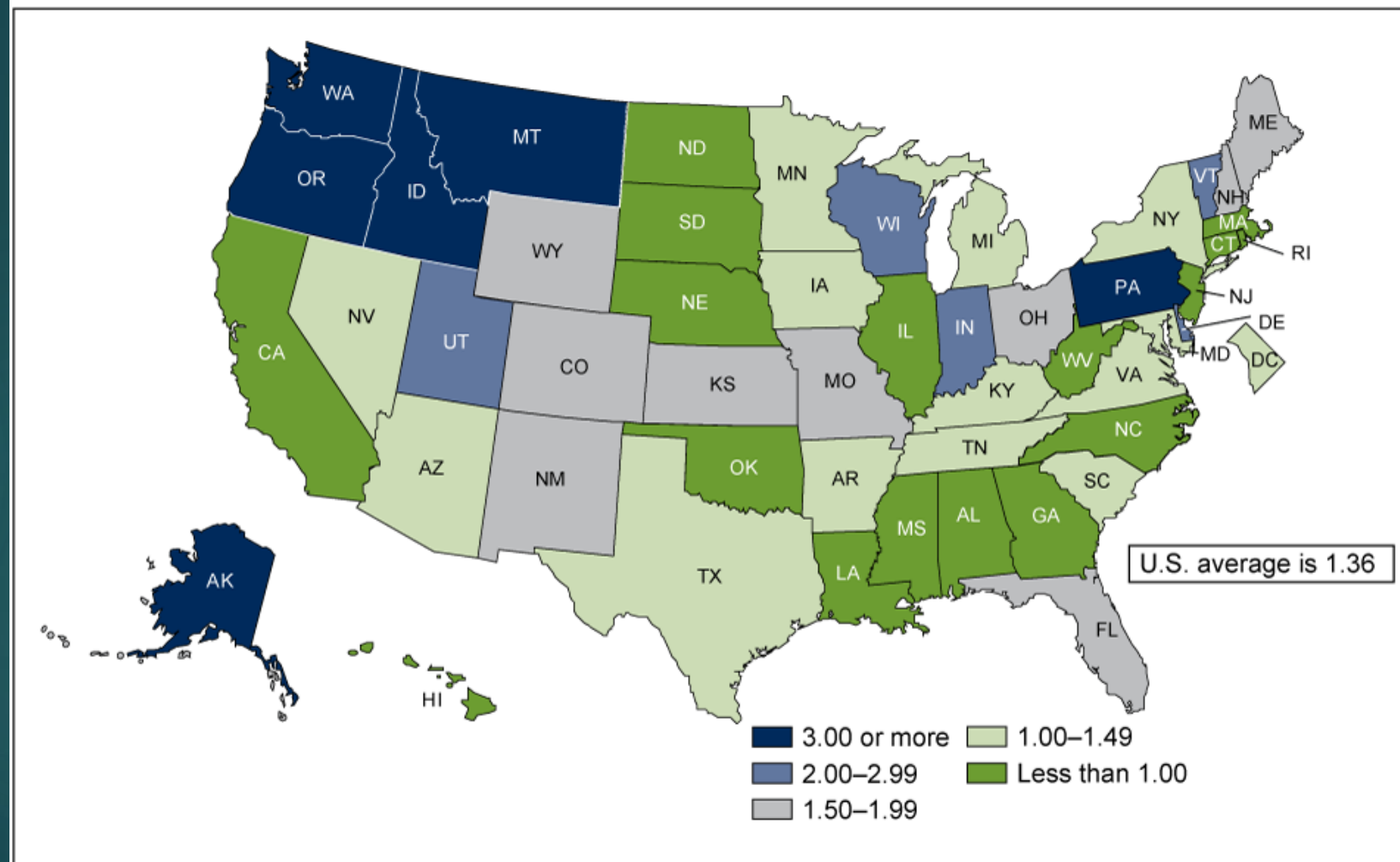
# Side Bar: Who's Doing it?





# Side Bar: Where are they doing it?

Figure 3. Percentage of births occurring out-of-hospital, by state: United States, 2012



NOTE: Access data table for Figure 3 at: [http://www.cdc.gov/nchs/data/databriefs/db144\\_table.pdf#1](http://www.cdc.gov/nchs/data/databriefs/db144_table.pdf#1).

SOURCE: CDC/NCHS, National Vital Statistics System, birth certificate data.

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Textbooks: “There is data...”





Statistics do  
not create  
themselves;  
people  
create them.

*James H. Baird*



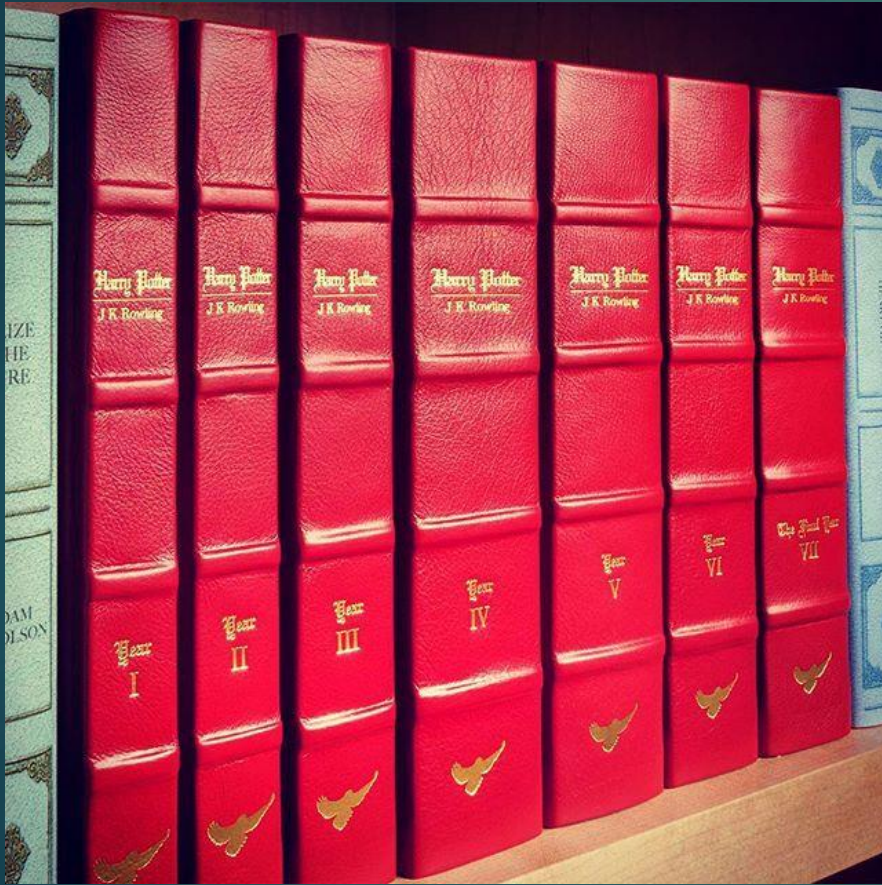
Statistics come from a  
process that starts with a  
Question of Interest

# Red Books Activity Field Trip





# Red Books Activity Field Trip





# Red Books Activity - Faux Numbers?

Decisions in process must be made

Typical Results Vary

Methodology Matters!

Definitions Matter!



# Define: Smoker



# Define: Parental Substance Abuse



## Half of Kids Live with Parent Substance Abuse

**Report: Smokers, drinkers, addicts more likely to abuse children**



# Define: Homeless

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Another First Day Survey Question

Which of the 3 phrases describes you best when exposed to arguments involving statistics?



me? cynical?





# First Day of Class Survey

Which of the 3 phrases do you believe describes you best when exposed to arguments involving statistics?

- Awestruck / Naïve about Numbers: ~14%
- Critical / Thoughtful Thinker: ~72%
- Complete Cynic: ~14%

# Challenge:

## Typical Learning Objectives

- Tend to be content based
- Driven by Need for assessment
- Often treated as an inoculation
- What about Attitudes?
  - Should we measure / track?
  - Should they be a learning objective?

Dilemma and Goal:

Teaching students to survive in a world with Faux Numbers without becoming cynics or awestruck



# Broader Goal and Challenge for QL



Quantitative literacy is more a habit of mind, an approach to problems that employs and enhances both statistics and mathematics.

*Lynn Steen*

# Broader Goal and Challenge for QL

In order to produce numerically literate citizens, we must develop students with

- A Thoughtful Thinker attitude willing and able to handle a world of seemingly faux numbers

# Questions?

