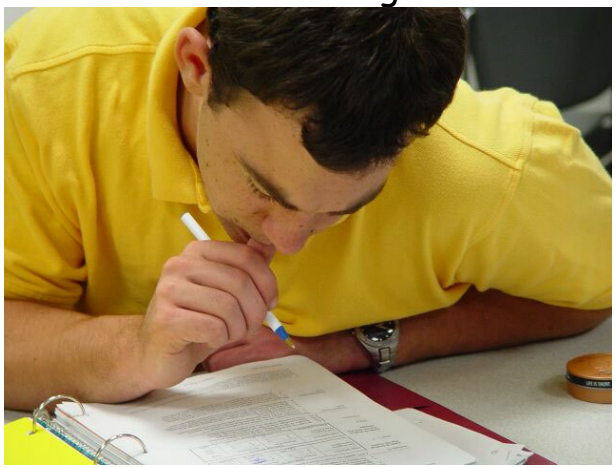
# Statistical Literacy©

critical thinking about statistics as evidence in arguments



# STATISTICS ARE SOCIALLY CONSTRUCTED

*StatLit-Project-Brochure 4A 10/18/2002 ©*

# Definitions and Statistical Literacy

Definitions are the heart of any language. We can form sentences of words, but the sentences may be ambiguous or meaningless if the words are ambiguous.

Words are not better than their definitions. This is true of statistics.

"The accident rate is higher in Minnesota than in Iowa. In this comparison, accident rate' is ambiguous: the whole is not specified. Are these accidents per 100,000 population, per 100,000 cars, per 100,000 miles, per 100,000 licensed drivers or what?

"This test has an accuracy of 99%. In this description, 'accuracy' is ambiguous. Does this test confirm 99% of the cases as positive in which the outcome is already known? Or does this test predict 99% of the positive outcomes correctly as having the condition?

Suppose the chance of pregnancy is 10 per 100,000 adults." This statistic depends on the context: the choice of the per group. Per 100,000 adults, per 100,000 women, per 100,000 women ages 15-44, or per 100,000 sexually active women ages 15-44.

# Joel Best
## On Statistical Literacy



Professor Best gave a talk to the national meeting of the American Statistical Association in New York City. The session was organized and chaired by Dr. Milo Schield, Director of the W. M. Keck Statistical Literacy Project.

Joel's paper was titled "People Count: The Social Construction of Statistics". His paper is available online at https://statlit.org/pdf/2002BestASA.pdf

# PEOPLE COUNT By Joel Best

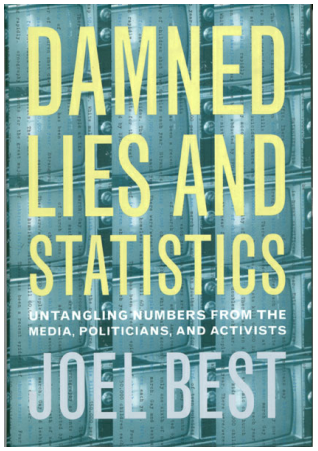
"*People Count: the Social Construction of Statistics.*" This was the title of a talk delivered by Professor Joel Best at the national meeting of the American Statistical Association in 2002.

The following are excerpts from his talk.

ABSTRACT: Social statistics often play a key role in discussions of social issues. Estimates for the extent of social problems and other similar figures tend to be treated as objective, factual, indisputable evidence. This assumption ignores the social processes involved in the creation and dissemination of these numbers – processes that are often glossed over in statistics courses. *Statistical education ought to foster critical thinking about the social construction of statistics.*

By and large, this instructional process ignores the sorts of basic statistics that appear in newspaper articles and on news broadcasts, and that shape the public's understanding of social issues.

# "Damned Lies and Statistics"




In 2002 this book was the best selling non-professional statistics book on Amazon.com.

Joel Best is professor Sociology at the University of Delaware.
Professor Best argues that statistics are

- created rather than being discovered
- created for a purpose
- often defined opportunistically
- often mutated to give better results

Professor Joel Best met with Augsburg students studying quantitative literacy (GST 200). Together they analyzed this statistic:

"Approximately one in five children received a sexual solicitation or approach over the internet in the past year." National Center for Missing & Exploited Children. www.missingkids.com/html/publicaffairs_stats.html

Professor Best discussed how such statistics are socially constructed: how they are shaped, reworded and sometimes mangled by people who use them as signs of important social problems.

In this case, the original statistic was
*Among youth ages 10-17 who use the Internet regularly (at least once a month during the past six months), 19% received an unwanted sexual solicitation or approach.*

Professor Best noted the shift from "youth age 10-17" to "children" and the omission of being "frequent Internet users." Professor Best also noted how extreme cases are often substituted for proper definitions.

There were 8 cases presented in the original article. In those cases where the perpetrators' age was stated, 100% of the perpetrators were adults, yet the data showed at least 48% of these perpetrators were under 18. In those cases where the victim's age was known, 50% involved children 13 or younger, yet the data showed that less than 25% of these victims were 13 or younger.