

## Multi-Institutional, Multi-National Studies in CSEd Research

Some design considerations and  
trade-offs

## Authors

- Sally Fincher
- Raymond Lister (presenter)
- Tony Clear
- Anthony Robins
- Josh Tenenberg
- Marian Petre

Any resemblance to  
coauthors, either living or dead,  
is purely coincidental.

## Summary

- Why?
- Why?
- When.
- ...and if time allows
  - How
  - How

## But What?

- Remember Gary's talk? (card sorts)
- Remember Beth's talk? (19 strategies)

## Lister (2001): A Fictitious Paper

### A Study of Assessment of Programming Skills of First-Year CS Students

Raymond Lister  
University of Technology Sydney  
Australia

- A single author, presenting results for a single institution.

## Lister (2001): A Fictitious Paper

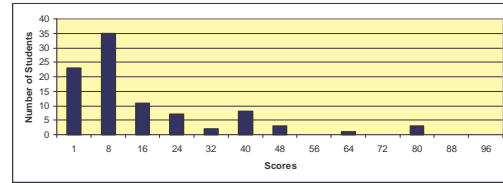
### Explanations?

- 1) Raymond can't teach.
  - 2) The students are Australian.
  - 3) Raymond teaches at an **atypically** poor school.
  - 4) If Raymond changed:
    - a) From Pascal to C to C++ to Java to Python
    - b) Objects early ß à Procedural
    - c) Used closed labs ß à Used open labs
    - d) More assignments ß à Less Assignments...
- < insert your favorite deck chair permutation for  
the "C.S. Titanic" >

## Differential Equations

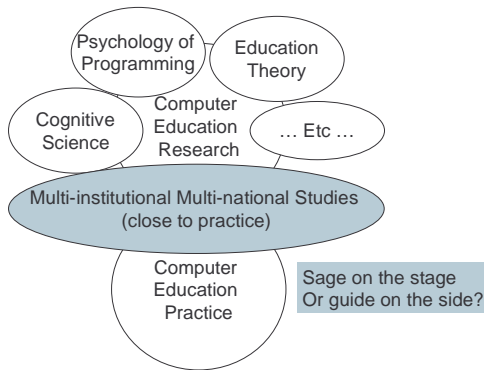
268 Sep 29 Peter Cooper (4433) Re: Differential Equations  
 269 Sep 29 Lynn Andrea Stein (3490) Re: Differential Equations  
 270 Sep 29 Dennis J Frailey (4401) Re: Differential Equations  
 271 Sep 29 Merkle, Laurence (4701) Re: Differential Equations  
 272 Sep 29 Brian C. Ladd (2016) Re: Differential Equations  
 273 Sep 29 Ellen Walker (4920) Re: Differential Equations  
 274 Sep 29 Dennis J Frailey (3234) Re: Differential Equations  
 N 275 Sep 29 Ellen Walker (3689) Re: Differential Equations  
 N 276 Sep 29 Nicholas Duchon (2288) Re: Differential Equations  
 N 277 Sep 29 Holland, Herb (5784) Re: Differential Equations  
 N 278 Sep 29 H. Conrad Cunnin (2751) Re: Differential Equations  
 N 280 Sep 29 Ray Schneider (2937) Re: Differential Equations  
 N 281 Sep 29 David Klappholz (3490) Re: Differential Equations  
 N 282 Sep 29 brian (2774) Re: Differential Equations  
 N 283 Sep 29 David Klappholz (3629) Re: Differential Equations

## McCracken, *et al.* (2001) Lister (2001): A Fictitious Paper



10 authors; data collected at 4 universities in 2 countries:

- They **all** can't teach?
- They can't **all** be Australian!
- They are **all** atypically poor schools?
- Several deck chair permutations on the "C.S. Titanic"



## The ITiCSE Working Group Model

- 2001: McCracken, *et al.*
  - The first empirical ITiCSE working group
- 2002-2004: "BootScaff"
- 2004: The "Leeds Group"
  - Data from 12 universities in 6 countries
  - A study of novice program comprehension

## The "BootScaff" Model



Fincher



Petre



Tenenberg

## The "BootScaff" Model

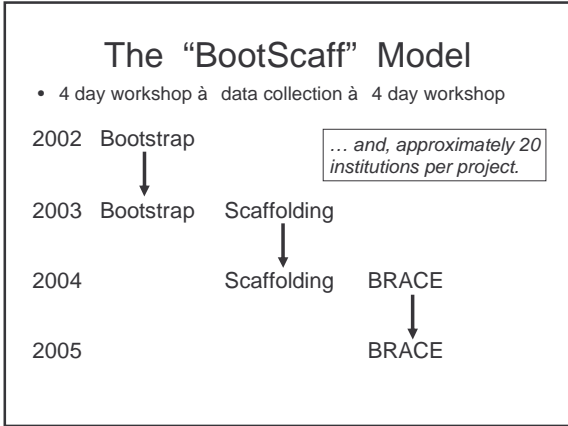
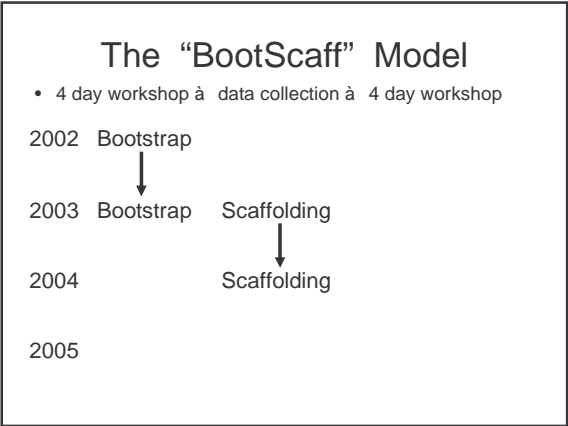
- 4 day workshop à data collection à 4 day workshop

2002 Bootstrap

2003 Bootstrap

2004

2005



- ### Adapted Models
- Structure adapted from ITiCSE Working group model **and** BootScaff model:
    - BRACElet
    - South Carolina Group
    - Explore CSED
    - Swedish Group
    - DC Group
    - ... more by the end of this conference.

- ### Summary / Conclusion
- Why?
    - Tackles directly the issue of generality
    - At the interface of research and practice
  - Genealogy
    - McCracken ITiCSE working group
    - "BootScaff": Fincher, Petre, Tenenberg
  - The emerging multi-institutional method
    - Cross institutional comparisons
    - VOIP

And now for those who have been part of these projects ...

A thought about cross-institutional comparisons

### Variation across institutions?

Institution	N	Deep Approach correlation
A	12	0.63
E	13	0.42
H	13	0.43
I	39	0.36
J	12	0.54
K	8	-0.48
N	7	0.11
P	14	0.08

- (from BRACE)
- We should routinely compare across institutions, for consistency **and** variation.
- May require more data per institution.

## Voice Over IP

- Thus far, email primary medium, but:
- Skype
- Googletalk
- Marratech
  
- (time zones remain a problem)

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