Keynote at EDSIGCON | CONISAR 2018

Bridging the Gap Between Information Systems Education and Information Systems Research: What Can Be Done to Help

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School of Business, Virginia Commonwealth University

Bridging the Gap Between Information Systems Education and Information Systems Research: What Can Be Done to Help

I. The problem: What does it look like?

II. 3 causes of the gap between I.S. education and I.S. research

III. 3 ways to bridge the gap between I.S. education and I.S. research

IV. 3 long-term strategies

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I. The problem: What does it look like?

What We Teach

The VCU curriculum

INFO 610: Database Systems
INFO 620: Data Communications
INFO 630: Systems Development
INFO 640: Information Systems Management
+ 6 electives

The West Texas A&M University curriculum (sample courses)

CIDM 6305: Quantitative Analysis in Business
CIDM 6362: Advanced Business Forecasting
CIDM 5310: Business Intelligence & Decision Support Systems
CIDM 6350: Data and Information Management
CIDM 5360: Object-Oriented Analysis and Design
CIDM 6330: Software Engineering and Systems Development
CIDM 6340: Network Management and Information Security
CIDM 6363: Enterprise Process Management
CIDM 6390: Project Management

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What We Do Research On

sample titles:

- Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology
- Generalizing Generalizability in Information Systems Research
- Computer Self- Efficacy: Development of a Measure and Initial Test
- Message Equivocality, Media Selection, and Manager Performance

I. The problem: What does it look like?

What We Teach

The VCU curriculum

INFO 610 - Database Systems
INFO 620 - Data Communications
INFO 630 - Systems Development
INFO 640 - Information Systems Management
+ 6 electives

The USF curriculum

MSIS 612 - Analysis, Modeling and Design
MSIS 611 - Database
MSIS 620 - Economics for IS Managers
MSIS 625 - IT Policy and Strategy
MSIS 613 - Communications and Networking
MSIS 651 - IT Security
MSIS 624 - Managing Projects and Change
MSIS 647 - Global Information Systems
MSIS 631 - e-Business Technologies
MSIS 648 - Enterprise Information Systems
MSIS 656 - Business Intelligence & Data Warehousing
MSIS 626 - Capstone Project

What We Do Research On

sample titles:

A reverse case in point:
Professor Steven Alter's work

http://www.stevenalter.com/

I. The problem: What does it look like?

Harvard Business Review
"How Business Schools Lost Their Way"
Warren G. Bennis & James O'Toole

"Instead of measuring themselves in terms of the competence of their graduates, or by how well their faculties understand important drivers of business performance, they measure themselves almost solely by the rigor of their scientific research."

"…physics envy…"

"Today it is possible to find tenured professors of management who have never set foot inside a real business, except as customers."

"By allowing the scientific research model to drive out all others, business schools are institutionalizing their own irrelevance."

Bennis, Warren G., and James O'Toole. "How Business Schools Lost Their Way." *Harvard Business Review* (83:5), 2005, pp. 96-104.

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II. 3 causes of the gap between I.S. education and I.S. research

Cause #1:
Blame the Ford Foundation and the Carnegie Corporation

Cause #2:
Blame Science and Statistical Significance

Cause #3:
Blame the Tenure-and-Promotion System

II. 3 causes of the gap between I.S. education and I.S. research

Cause #1:
Blame the Ford Foundation and the Carnegie Corporation

A report by the Ford Foundation stated (Gordon and Howell, 1959):

> *There has been too little pure research… (p. 382)*
>
> *…business research needs to become more analytical, to develop a more solid theoretic underpinning, and to utilize a more sophisticated methodology (p. 384)*
>
> *This in turn requires that the business schools turn to the underlying disciplines such as the behavioral sciences and mathematics and statistics… (pp. 384−385)*

Gordon, Robert A. and Howell, James E. (1959). Higher Education for Business, New York: Columbia University Press.

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Also, a report by the Carnegie Corporation stated (Pierson, 1959, p. 313):

> *...business schools need to concentrate on developing a body of widely applicable generalizations which have been scientifically tested...*
>
> ...
>
> *Both hypothesis forming and hypothesis testing are essential.*
>
> ...
>
> *...very rarely (in 1959) is emphasis placed on developing analytical findings which can be fitted into a general system of principles and tested in a scientific manner.*

Pierson, Frank C. (1959). *The Education of American Businessmen: A Study of University-College Programs in Business Administration*, New York: McGraw-Hill.

II. 3 causes of the gap between I.S. education and I.S. research

Cause #2:
Blame Science and Statistical Significance

Research that describes or explains what exists or has existed
Research that describes or explains how to create what does not now exist or has not yet existed, including how to solve problems

II. 3 causes of the gap between I.S. education and I.S. research

Cause #2:
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	Research that studies the physical world	Research that studies the world of people and their institutions
Research that describes or explains what exists or has existed	I	II
Research that describes or explains how to create what does not now exist or has not yet existed, including how to solve problems	III	IV
Four Research Categories		

II. 3 causes of the gap between I.S. education and I.S. research

the "real" sciences; the source of physics envy

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Research that describes or explains how to create what does not now exist or has not yet existed, including how to solve problems	III electrical engineering, chemical engineering, medicine	IV social work, education, public policy, law, clinical psychology
Four Research Categories		

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What's so important about statistical significance?
An example of an experiment: tossing a coin 100 times.

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What's so important about statistical significance?
An example of an experiment: tossing a coin 100 times.

If the experimental evidence is around 50 heads, it's probably a fair coin.
If the experimental evidence is 90 or more heads, the probability it's a fair coin is very very small.

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Given the experimental evidence, if the probability that the belief being tested is true is less than 5%, then this probability is called "statistically significant."

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What's so important about statistical significance?

Some researchers say that research must be statistical in order to be considered scientific.

However, Neyman and Egon Pearson introduced the idea of a confidence interval only in 1928 and the procedure for hypothesis testing only in 1933.* So, if research must do statistical hypothesis testing and talk about statistical significance in order to be considered scientific, then this would mean that there was no science before 1928!

* "Selected Landmarks in the Development of Statistics," *A Dictionary of Statistics*. Graham Upton and Ian Cook. Oxford University Press, 2008. Oxford Reference Online. Oxford University Press. Virginia Commonwealth University. Downloaded 17 October 2011 http://www.oxfordreference.com.proxy.library.vcu.edu/views/ENTRY.html?subview=Main&entry=t106.e2303

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What's so important about statistical significance?

"The American Statistical Association's Statement on p-values [statistical significance]: Context, Process, and Purpose" (March, 2016):

"It's science's dirtiest secret: The 'scientific method' of testing hypotheses by statistical analysis stands on a flimsy foundation" … "numerous deep flaws" in null hypothesis significance testing … "statistical techniques for testing hypotheses…have more flaws than Facebook's privacy policies" … "The problem is not that people use P-values poorly … it is that the vast majority of data analysis is not performed by people properly trained to perform data analysis."

Wasserstein, Ronald L., and Nicole A. Lazar. "The ASA's Statement on p-values: Context, Process, and Purpose." *The American Statistician* (2016).

II. 3 causes of the gap between I.S. education and I.S. research

Cause #3:
Blame the Tenure-and-Promotion System

- journal rankings

  Financial Times' 50 Journals
  UT Dallas' 24 journals
  AIS Senior Scholars' "Basket of 8"
  Individual business schools' journal lists

- Excellent research is necessary; excellent teaching is nice.

- what journals want *versus* what the classroom needs

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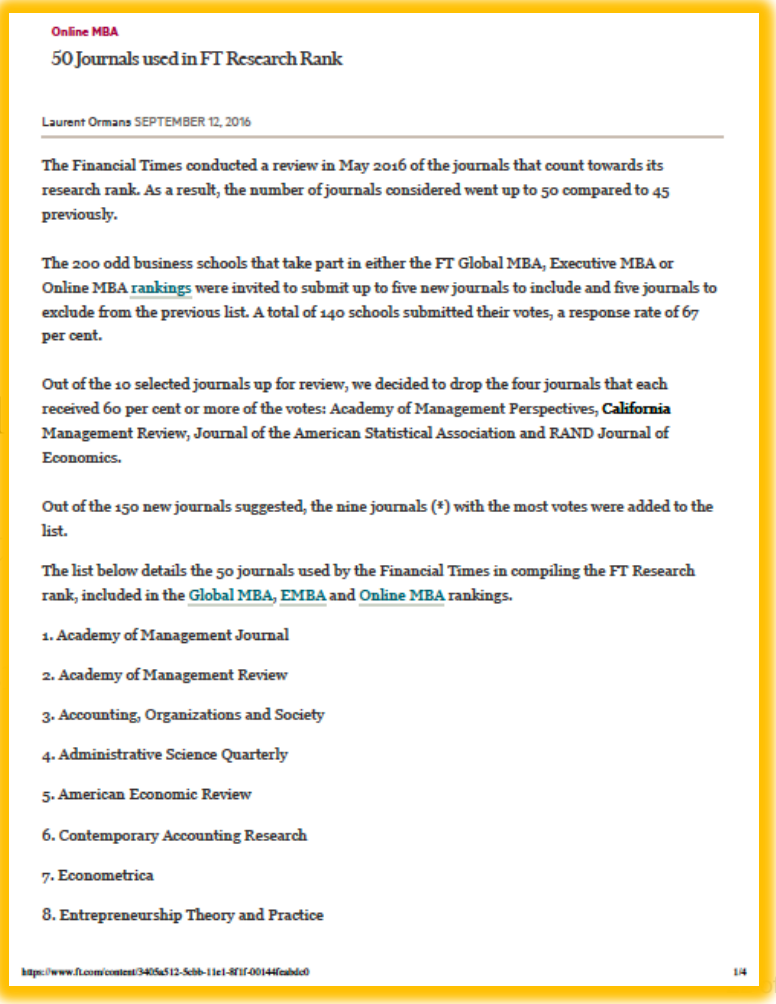

Online MBA

50 Journals used in FT Research Rank

Laurent Ormans SEPTEMBER 12, 2016

The Financial Times conducted a review in May 2016 of the journals that count towards its research rank. As a result, the number of journals considered went up to 50 compared to 45 previously.

The 200 odd business schools that take part in either the FT Global MBA, Executive MBA or Online MBA rankings were invited to submit up to five new journals to include and five journals to exclude from the previous list. A total of 140 schools submitted their votes, a response rate of 67 per cent.

Out of the 10 selected journals up for review, we decided to drop the four journals that each received 60 per cent or more of the votes: Academy of Management Perspectives, **California** Management Review, Journal of the American Statistical Association and RAND Journal of Economics.

Out of the 150 new journals suggested, the nine journals (*) with the most votes were added to the list.

The list below details the 50 journals used by the Financial Times in compiling the FT Research rank, included in the Global MBA, EMBA and Online MBA rankings.

1. Academy of Management Journal
2. Academy of Management Review
3. Accounting, Organizations and Society
4. Administrative Science Quarterly
5. American Economic Review
6. Contemporary Accounting Research
7. Econometrica
8. Entrepreneurship Theory and Practice

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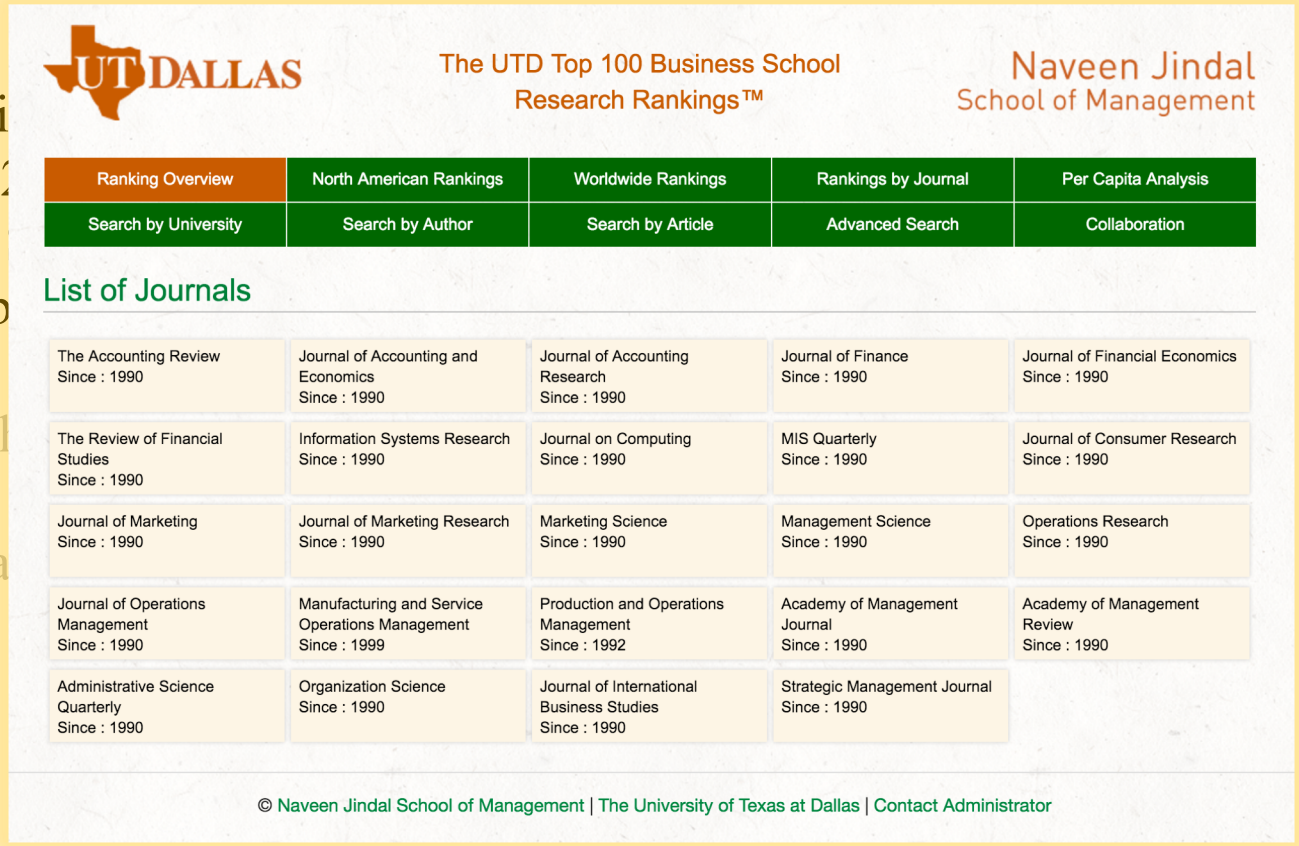

UT DALLAS

The UTD Top 100 Business School Research Rankings™

Naveen Jindal School of Management

Ranking Overview	North American Rankings	Worldwide Rankings	Rankings by Journal	Per Capita Analysis
Search by University	Search by Author	Search by Article	Advanced Search	Collaboration

List of Journals

The Accounting Review Since : 1990	Journal of Accounting and Economics Since : 1990	Journal of Accounting Research Since : 1990	Journal of Finance Since : 1990	Journal of Financial Economics Since : 1990
The Review of Financial Studies Since : 1990	Information Systems Research Since : 1990	Journal on Computing Since : 1990	MIS Quarterly Since : 1990	Journal of Consumer Research Since : 1990
Journal of Marketing Since : 1990	Journal of Marketing Research Since : 1990	Marketing Science Since : 1990	Management Science Since : 1990	Operations Research Since : 1990
Journal of Operations Management Since : 1990	Manufacturing and Service Operations Management Since : 1999	Production and Operations Management Since : 1992	Academy of Management Journal Since : 1990	Academy of Management Review Since : 1990
Administrative Science Quarterly Since : 1990	Organization Science Since : 1990	Journal of International Business Studies Since : 1990	Strategic Management Journal Since : 1990	

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Senior Scholars' Basket of Journals

The College of Senior Scholars encourages colleagues, as well as deans and department chairs, to treat a "basket" of eight journals as top journals in our field. Such a list is intended to provide more consistency and meaningfulness to tenure and promotion cases. This list was adopted from a formal statement by the "College of Senior Scholars" as of April 23, 2007, and revised on December 6, 2011.

The College of Senior Scholars consists of senior information systems academics who have served as editors-in-chief of the journals listed in the College of Senior Scholars basket of eight journals, current and former ICIS chairs and program chairs, current and former presidents of AIS, as well as all Leo Awards winners and AIS Fellows.

The journal list is limited to those in the "IS field," and omits both multidisciplinary outlets and specialty areas. Nevertheless, the list recognizes topical, methodological, and geographical diversity. In addition, the review processes are stringent, editorial board members are widely-respected and recognized, and there is international readership and contribution.

It is important to note that a short journal list such as this is most appropriate for PhD-granting, research-oriented universities, and most likely not at all appropriate in cases where there are few research resources and high teaching loads. In those cases, this short journal list should be augmented liberally by careful deliberation of departments and/or department chairs. For instance, at the teaching-intensive end of the spectrum, many schools (perhaps appropriately) count all refereed outlets. Publishing in this small set of journals is exceedingly difficult already, and nearly impossible without abundant resources for careful research.

The College of Senior Scholars emphasizes that this list should not be construed as a replacement for assessments based on objective measures such as citation indices or author affiliation indices. It should also not be seen as a substitute for assessments based on large-sample opinion surveys currently summarized on AISWorld. It is meant to provide an alternative, based on the opinions of the members of the College of Senior Scholars. All departments and/or department chairs should consider those other resources before making their final decisions.

Augmenting the list can also be important in some research schools. For example, in schools with a highly technical focus, the adopted journal list should obviously include highly-rated and/or highly-cited technical journals. Other programs draw from and contribute to a multidisciplinary base, and should include journals from other fields such as computer science, economics, psychology, biometrics, and human-computer interaction. The College of Senior Scholars focused on behavioral, business-oriented IS research, which might reflect a majority, but is not a universal model that fits (or even should fit) all schools. It strengthens our discipline to integrate our knowledge with other fields, and provides more choices for students, so interdisciplinary work should be encouraged.

The eight journals in the list are, in alphabetical order:

- *European Journal of Information Systems*
- *Information Systems Journal*
- *Information Systems Research*
- *Journal of AIS*
- *Journal of Information Technology*
- *Journal of MIS*
- *Journal of Strategic Information Systems*
- *MIS Quarterly*

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vcubusiness
Virginia Commonwealth University

Virginia Commonwealth University
School of Business
Dean's Journal List

Accounting:
Accounting, Organizations and Society
Accounting Review
Contemporary Accounting Research
Journal of Accounting & Economics
Journal of Accounting Research
Review of Accounting Studies

Economics:
American Economic Review
Econometrica
Journal of Political Economy
Quarterly Journal of Economics
Review of Economics Studies
Review of Economics and Statistics

Finance:
Financial Management
Journal of Banking & Finance
Journal of Finance
Journal of Financial and Quantitative Analysis
Journal of Financial Economics
Review of Financial Studies

Information Systems:
MIS Quarterly
Information Systems Research
Journal of Management Information Systems
Journal of Strategic Information Systems
Decision Support Systems
Journal of Association of Information Systems

Management:
Academy of Management Review
Academy of Management Journal
Strategic Management Journal
Administrative Science Quarterly
Journal of Applied Psychology
Organization Science

Marketing:
Journal of Consumer Research
Journal of International Business Studies
Journal of Marketing
Journal of Marketing Research
Journal of Product Innovation Management
Journal of the Academy of Marketing Science

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case in point:
an assistant professor's chances at a certain prestigious business school

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An exceptional exception: *MIS Quarterly Executive*

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III. 3 ways to bridge the gap between I.S. education and I.S. research

Possible Solution #1:
Every business school should run its own business.

Possible Solution #2:
Action Research

Possible Solution #3:
Research Journals Modeled on Law Reviews

III. 3 ways to bridge the gap between I.S. education and I.S. research

Possible Solution #1:
Every business school should run its own business.

- …suggested by Bennis and O'Toole, crediting Edwin Land (co-founder of Polaroid). This would take care of their concern: : "Today it is possible to find tenured professors of management who have never set foot inside a real business, except as customers."

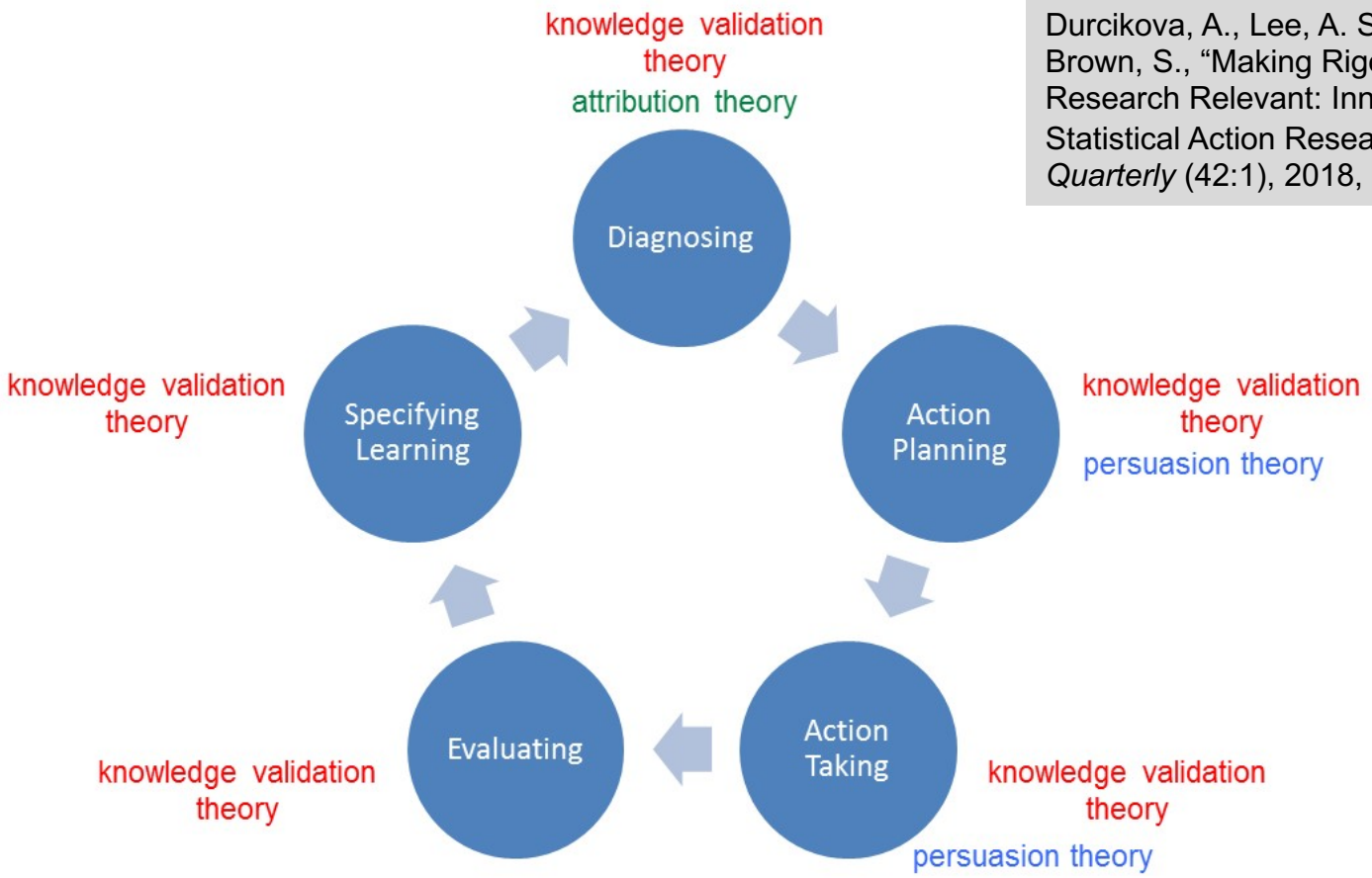
- Participant observation and research case studies have been garnering more and more respectability.

  Lee, Allen S. "A Scientific Methodology for MIS Case Studies," *MIS Quarterly* (1989), pp. 33-50. Google scholar citations: 1,500+

- Field work can preserve the important scientific difference between war stories (first level constructs) and theory (second level constructs)

Possible Solution #2: Action Research

Durcikova, A., Lee, A. S., and Brown, S., "Making Rigorous Research Relevant: Innovating Statistical Action Research," *MIS Quarterly* (42:1), 2018, pp. 241-263.



Possible Solution #3:
Research Journals Modeled on Law Reviews

- Some articles authored by practitioners; some by professors; some by both.
- The audience: practitioners *and* professors
- Edited by the top students
- Professors get “credit” for publishing in it
- This would be in addition to, not instead of, traditional business journals.

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Long-term Strategy #1: Mobilize an outside agency again (like the Ford Foundation or Carnegie Corporation).

Why?

- It worked before.
- A jolt from the outside is needed.

IV. 3 long-term strategies

Long-term Strategy #2: Raise a lot of money.

”During the 1960s, the Ford Foundation committed $35 million [over $280 million today] to help schools transition away from a focus on anecdotal data and descriptive analysis to more systematic, social science based approaches” (Final Report of the AACSB International Impact of Research Task Force, 2008, p. 9).

How much would be needed today to help schools expand from social science based approaches to include truly professional and practitioner approaches?

IV. 3 long-term strategies

Long-term Strategy #3: Lobby the AACSB.

The accreditation body for business schools:
Association to Advance Collegiate Schools of Business
http://www.aacsb.edu/

"For over a century, AACSB Accreditation has been synonymous with the highest standards in business education, and has been earned by less than 5 percent of the world's business schools. Today, 810 institutions across 53 countries and territories have earned AACSB Accreditation."

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