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"Evaluate Teaching & Learning in Real Time? Simple as ABC!"

resource to browse later:
bit.ly/USCOTS2019Lesser

2019 USCOTS
EVALUATING EVIDENCE

LESSER = MOORE

....so I asked myself.....

….what change

has had the most bang-for-the-buck

for my teaching and students' learning

"throughout a course"
'cause who has time
to assess strategies for <u>each</u> bit of content?

Intervention	Content	Design	Article
Dataset sequence	ANOVA	Pre/post instrument	Fall 2007 *TS*
Physical model	median	Pre/post instrument	Nov. 2014 *JSE*

and who always can/should
do a randomized experiment?

e.g., songs inserted into (some) students' LMS readings
(July 2016 *JSE* paper)

"in real time"

"the most important assessment...

happens **during the learning**,

when there's still time

to do something with the information."

--Dylan Wiliam (2011)

Such assessment is called….

not *summative*, but _____

Such assessment is called….

formative

GAISE (2016, p. 22)

- "ask good questions"

Allan Rossman (2010), JMM talk

- "pose purposeful questions"

NCTM (2014), *Principles to Actions*

a question from *GAISE* (2016, p. 107)

Does the size of the SD of a data set depend on the center of the distribution?

A) Yes, the higher the mean, the higher the SD.

B) Yes, because you have to know the mean to calculate the SD.

C) No, the size of the SD is not affected by the location of the distribution.

D) No, because the SD measures only how the values differ from each other,

not how they differ from the mean.

item from ARTIST

The school committee of a small town wanted to determine the average number of children per household in their town. They divided the total number of children in the town by 50, the total number of households. Which statement must be true if the average number of children per household is 2.2 children?

A) Half the households in the town have more than 2 children.

B) There are a total of 110 children in the town.

C) The most common number of children in a household is 2.2.

D) None of the above.

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Guidelines for Programs
Report and auxiliary materials on Statistics Education Graduate Programs

Guidelines for Research
ASA/NSF report on statistical issues in mathematics (and statistics) education research and CAUSE/NSF report on research priorities.

Readings & Publications
Core readings in statistics education.

Journals
Journals publishing research in statistics education.

Literature Index
Searchable annotated list of research articles in statistics education.

ARTIST
(Assessment Resource Tools for Improving Statistical Thinking) Tests and measurement tools to use in research studies in statistics education.
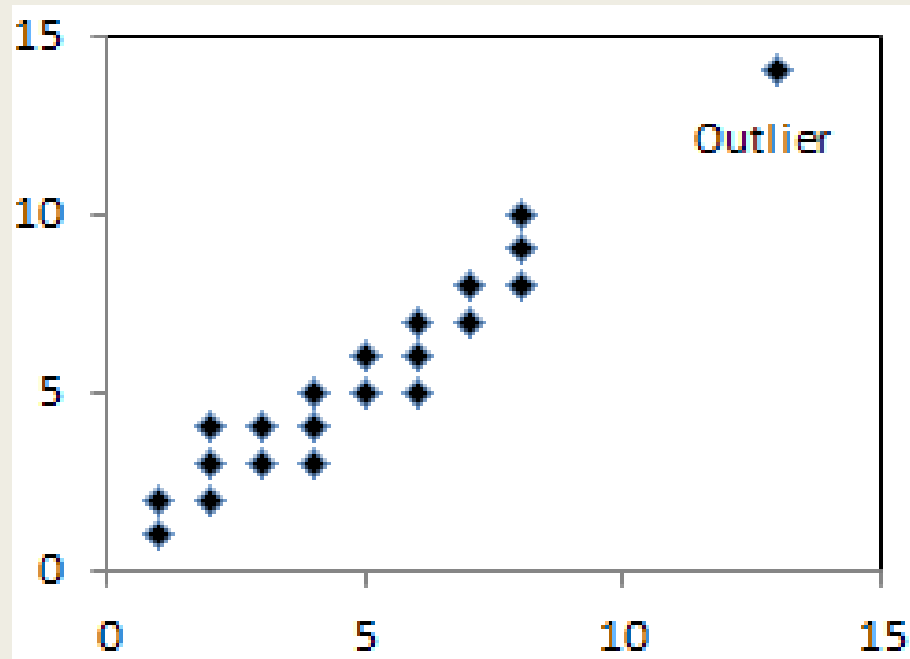
Dissertations
Recent Doctoral Dissertations in Statistics Education. Abstracts and, in some cases, the full version.
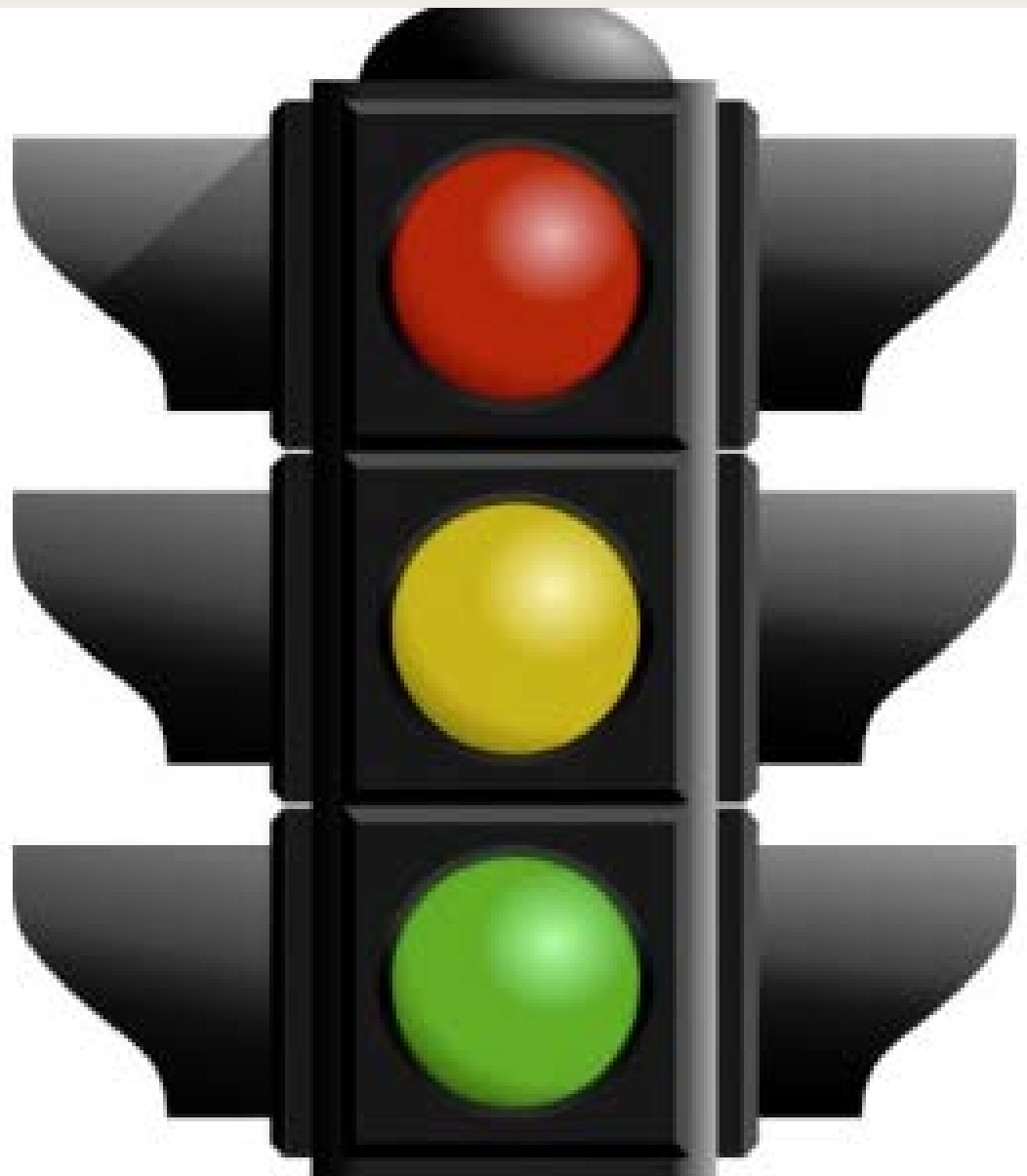
improv(e) teaching

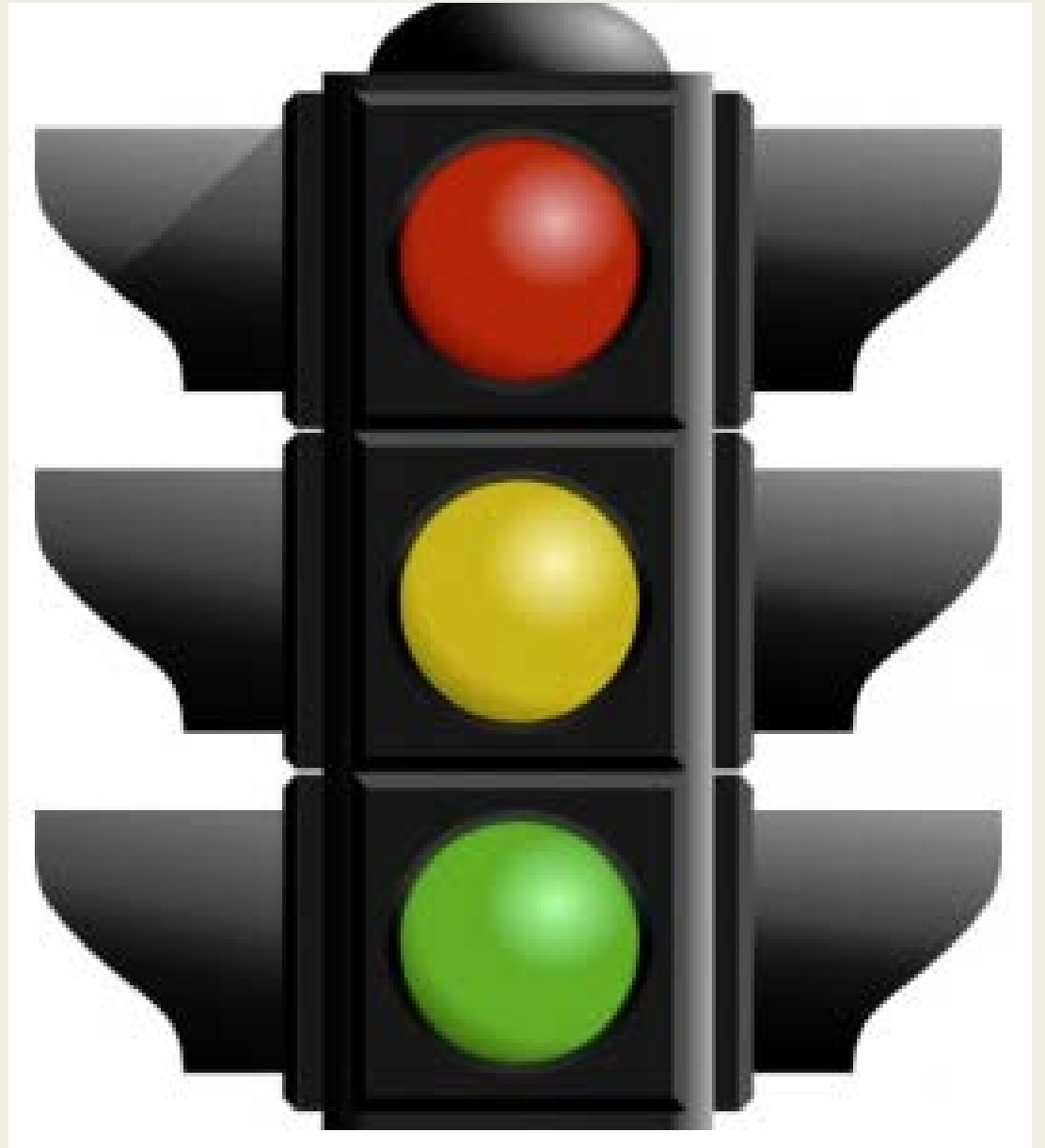What if I deleted the outlier?

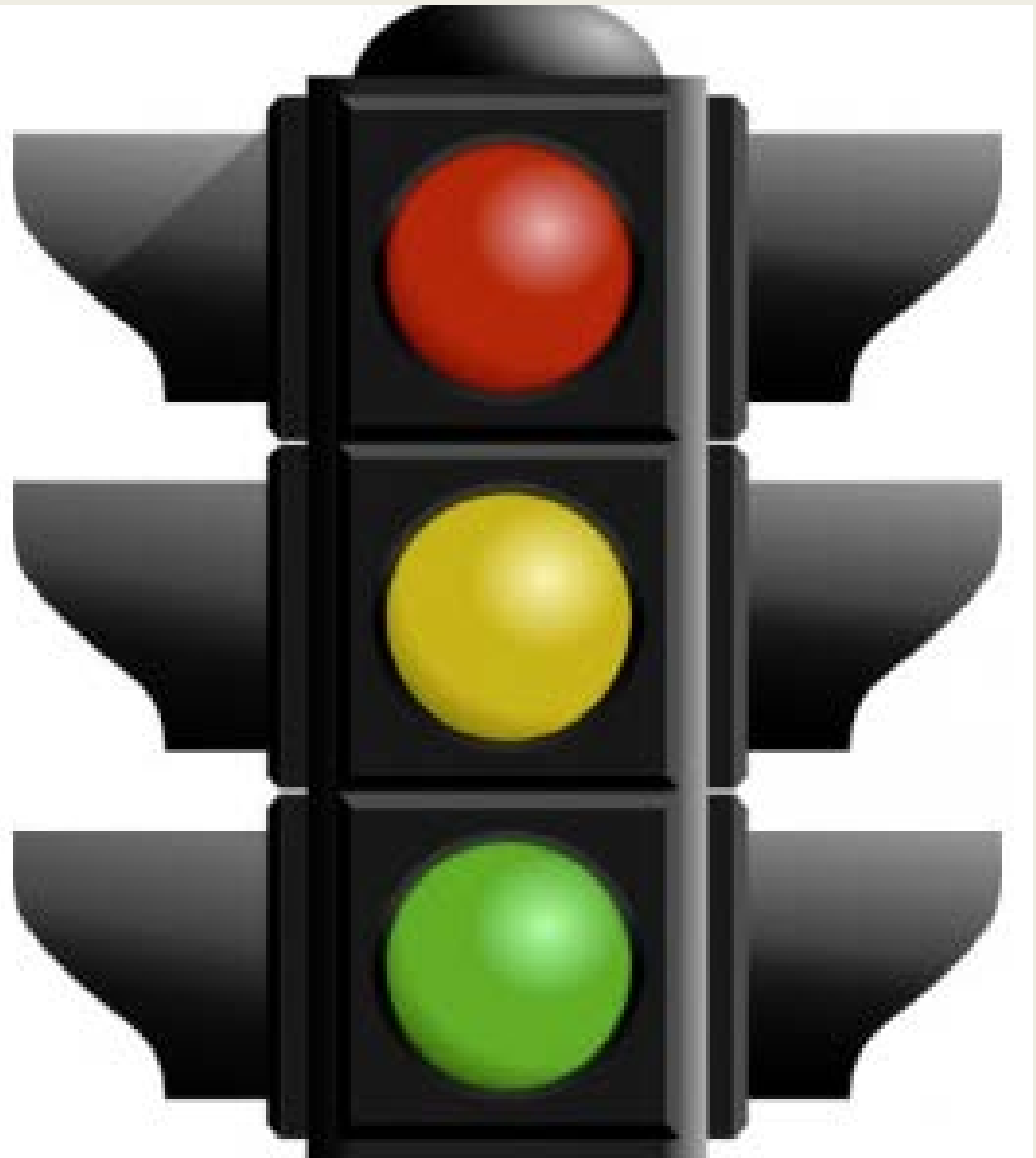Then *r* would...

Easy to pan room & note modal answer

began use in fall 2010,
1 week after Ed Prather workshop!

New mindset:

■ make EVERY class interactive and engaging

■ assess EVERY student's understanding in EVERY class

■ empower students to learn from each other (e.g., split vote)

ASSESSING THE ASSESSMENT TOOL

- Little/no research on ABCD cards, but randomized experiment on clickers in statistics in *TISE* (McGowan & Gunderson, 2010)

- But it's not about cards/clickers/texting per se –

  it's about the active learning they facilitate

- Freeman et al. (2014) meta-analysis of 225 STEM studies found

  active learning increases exam performance

GAISE recommendation #4: foster active learning

A CTIVE

B EATS

C ANNED

3 months into intervention,
I had teaching center director give anonymous survey
with 3 Likert items starting:

"The use of **ABCD cards** in this class...

- ...helps me feel more engaged during class" [ENGAGEMENT]

- ...gives me helpful feedback about whether I am understanding ideas correctly when they are presented during class" [LEARNING]

- ...allows instructor to more effectively prioritize which topics, examples, and activities to choose during class to better meet the students' needs" [TEACHING]

QUANTITATIVE (49 students):
100% of 147 responses were some form of agreement

	strongly disagree	disagree	somewhat disagree	somewhat agree	agree	strongly agree
ENGAGEMENT	0	0	0	1	18	30
LEARNING	0	0	0	4	15	30
TEACHING	0	0	0	3	15	31

QUALITATIVE: 30 students wrote comments – coded into 7 themes – all positive

consistent with official end-of-course ratings/comments
(and teaching awards)

9 years later, I still use it

A SSESSMENT

B EATS

C ONJECTURE

As you have a -derful USCOTS,

Find THING you'll try (and assess)

this fall!

A BSOLUTE

B EST

C ONFERENCE

in 2019, UTEP.....

- became an R1 university (while remaining open-access)

- submitted for UT System approval: proposal for PhD in Data Science

- will have a new president for first time in 31 years

- worries how border closure would impact our students (5%) commuting from Mexico

- remains the 1 men's basketball team from Texas to win NCAA title   #GloryRoad

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