

# Washington Tutorials

Teaching and Learning Physics, Fall 2015

Table VI. Ranking of the 24 RBIS according to level of Knowledge (percentage of faculty who indicate are familiar with or have used the RBIS).

	All institutions	Two-year college	Four-year college (B.A.)	Four-year college (Grad)
Instruction	63.5%	46.6%	73.4%	65.8%
Group problem solving	56.3%	55.5%	66.4%	47.8%
Group physics	49.3%	43.4%	59.5%	43.9%
Flipped teaching	48.2%	47.2%	66.5%	32.0%
Peer teaching	47.7%	44.5%	55.1%	43.1%
Peer in introductory physics	47.0%	42.4%	55.7%	42.0%
Peer lecture demonstrations	45.4%	42.0%	57.4%	36.7%
Peer based problem tutorials	43.0%	42.8%	53.2%	33.9%
Peer tasks	38.7%	45.6%	45.3%	27.9%
Peer JP	34.5%	23.5%	50.8%	27.0%
Learning problem sheets	34.3%	36.4%	38.3%	29.5%
Peer	32.7%	34.8%	39.9%	24.7%
Peer physics laboratories	32.4%	37.6%	39.2%	22.8%
Peer rich problems	30.4%	25.7%	36.7%	28.0%
Peer case study physics	24.7%	31.1%	28.4%	17.3%
Peer force physics	21.8%	19.1%	28.3%	17.9%
Peer science learning environment	21.1%	24.4%	25.4%	14.9%
Tasks inspired by physics education	20.9%	31.4%	23.1%	11.6%
Peer force tutorials	20.8%	17.4%	25.2%	19.0%
Peer laboratory	18.8%	22.5%	21.8%	13.4%
Peer link for introductory physics	18.5%	17.9%	24.1%	13.8%
Peer ent problems	17.3%	25.4%	19.8%	9.3%
Peer dialogue inducing laboratories	16.3%	17.1%	19.6%	12.8%
Peer problems	15.1%	17.1%	16.6%	12.4%

Henderson, C. & Dancy, M. (2009) [The Impact of Physics Education Research on the Teaching of Introductory Quantitative Physics in the United States](#), *Physical Review Special Topics: Physics Education Research*, **5** (2), 020107.

# Washington Tutorials

## Historical Perspective

Based on rigorous research on student difficulties and misconceptions.

Curriculum developed to elicit, confront, resolve identified misconceptions

Strongly based in research and rigorously tested for effectiveness.

How does tutorial implementation at CU differ from McDermott's recommendations?

Look through student answers to pre-test to identify  
3 common misconceptions.

Where / how are these misconceptions addressed in  
the tutorial?

# Other Perspectives

Replication Issues

	6 Year Grad Rate	%Pell	sat	%women	%white
University of Washington	82%	22%	1218	52	55 (27% Asian)
University of Colorado	70%	17%	1169	46	77
John C. Calhoun University	44%	61%	830	61	0.6 (HBCU)
Mississippi State	21%	85%	890	70	2.5 (HBCU)

# Other Perspectives

## Misconception Based Strategy

- What message(s) does this send to the student about themselves as learners?
- What message(s) does it send about the nature of science?