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Seeking Evidence of Impact: Towards evidence-based practice

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# http://www.educause.edu/ELI/SEI

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- John Fritz, University of Maryland Baltimore County
- Joan Lippincott, CNI
- Phil Long, University of Queensland
- Vernon Smith, Rio Salado College

impact   evidence

as alussatient

seeking evidence of the impact of
our technology-based innovations
and practices in support of teaching
and learning

"Does it work?"
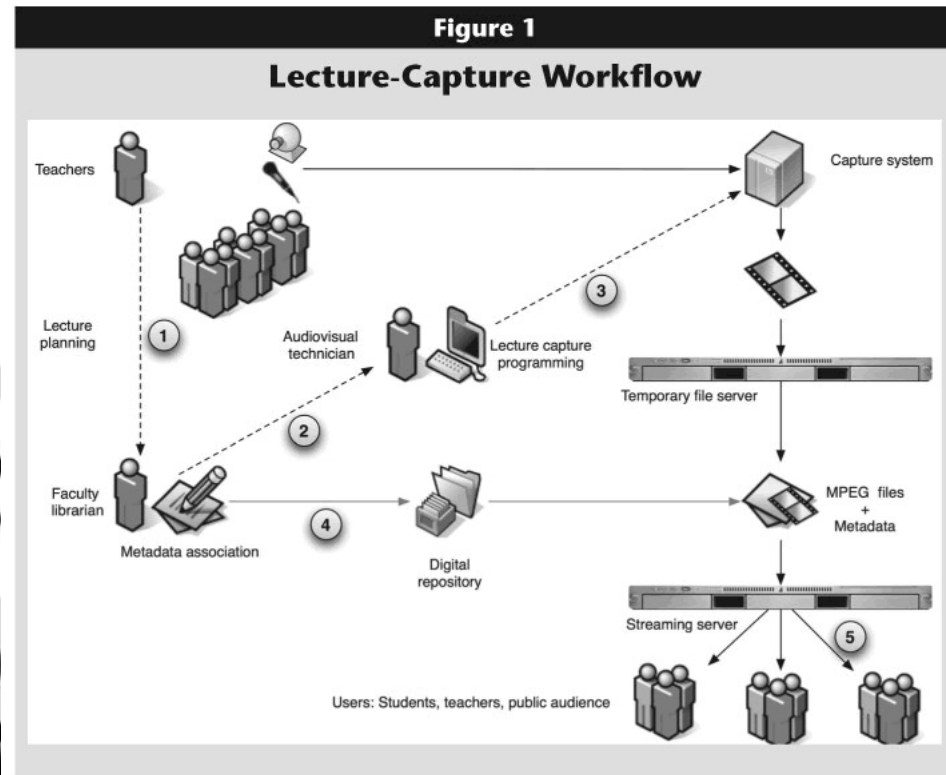
"Does it work?"

Figure 1

Lecture-Capture Workflow
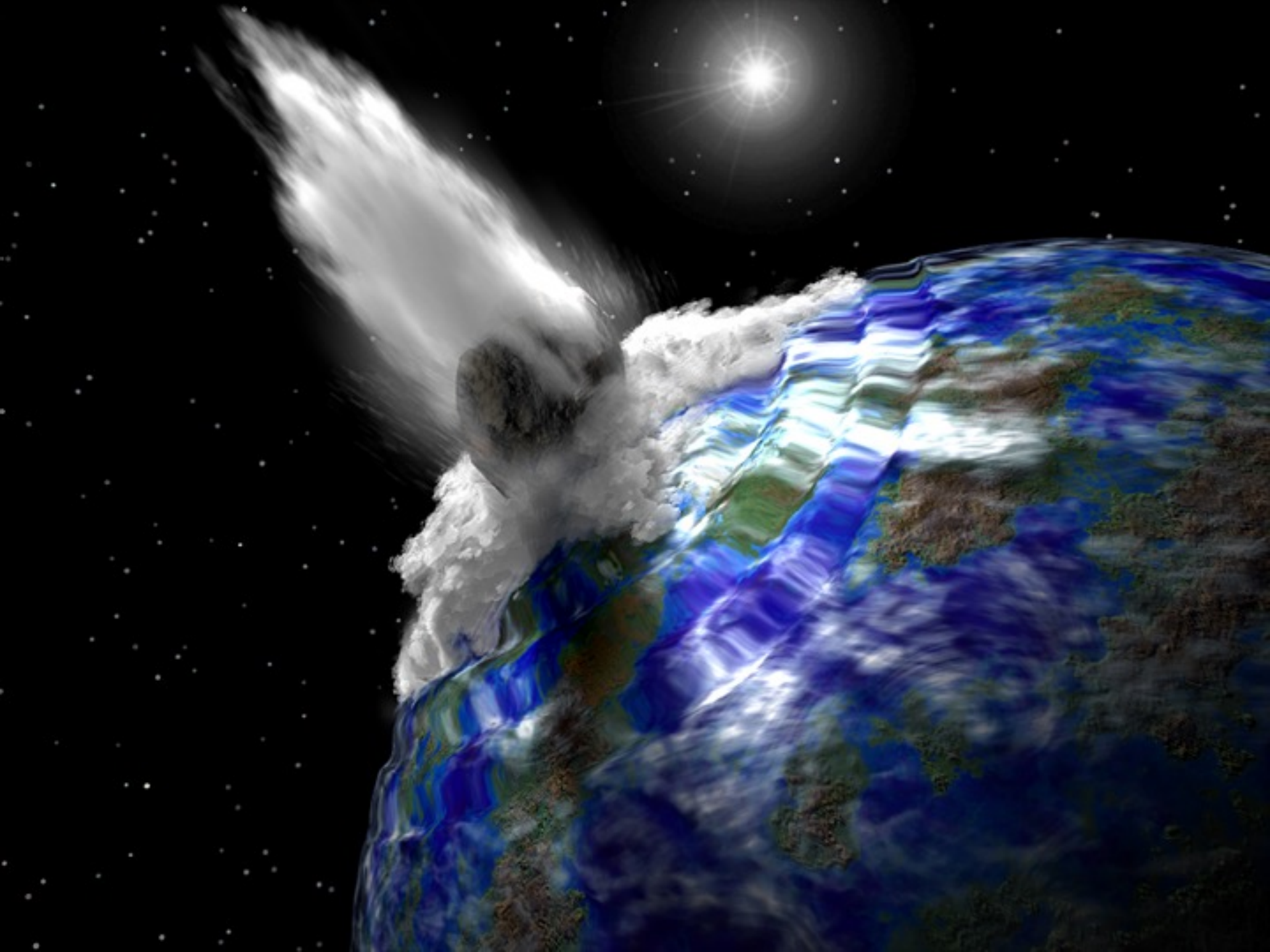
"Does it work?"

"Does it work?"

"Does it work?"

Do the students learn "better"?

Do the faculty teach "better"?

Are the students more engaged?

Are the student evaluations "better"?

Is it "efficient"?

So… do we

Know what we mean by "evidence"?

Know what we mean by "impact"?

Know how to best gather evidence?

Know how to best analyze impact?

Know how to have evidence improve practice?
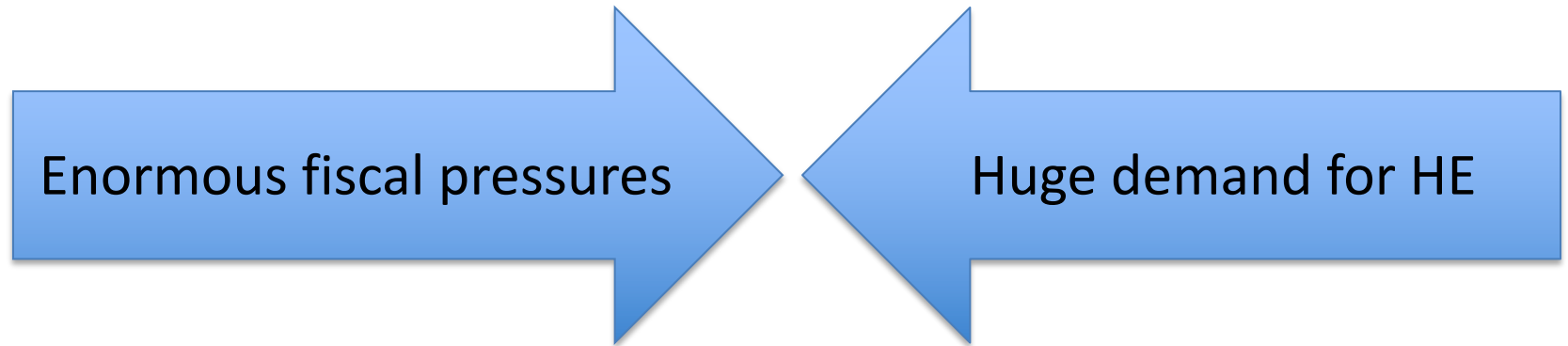
Why collect evidence now?

pressure

Enormous fiscal pressures

Enormous fiscal pressures → ← Huge demand for HE

accountability

Standing call for evidence-based practice

Top-Ten Teaching and Learning Issues, 2007

Creating a culture of evidence tops the list of important issues as the academic technology profession moves to an "Instruction 2.0" world

By **John P. Campbell, Diana G. Oblinger, and Colleagues**

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1. Es...
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3. Tra...
4. Selecting appropriate models and strategies for e-learning
5. Providing tools to meet growing student expectations
6. Providing professional development and support to new audiences

"1. Establishing and supporting a culture of evidence"

"Given that college education is now one of the most important an... ac...

"Colleges and universities... are recognizing the need for better systems that move beyond counting objects (such as computers, books, and so on) to measuring learning outcomes."

Top-Ten Teaching and Learning Issues, 2007

What administrative leadership and support might be required?

What learning outcomes need to be tracked?

What groups on campus need to be represented during this process?

How translate the data into best practices?

Building a Scholarship

"Most campus assessment activities… continue to be implemented as additions to the curriculum… rather than being integral to teaching and learning. [It] centers on "doing assessment" rather than on improving practice… Although firmly established in the mainstream by the year 2000, assessment as a movement is still striving for the cultural shift its original proponents had hoped for."

Peter Ewell, pages 16–17

A Wiley Company
San Francisco

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Pressures from unrelenting change

Unprecedented technology change

Major cultural change

October 4, 2010, 06:32 PM ET

Why McGraw-Hill Bought **Blackboard**

By Jeff Young

Today McGraw-Hill Education announced that it has bought a lecture-capture company called Tegrity Inc, putting the textbook publisher squarely in the education-software business. Officials say they made the move because of the importance of "user-generated content" as textbooks go digital.

McGraw-Hill had already been working closely with Tegrity—through a formal partnership that began in 2007. Last year the publisher started selling a series of textbooks called McGraw-Hill Connect, which integrates the Tegrity lecture-capture software with electronic versions of popular titles.

Tegrity, based in Santa Clara, Calif., says it has about 200 college customers. The companies would not reveal the cost of the sale or other details.

"Students place a high degree of value in the content the instructor offers—what's being presented in class, that's what's going to be on the exam," said Michael Berger, senior director of marketing for Tegrity. He added that the publisher now realizes the value of

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Higher ed under pressure

paradigm?

New paradigm

transmission model	constructivist model
memorization	understanding
facts	conceptual schemas
fixed roles	mobile roles
individual work	group work
instructor brings content	students bring content
summative assessment	formative assessment
one path	multiple paths

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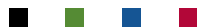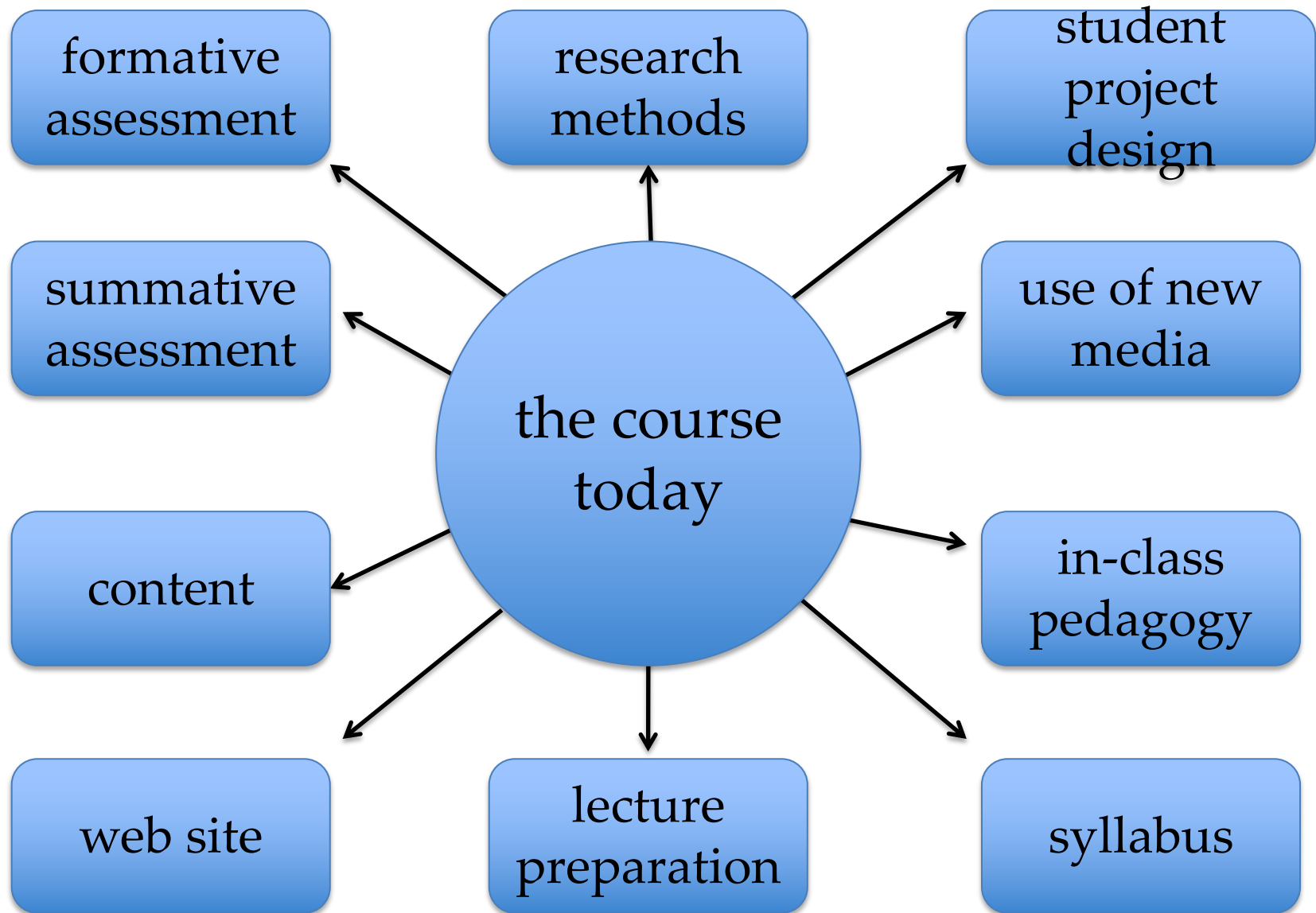
"Improvement in post-secondary education will require converting teaching from a 'solo sport' to a community-based research activity."

–*Herbert Simon*

A Virtual Revolution Is Brewing for Colleges

"The typical 2030 faculty will likely be a collection of adjuncts alone in their apartments, using recycled syllabuses and administering multiple-choice tests from afar."

radical reordering. Colleges, like newspapers, will be torn apart by new ways of sharing information enabled by the Internet. The business model that sustained private U.S. colleges cannot survive.

Openness, Dynamic Specialization, and the Disaggregated Future of Higher Education

"Higher education is left with only one choice: innovate in order to stay relevant."

Openness is a fundamental value underlying significant changes in society and is a prerequisite to changes institutions of higher education need to make in order to remain relevant to the society in which they exist. There are a number of ways institutions can be more open, including programs of open sharing of educational materials. Individual faculty can also choose to be more open without waiting for institutional programs. Increasing degrees of openness in society coupled with innovations in business strategy like dynamic specialization are enabling radical experiments in higher education and exerting increasing competitive pressure on conventional higher education institutions. No single response to the changes in the supersystem of higher education

The Record Industry's Decline

Record sales are tanking, and there's no hope in sight: How it all went wrong

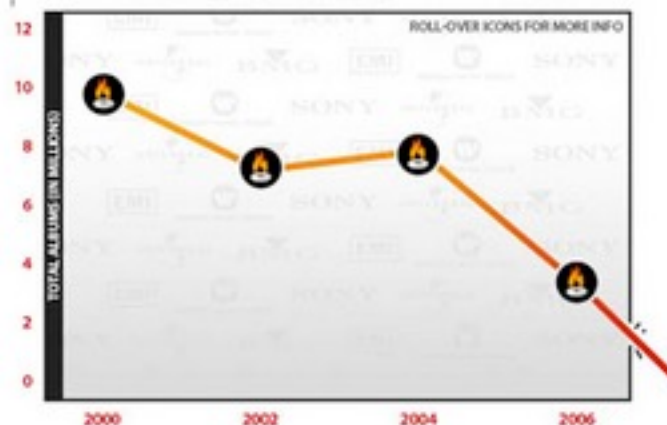**BRIAN HIATT AND EVAN SERPICK**   Posted Jun 28, 2007 2:29 PM

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Page 1 2 3   NEXT ▶

The Story of the Decline

ROLL-OVER ICONS FOR MORE INFO

Don't we already know what works?
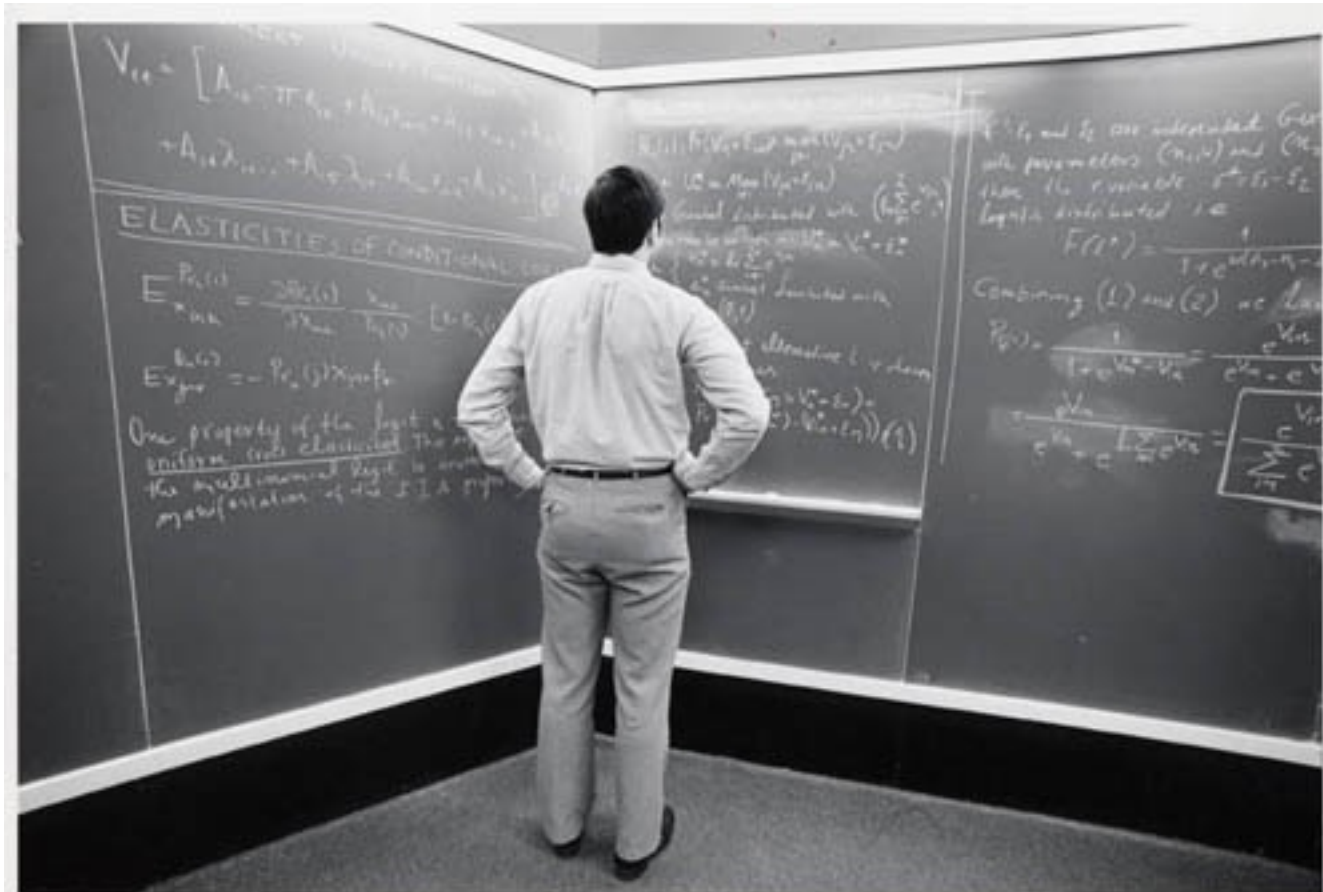
The No Significant Difference (NSD) Debate

1983

"...there are no learning benefits to be gained from employing any specific medium to deliver instruction."
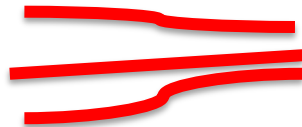
R Clark, "Reconsidering Research on Learning from Media," *Review of Educational Research*, vol. 53 no. 4.

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1990s

"There are 355 research reports, summaries, and papers cited in which no significance difference was reported between the variables compared."
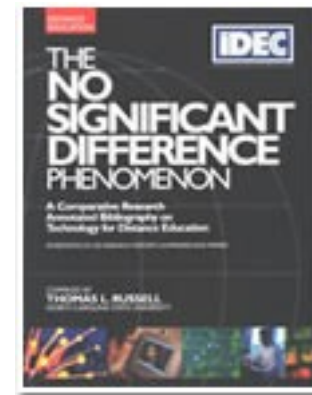
So Russell:

"Technology is not neutral…"

"The truth [is]… that students are not alike."

"…the real challenge facing educators today is identifying the student characteristics and matching them with the appropriate technologies."

T. Russell, "Technology Wars: Winners and Losers," *EDUCOM Review*, Volume 32, Number 2, March/April 1997

EDUCAUSE | LEARNING INITIATIVE

So Russell:

"The value of interactivity—especially synchronous interactivity—according to comparative research is, at best, suspect."

T. Russell, "Technology Wars: Winners and Losers," *EDUCOM Review*, Volume 32, Number 2, March/April 1997

So Russell:

"There no longer is any doubt that the technolog deliver instruction n will not impact the learning for better or for worse."

engage students

enable instruction

improve instruction

conduct instruction

T. Russell, "Technology Wars: Winners and Losers," *EDUCOM Review*, Volume 32, Number 2, March/April 1997

EDUCAUSE | LEARNING INITIATIVE

"The confounding factor here is that each medium consists of many attributes that may affect the value of the medium's instructional impact."

"To credit or blame the delivery medium for learning ignores the effectiveness of the instructional design choices made while creating a learning event."

Educause Quarterly, No. 2, 2001

online!   F2F!

hi tech!   low tech!

formal!   informal!

X!   not X!

Less filling!

Tastes great!

The latest installment

U.S. DEPARTMENT OF EDUCATION

Evaluation of Evidence-Based Practices in Online Learning

A Meta-Analysis and Review of Online Learning Studies

released August 2009

U.S. DEPARTMENT OF EDUCATION

Evaluation of Evidence-Based Practices in Online Learning

tudies

"... on average, students in online learning conditions performed better than those receiving face-to-face instruction."

Effectiveness of Fully Online Courses for College Students: Response to a Department of Education Meta-Analysis

released July 2010

"the … report does not present evidence that fully online delivery produces superior learning outcomes for typical college courses, particularly among low-income and academically underprepared students."

Effectiveness of Fully Online Courses for College Students: Response to a Department of Education Meta-Analysis

Is it Live or is it Internet? Experimental Estimates of the Effects of Online Instruction on Student Learning

> "…we find modest evidence that live-only instruction dominates Internet instruction."

This ... edia of instruction ... y were randomly assigned to live lectures versus watching these same lectures in an internet setting, where all other factors (e.g., instruction, supplemental materials) were the same. Counter to the conclusions drawn by a recent U.S. Department of Education meta-analysis of non-experimental analyses of internet instruction in higher education, we find modest evidence that live-only instruction dominates internet instruction. These results are particularly strong for Hispanic students, male students, and lower-achieving students. We also ...

http://papers.nber.org/papers/w16089

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EDUCAUSE QUARTERLY

Major Initiatives | Resources | Professional Development | Community | About EDUCAUSE

Location: Home » Resources » EDUCAUSE Quarterly (EQ) » EQ Archives » EQ Volume 33 (2010) » Volume 33, Number 3, 2010 » Making the Case for Space: Three Years of Empirical Research on Learning Environments

"Students attending classes in... technology-enhanced learning spaces exceeded final grade expectations... suggesting strongly that features of the spaces contributed to their learning."

"Different learning environments affect teaching-learning activities even when instructors attempt to hold these activities constant."

to the ALCs based on the PAIR-up model, which values partnerships, pedagogy, assessment, innovation, and continually revisiting "current views on emerging technologies, diverse learners, strategic campus issues, new course design methods, and recent findings in learning science."[2] The data from the university's pilot study suggested that both instructors and students responded to these learning environments in positive ways:

- Instructors adapted their teaching techniques to the new learning spaces and frequently found themselves in the role of learning coach or facilitator.

51

online! F2F!

It's perplexing…

Distraction factors

aka: "X is making us stupid"

OP-ED CONTRIBUTOR

Mind Over Mass Media

By STEVEN PINKER
Published: June 10, 2010

Truro, M

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press, ne
denoun

So too w

reducing discourse to bullet points. Search engines lower our
intelligence, encouraging us to skim on the surface of knowledge
rather than dive to its depths. Twitter is shrinking our attention
spans.

But such panics often fail basic reality checks. When comic books
were accused of turning juveniles into delinquents in the 1950s, crime was falling to record
lows, just as the denunciations of video games in the 1990s coincided with the great
American crime decline. The decades of television, transistor radios and rock videos were

"Far from making us stupid, these technologies
are the only things that will keep us smart."

Scaling the Digital Divide: Home Computer Technology and Student Achievement

"… home computer technology is associated with modest but statistically significant and persistent negative impacts on student math and reading test scores"

Dwld it Faster

4.0

Use a mirror

PDF

4.0+

(586 K)

email
@
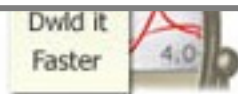
of government provision of computers to early secondary school students reduce these disparities? We use administrative data on North Carolina public school students to corroborate earlier surveys that document broad racial and socioeconomic gaps in home computer access and use. Using within-student variation in home computer access, and across-ZIP code variation in the timing of the introduction of high-speed internet service, we also demonstrate that the introduction of home computer technology is associated with modest but statistically significant and persistent negative impacts on student math and reading test scores. Further evidence suggests that providing universal access to home computers and high-speed internet access would broaden, rather than narrow, math and reading

Book owners have smarter kids

When it comes to your children, the books in your house matter more than your education or income

BY LAURA MILLER   f Like ‹5K

Salon/iStockphoto

When I was 12 years old, I read most of the plays of George Bernard Shaw. That's not to say that I *understood* the plays of George Bernard Shaw, or even that I passionately loved them. They just happened to be around the

An Ugly Toll of Technology: Impatience and Forgetfulness

By TARA PARKER-POPE
Published: June 6, 2010

Are your Facebook friends more interesting than those you have in real life?

Well

Share your thoughts on this column at the Well blog.

Go to Well »

Multimedia

Warning Signs of Tech Overload

Has high-speed Internet made you impatient with slow-speed children?

Do you sometimes think about reaching for the fast-forward button, only to realize that life does not come with a remote control?

If you answered yes to any of those questions, exposure to technology may be slowly reshaping your personality. Some experts believe
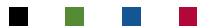
Evidence-based practice

Perspectives from CNI

- Clear goal

- Methods

- Informal aspects of learning

Clear goal - "So What?"

- Are you looking at impact:
  - To contribute to a campus program, e.g. accreditation review, Provost's initiative?
  - What could you demonstrate that would have genuine importance?
  - Can you articulate your goal clearly and is it compelling?
  - Can you operationalize your goal?
- What matters to your institution?

Methods

- Qualitative as well as quantitative - triangulation

- Understand what you will do with the data, how you will report it

- Pre-test your instruments

- Work with assessment experts

Informal aspects of learning

- Students spend more time learning outside of class than inside a classroom

- Libraries and computer labs are key informal learning venues

What questions might address the impact of learning spaces?

- Do learning commons enable students to accomplish different types of course projects?

- Do learning spaces encourage more time spent on studying?

- Do learning spaces have a role in student retention?

- Do learning spaces have a role in developing a sense of community?

Help us identify:

- Good questions

- Useful and efficient methodologies

- Partners

- Exemplars

- Key studies

Questions for discussion

What challenges do you face with respect to gathering evidence of impact?

What can the ELI program do to help you meet those challenges?

Challenges: Responses from CNI Attendees

- Understanding privacy issues
- Pressure on grant-funded projects to demonstrate impact on student learning – how to measure in very granular form – how to demonstrate that one factor has an impact on learning
- Long-term impact of what students learn – very difficult to measure but a more accurate reflection of learning

Challenges: Responses from CNI Attendees

- Comparing different types of collections or activities; how to compare across entities; how to develop consistent methodologies that would work in multiple environments

- Problems are hard to address on grand scale; consider tackling smaller (humbler) measures like hours of engagement outside of class; identify aspects, activities that you'd like students to do more of

Challenges: Responses from CNI Attendees

- What are the metrics that our own universities are using to benchmark against other universities, i.e. retention, US News factors; research rankings (NRC)

- Link to Next Generation Learning Challenges, relating to US government challenges

- Learn from sports field – statistics and gaming industry in terms of engagement

What can ELI do to help? Responses from CNI Attendees

- Make sure that folks from different types of institutions are engaged in this initiative

- If some outcomes can be packaged into toolkits including things like checklists, that would be useful; whitepapers less useful

- Practical is good

What can ELI do to help? Responses from CNI Attendees

- Is there a grand narrative or direction from the ELI perspective, for ex. that good instructional design leads to better learning?

- Make sure that the project doesn't result in a sense that "that's all there is" if scaled back too much

- Longitudinal studies – works well with overall philosophy of medical education and lifelong learning
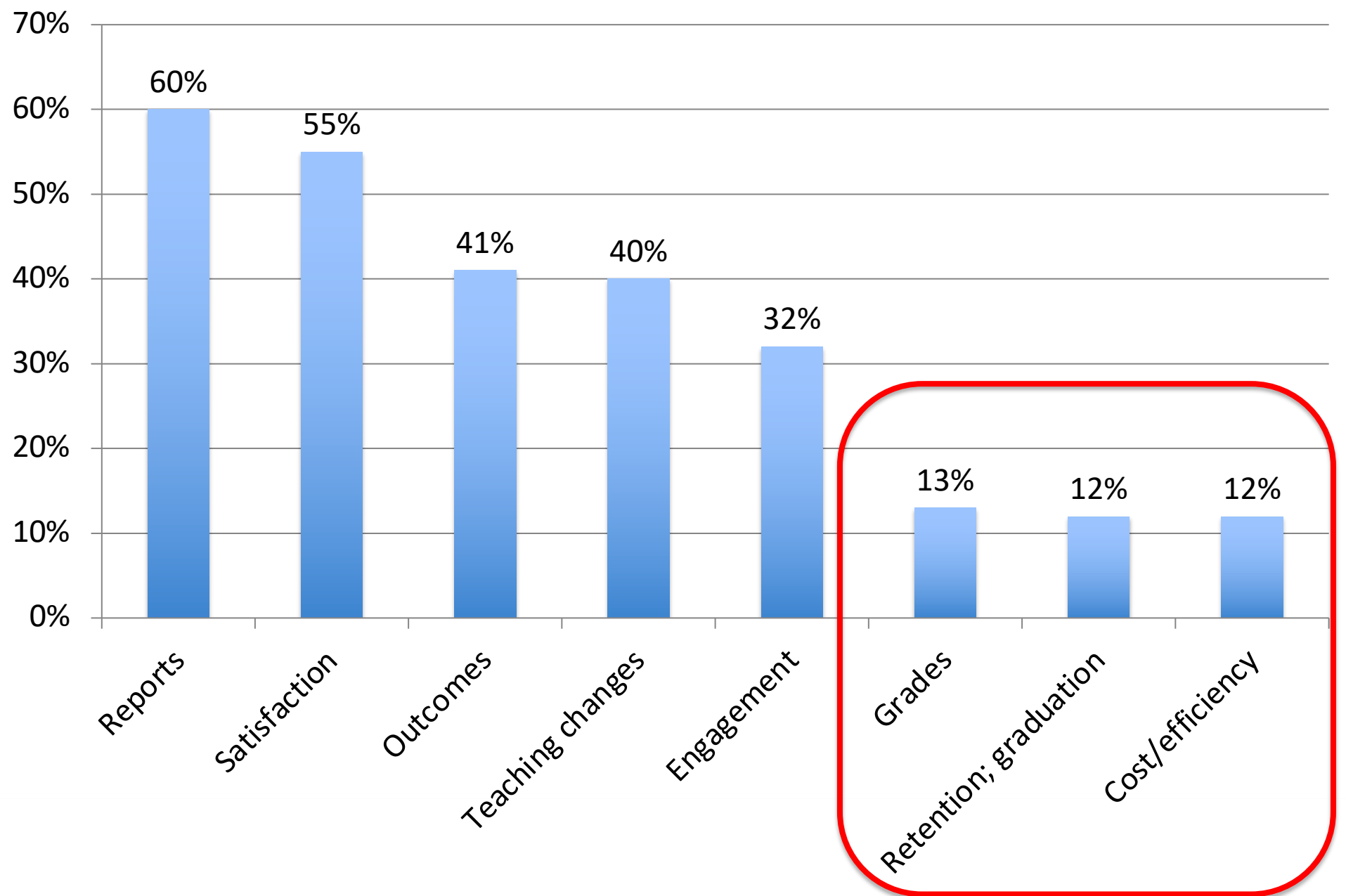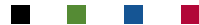
Our current alignment

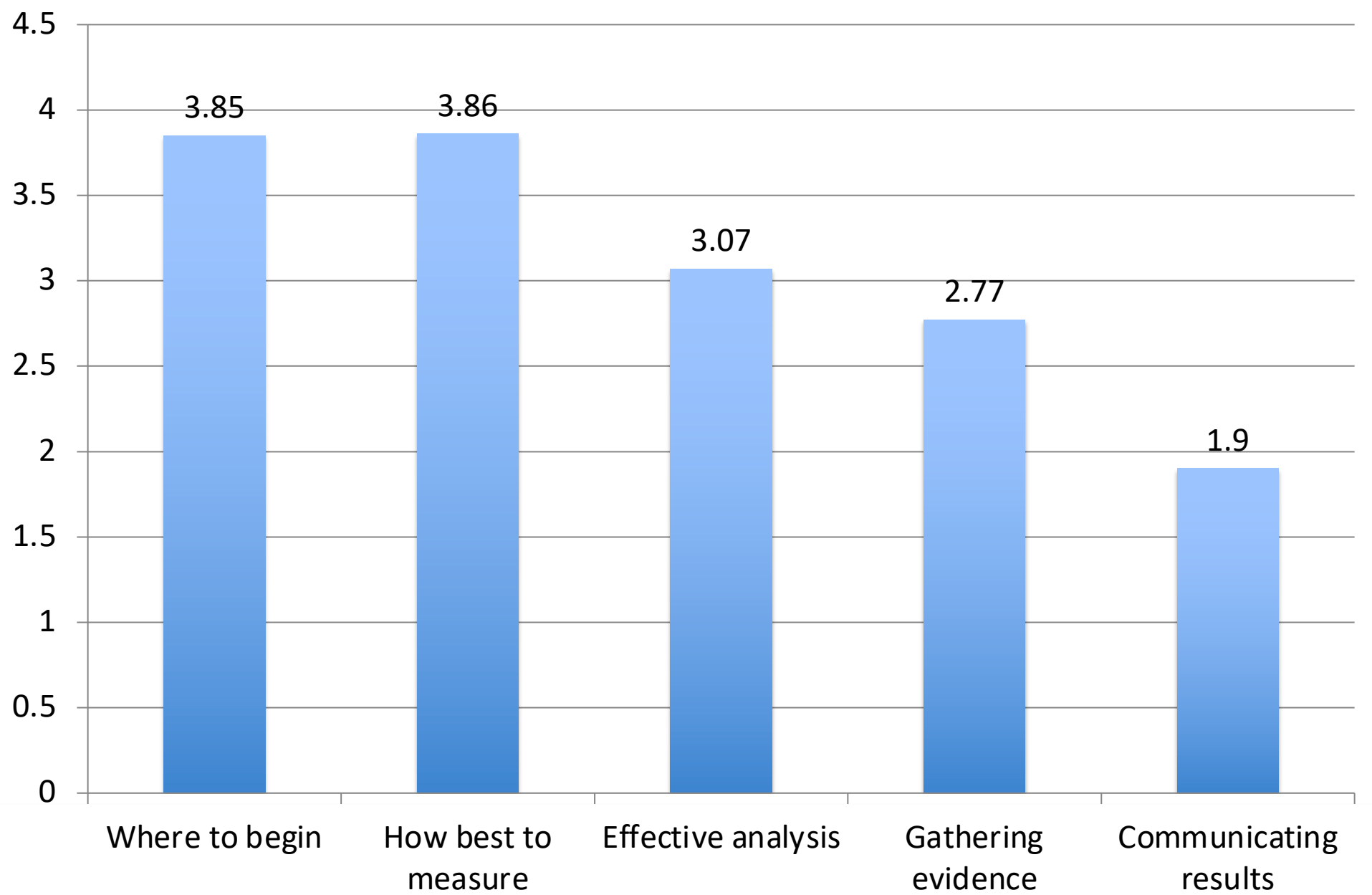# Most important indicators of impact?
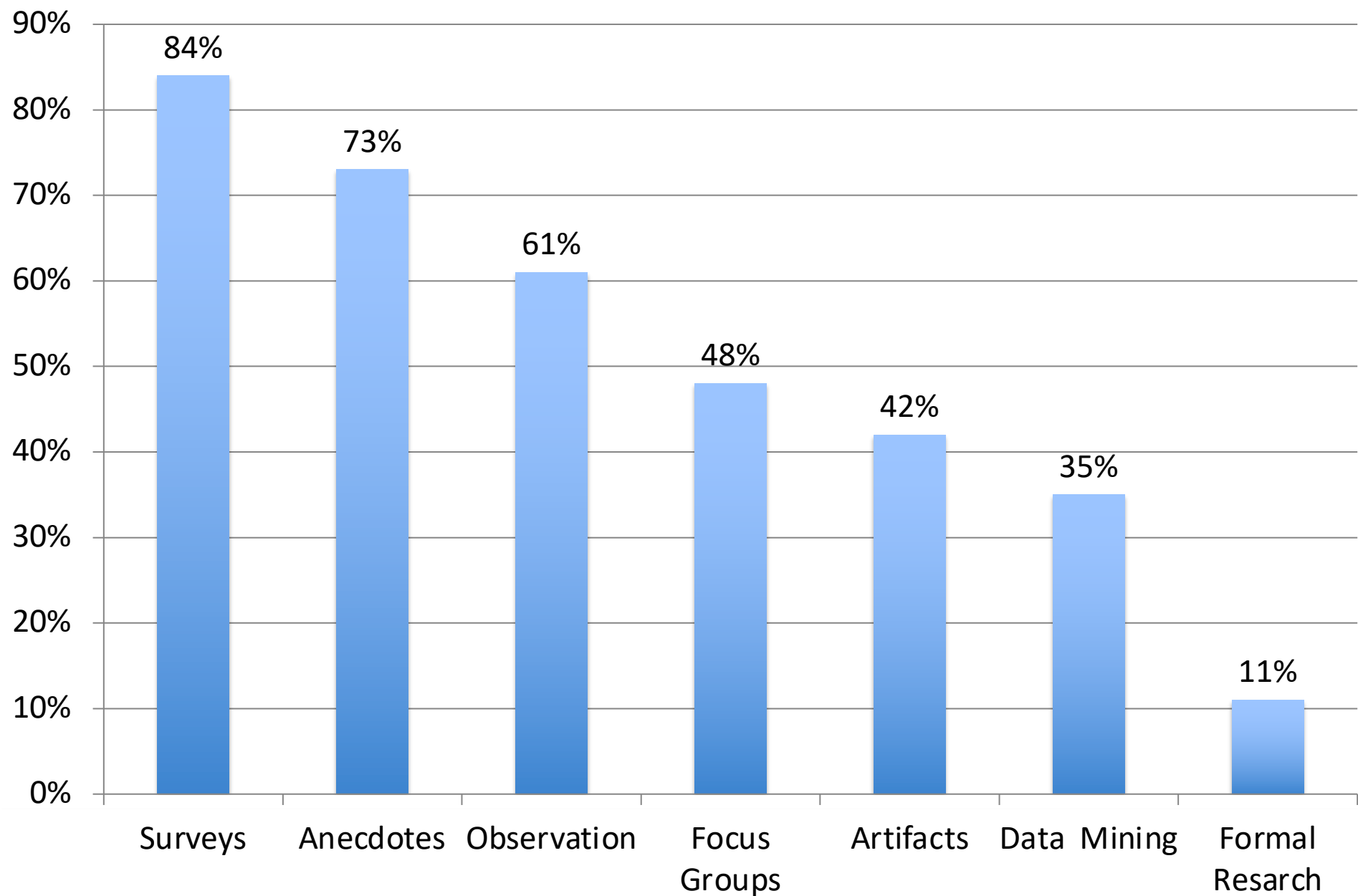
select 3 most important

What's hardest?

scale 1 to 5

Methods routinely used

check all that apply

Consensus on "evidence" and "impact"?

	YES	TO SOME EXTENT	NO
Within my campus unit			
Among the faculty			
Among support staff			

Challenges

understanding the research questions

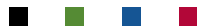what counts as evidence (what data should I collect?)

dependence on poor data sources

money; funding for analyst position

lack of expertise

how do learning spaces factor into this?

creating a culture of assessment

What should ELI SEI do?

Build Community

community of practice

share practices

share data/evidence

Provide Tools

templates; sample surveys

case study collection

road map

deliver "legos"

ways to help faculty use data

how to best communicate results

Provide Services

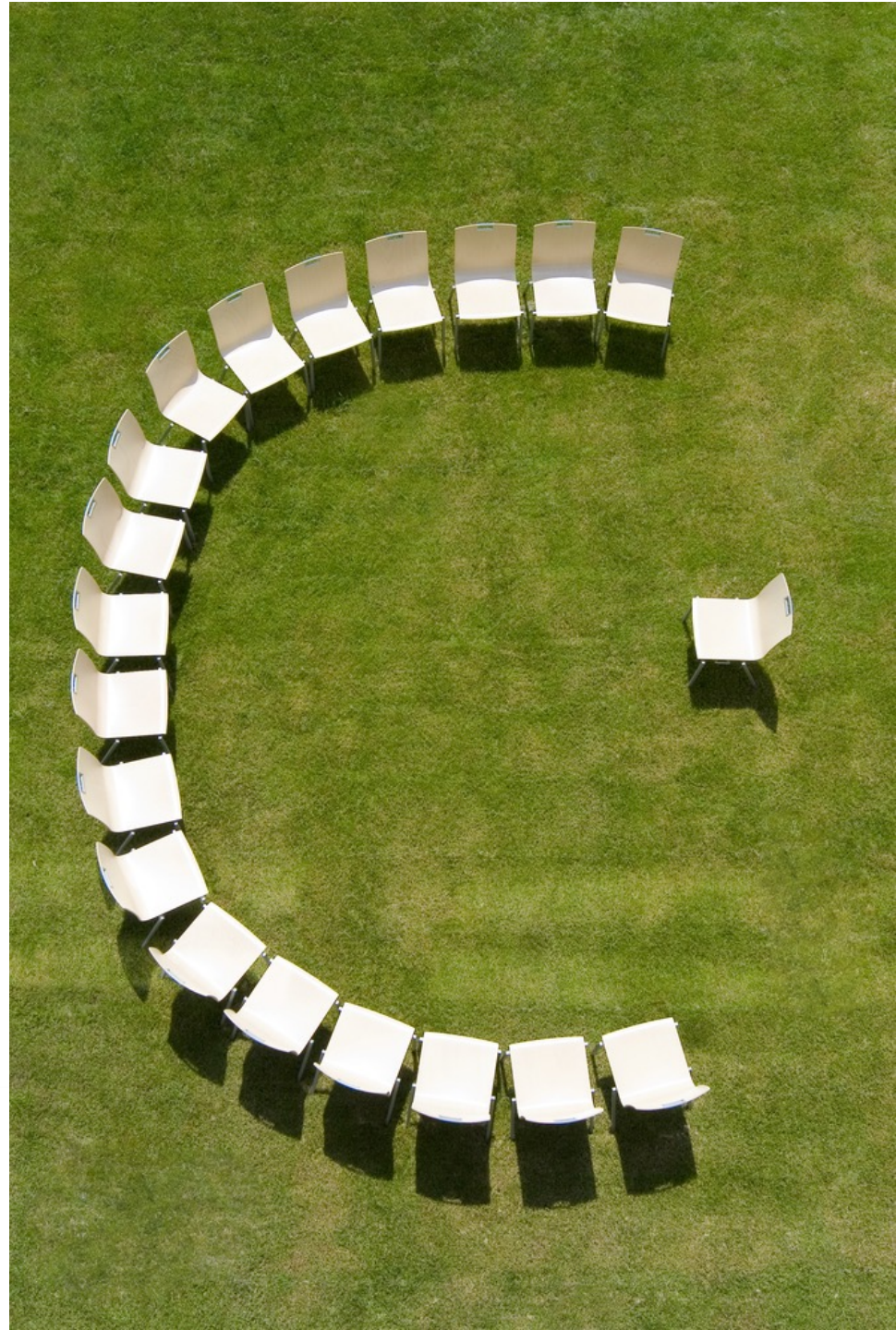review publications

recommended tool set

do it all for free or low cost

create referral network

PD opportunities

webinars, workshops

external review service

What will ELI SEI do?

Community

- ELI Annual Meetings:
  - 2011: subtheme
  - 2012: major theme
- ELI Focus Sessions 2011
  - Spring (online; April 13-14)
  - Fall ?
- EDUCAUSE regionals

- Workshops
  - @ ELI 2010 (4)
  - @ ELI 2012
  - @ E 2011
  - ELI online
  - @ NERCOMP
- Webinars
  - Jan 10: Analytics

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Community (2)

- Presentations
  - DET/CHE Dec 2010
  - ECAR Dec 2010
  - CNI Dec 2010
  - League for Innovation March 2011
  - IU Fort Wayne April 2011

- Publications
  - E Quarterly
  - E Review
  - @ E 2011
  - ELI online
  - @ NERCOMP
  - ELI white papers, briefs
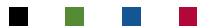 - 7 Things series

Community (3)

- EDUCAUSE 2011
  - Pre-conference workshops
  - CIO track
  - Teaching & Learning track

Tools and Services

- Case studies library / series
- White papers
- Briefs
- Tool exemplars and templates

- Workshops & seminars
    - ELI Online (how-to's)
    - NERCOMP June 2011
    - ELI 2011 Annual Meeting (3)
    - EDUCAUSE 2011 conference

WE WANT YOU!

Take the survey!

Have colleagues take the survey!

http://www.surveymonkey.com/seisurvey

Seeking Evidence of Impact

About

As the pace ... th respect to
support for te ... careful decisio
about what p ... isions are, the
information a ... ve that these
changes and

http://www.educause.edu/ELI/SEI

What are the ... themes of
collaboration, participation, and openness have greatly changed the teaching and learning landscape. In light of these changes, wh
new methods for collecting evidence of impact might need to be developed?

Established practices and good data have made inroads in these areas. Often, however, they are scattered, disconnected, and at tin
competition, making it challenging for the teaching and learning community to discover and compare their merits. Bringing these pra

Resources

Read about the latest research and comm[...]Here you will find white papers, articles, websites, reports, and other resources. H[...]

Special thanks to Kristin Thomas and Haz[...]act Advisory Group for their assistance in developing the resource list.

[suggest a resource]

| Books | Articles | Websites | Research/Reports | White Papers |

Angelo, T., and Cross, P., *Classroom Assessment Techniques*, **2nd edition (San Francisco: Jossey-Bass, 1993); ISBN-13: 978-1555425005.**
This revised and greatly expanded edition of the 1988 handbook offers teachers at all levels how-to advice on classroom assessment, including what classroom assessment entails and how it works, and also how to plan, implement, and analyze assessment projects. Twelve case studies that detail the real-life classroom experiences of teachers carrying out successful classroom assessment projects are featured. It also includes fifty classroom assessment techniques, step-by-step procedures for administering the techniques, and how to analyze your data.

Bain, K., *What the Best College Teachers Do* **(Cambridge, MA: Harvard University Press, 2004).**
What makes a great teacher great? Who are the professors students remember long after graduation? This book, the conclusion of a 15-year study of nearly a hundred college teachers in a wide variety of fields and universities, offers valuable answers for all educators. The short answer is—it's not what teachers do, it's what they understand. Lesson plans and lecture notes matter less than the special way teachers comprehend the subject and value human learning. Whether historians or physicists, in El Paso or St. Paul, the best teachers know their subjects inside and out—but they also know how to engage and challenge students and to provoke impassioned responses. Most of all, they believe two things fervently: that teaching matters and that students can learn.

Cross, K. P., and Steadman, M. H., *Classroom Research: Implementing the Scholarship of Teaching* **(San Francisco: Jossey-Bass, 1996).**
Designed to be used by college faculty members in groups and in workshops, this volume details a collaborative process for investigating teaching and learning issues. Discussion uses problem-based discussion, integrating teachers' experience with recent research and theory on learning. It also provides assessment and research projects that can be used in the classroom.

Heinecke, W., and Blasi, L. *Methods of Evaluating Educational Technology, Information Age Publishing* **(2001); ISBN-13: 978-1930608566.**
This book explores values, purposes, methods, and theories as they relate to innovation, technology, and educational evaluation. It

Opportunities for Engagement

The program will consist of a variety of online and face-to-face opportunities: meetings, workshops, focus sessions, and webinars—all united around the theme of seeking evidence of impact. Check back here for the ongoing schedule of activities.

- ELI Web Seminars in the latter half of 2010 and early 2011.

- ELI 2011 Annual Meeting. The call for proposals for the ELI Annual Meeting (February 14–16, Washington, D.C.) will explicitly request proposals on the theme of gathering evidence of impact. A portion of the annual meeting's sessions and activities will be devoted to initiating the exploration of this theme.

- ELI 2011 Spring Focus Session in April 2011, a two-day online conference devoted entirely to the theme of gathering evidence of impact. Leading practitioners will present on effective practices, and institutions implementing these methods will report on their results.

- ELI 2012 Annual Meeting in Austin, Texas, will include presentations and discussions on the evidence of impact theme.

Get Involved and Contribute

The success of the Evidence of Impact initiative is highly de_____ping the work and collecting best practices. Do you know of effective practices_____ y direct experience in this area you'd like to share? Tell us about it and get involve

Tell us about it

Send me email

mbrown@educause.edu

resource suggestions   what you need

example projects   exemplary practitioners

ways you'd like to help   come to ELI events

anything to help SEI help you and colleagues

Questions?

Comments?

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Thank you!

mbrown@educause.edu