CETaL

Center for Excellence in Teaching and Learning

THE UNIVERSITY OF TEXAS AT EL PASO

1914 2014 CENTENNIAL CELEBRATION

BUILDING A CULTURE OF EXCELLENCE IN TEACHING AND LEARNING

welcome to the

2014 FALL FACULTY RETREAT

8 networking breakfast

after introducing yourselves to those at your table,
share a summer highlight and a (teaching) goal for the new year

8:30 director's welcome/announcements

8:45 workshop (*2 options*!)

11:45 (net)working lunch

12:30 door prizes that relate to today's workshops! (you must be present to win)

"Scholarly Teaching and the Scholarship of Teaching and Learning: How Scholarship and Your Teaching Can Advance Each Other"

a super CETaL SoTL workshop presented by

Dr. Larry Lesser

CETaL's Interim Director

at the August 21, 2014 Fall Faculty Retreat
The University of Texas at El Paso

Background: history of SoTL, local support for SoTL, what SoTL is/isn't, motivations, hesitations

How to do SoTL: hands-on exploration of the 5 steps (so you leave with a draft plan!)

History of SoTL as a formal approach to scholarship

- Ernest Boyer (1990) *Scholarship Reconsidered*

broadened scholarship into 4 forms: discovery, integration, application, teaching

(20-year anniversary of this work was the theme of CETaL's 2010 Sun Conference)

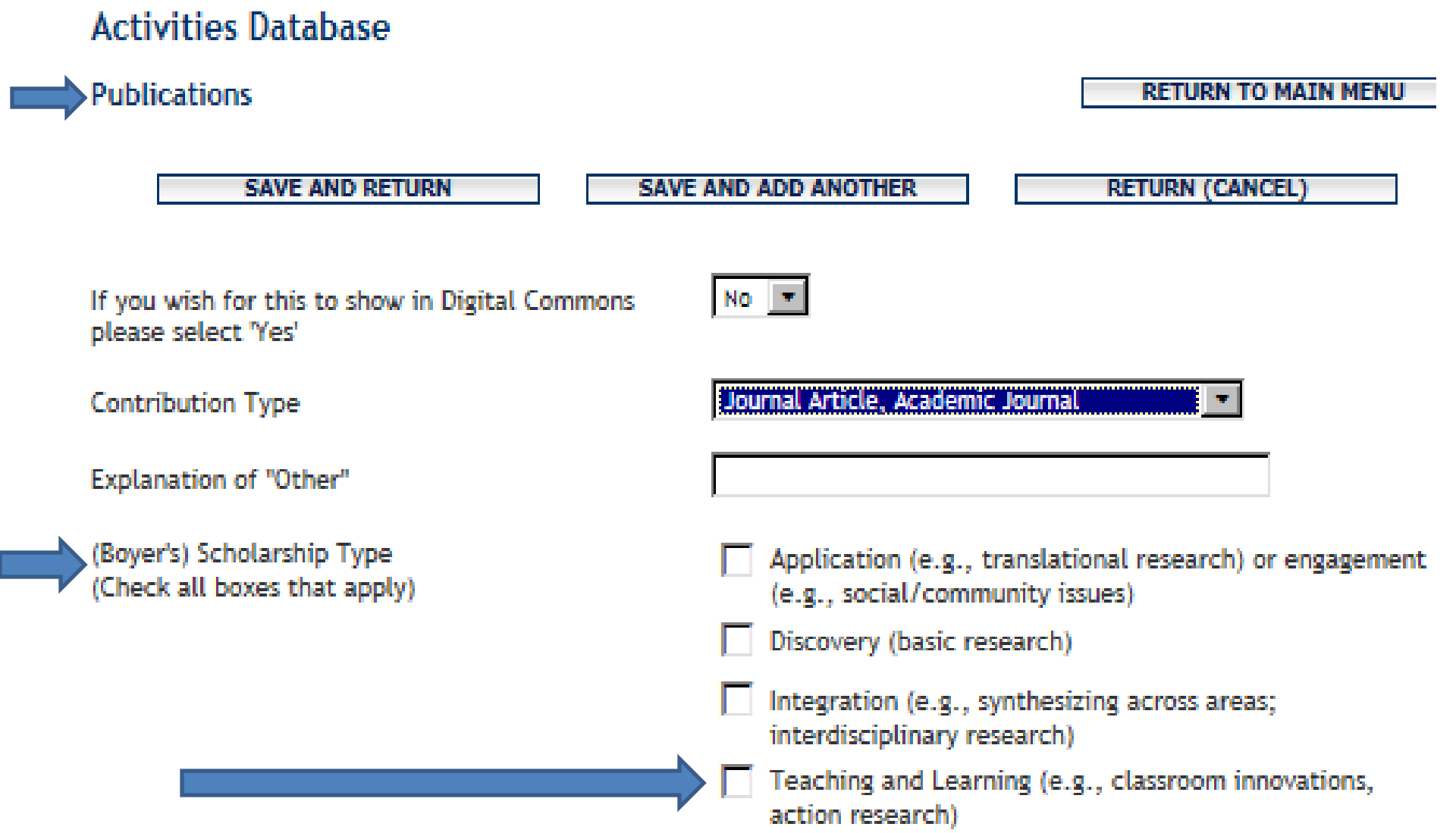
- Boyer's "scholarship of teaching" morphed into "scholarship of teaching and learning (SoTL)"
- 1998: Carnegie Academy for the SoTL (CASTL)
- 2004: Int'l. Society for the SoTL (ISSOTL)
- Journals (e.g., *IJSoTL*)
- Conferences (e.g., SoTL Commons Conference)

How does CETaL support SoTL?

- This workshop
- SoTL resources page on the CETaL website
- First of CETaL's 4 Goals:

  "advance the SoTL across the UTEP campus"
- At Int'l Sun Conference on Teaching and Learning, CETaL gives $300 award for best recent SoTL paper
- Anticipated internal SoTL competition
- CETaL initiative resulted in 

as of January 2014, Digital Measures lets you designate (Boyer) scholarship type(s) when you enter a publication



is SoTL recognized for tenure and promotion?

"Scholarship in this area [SoTL] includes classroom innovations, action research, scholarship of service learning, etc. UTEP recognizes all of these forms of scholarship to be legitimate as UTEP moves toward Tier One designation (excellence) while serving its region (access)."

-- end of Feb. 1, 2013 document on Tenure & Promotion process (UTEP Provost's Office website)

A tip:

Check what your department, chair, and dean view as an appropriate mix of Boyer scholarship types

and how your SoTL work will count towards scholarship, teaching, or both

when you are evaluated.

yet more SoTL career connections:

- SoTL can be (or lead to) interdisciplinary research

- SoTL is a section of UTROTA dossier!

in mine, I listed abstracts of 35+ papers related to specific UG courses I teach and also included a particular 4-page SoTL paper I did with a student from a 12-student graduate course analyzing rating changes (in knowledge and usefulness) from a 1-day intervention

But how is SoTL….

- Different from education research?
- Done outside colleges of education?
- Different from ‘scholarly teaching’?

Scholarly Teaching

Reflecting on our course (or pedagogical literature),
we introduce a change (independent variable)
to improve a student outcome (dependent variable)

Example: based on Kaplan et al.'s work, I now say "variability", not "spread", to reduce misconceptions

TABLE TALK: Share ONE example of how you have done this in your career so far.

Scholarly Teaching

Reflecting on our course (or pedagogical literature),
we introduce a change (independent variable)
to improve a student outcome (dependent variable)

We can do this in an intentional, systematic way.

Our (or other's) SoTL can improve our ST.
We can turn our ST into SoTL through peer review.

some of my own (stat ed) SoTL

a question to help students classify variables;

a dataset sequence to give conceptual understanding of ANOVA;

open-ended scenarios to set the tone on day one;

physical model to improve understanding of properties of median

some organizers

- http://engl665.weebly.com/1/category/reflection/1.html
- http://teachingcenter.wustl.edu/Scholarship/Pages/default.aspx
- Table 1 of http://www.unl.edu/dber/action-research-sotl-dber

simplified 'continuum' of types of papers

- 'Teaching tips' paper: "here's a cool activity/technique that I tried and here's why I liked it (and think the students did)"

- **SoTL paper**: also includes evidence of effect of method on learning and a moderate literature search

  (main goal: understand & improve specific T&L practices for the course)

- Paper for an education research journal:

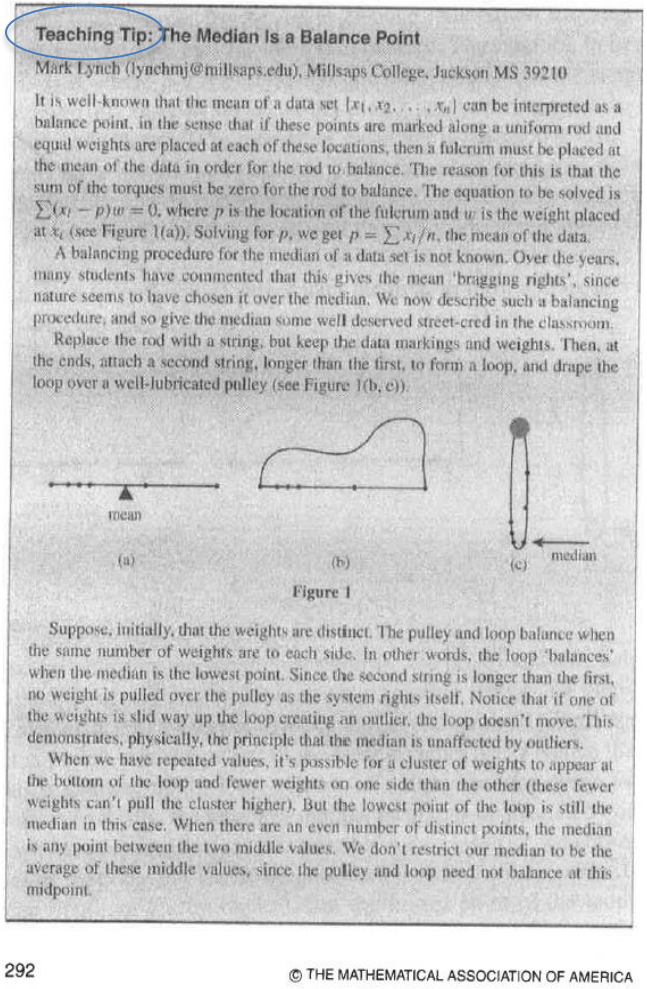
  also includes a theoretical framework,

  additional focus on methodology/rigor, results being transferable/reproducible, etc.

  (main goal: developing/improving/testing theory/foundations of how people learn)

a “teaching tip” can lead to SoTL:

Lesser, Wagler, Abormegah (2014)



Teaching Tip: The Median Is a Balance Point

Mark Lynch (lynchmj@millsaps.edu), Millsaps College, Jackson MS 39210

It is well-known that the mean of a data set $\{x_1, x_2, \ldots, x_n\}$ can be interpreted as a balance point, in the sense that if these points are marked along a uniform rod and equal weights are placed at each of these locations, then a fulcrum must be placed at the mean of the data in order for the rod to balance. The reason for this is that the sum of the torques must be zero for the rod to balance. The equation to be solved is $\sum(x_i - p)w = 0$, where p is the location of the fulcrum and w is the weight placed at x_i (see Figure 1(a)). Solving for p, we get $p = \sum x_i/n$, the mean of the data.

A balancing procedure for the median of a data set is not known. Over the years, many students have commented that this gives the mean 'bragging rights', since nature seems to have chosen it over the median. We now describe such a balancing procedure, and so give the median some well deserved street-cred in the classroom.

Replace the rod with a string, but keep the data markings and weights. Then, at the ends, attach a second string, longer than the first, to form a loop, and drape the loop over a well-lubricated pulley (see Figure 1(b, c)).

Figure 1

Suppose, initially, that the weights are distinct. The pulley and loop balance when the same number of weights are to each side. In other words, the loop 'balances' when the median is the lowest point. Since the second string is longer than the first, no weight is pulled over the pulley as the system rights itself. Notice that if one of the weights is slid way up the loop creating an outlier, the loop doesn't move. This demonstrates, physically, the principle that the median is unaffected by outliers.

When we have repeated values, it's possible for a cluster of weights to appear at the bottom of the loop and fewer weights on one side than the other (these fewer weights can't pull the cluster higher). But the lowest point of the loop is still the median in this case. When there are an even number of distinct points, the median is any point between the two middle values. We don't restrict our median to be the average of these middle values, since the pulley and loop need not balance at this midpoint.

- Fine-tuned intervention
- Literature review
- Compiled an assessment instrument
- Submitted IRB
- Piloted with a small class (*n* = 10), with a grad student’s help
- 27-page paper in the coming issue of *J. of Statistics Education*

SoTL: Motivations

- Improves your course, motivation, teaching awareness
- Puts emphasis on learning (and assessing it)
- Makes teaching process more public/shared
- Additional publications for your CV
- Bolsters teaching portfolio, award dossier
- Components of T&L in grant proposals can make stronger case for broader impact
- Natural vehicle to collaborate with colleagues
- Go beyond being disciplinary-only researcher
- Documenting learning for SoTL dovetails with reviewing/revising a program or curriculum
- Students can collaborate more readily

SoTL: Hesitations (informed by your pre-survey)

- “I don’t have enough expertise myself”
- “I teach only one section of this course a year and I don’t have an appropriate control or comparison group”
- “I could have a comparison/control group, but it wouldn’t be fair to deprive some students of my teaching intervention”
- “I don’t have time for add-ons”

SoTL: Addressing Hesitations

"I don't have enough expertise myself"

Collaborate!

SoTL: Addressing Hesitations

"I teach only one section of this course a year and don't have a control or comparison group"

Use previous classes for comparison,

establishing comparability from GPA, etc.

Use a colleague's class.

Divide your class into 2 groups.

SoTL: Addressing Hesitations

"I'd have a comparison/control group, but it's unfair to deprive some students of my intervention"

You could collect data for a short-term intervention, and *then* give the control group exposure to the intervention, too.

If you already know the intervention is better, maybe the more interesting investigation is how/why it works, so you could go *qualitative*.

You could promise to curve the lower-performing section up to the other section.

SoTL: Addressing Hesitations

"I don't have time for add-ons."

Integrating some of your teaching and research saves time and can even help your research goals (see FAQ #1 at cetal.utep.edu).

Some SoTL data can be collected in a single class meeting, rather than ongoing over a whole semester.

How to do SoTL: 5 steps

(this approach is adapted from Bishop-Clark & Dietz-Uhler, 2012)

- Identify Research Question
- Design Study
- Collect Data
- Analyze Data and Draw Conclusions
- Discuss and Disseminate Results

How to do SoTL: Step 1 of 5

- Identify Research Question
- Design Study
- Collect Data
- Analyze Data and Draw Conclusions
- Discuss and Disseminate Results

Step 1a: Research Question

- Reflection on puzzling/intriguing class experiences
- Area/theme→ *specific* questions
- 2 common types: “what works”, “what is”

Sample progression

- Should we use technology in teaching?
- Does technology improve student learning?
- Do dynamic applets improve student learning of statistics?
- Do dynamic applets improve student understanding of measures of center, as measured by midterm exam performance?
- Do dynamic applets improve college students' understanding of measures of center, as measured by a concept inventory?

Step 1b: Literature

Why search literature?

- Build on prior work
- Contextualize your question
- Don’t reinvent wheel, or study something already saturated with studies
- Ideas for variations
- Ideas for collaborators or related disciplines

Step 1b: Literature

How to search literature?

- Identify keywords from your RQ
- Use those keywords when you search:

http://scholar.google.com,

http://eric.ed.gov/?advanced,

as well as the library's many databases such as Academic Search Complete, & Education Full Text

How to do SoTL: Step 2 of 5

- Identify Research Question
- Design Study
- Collect Data
- Analyze Data and Draw Conclusions
- Discuss and Disseminate Results

Step 2: RQ drives design

- Some RQs call for QUANTITATIVE approach

  (e.g., survey, experiment, quasi-experiment)
- Some RQs call for QUALITATIVE approach

  (e.g., descriptive, case study, observation, interview, focus group)
- Some RQs call for “mixed methods”

What method would you choose for these RQs?

1.) Did group A perform better than group B on a test of content knowledge?

2.) What is a student thinking as she solves a problem involving X?

3.) Do student attitudes improve when using pedagogical technique Y?

4.) Why do students enjoy pedagogical technique Y?

5.) Does using technique Y improve student learning?

6.) How does using technique Y improve student learning?

7.) Do students participate more after experiencing pedagogical technique Y?

QUANTITATIVE (survey, experiment, quasi-experiment)

QUALITATIVE (e.g., descriptive, case study, observation, interview, focus group)

How to do SoTL: Step 3 of 5

- Identify Research Question
- Design Study
- Collect Data
- Analyze Data and Draw Conclusions
- Discuss and Disseminate Results

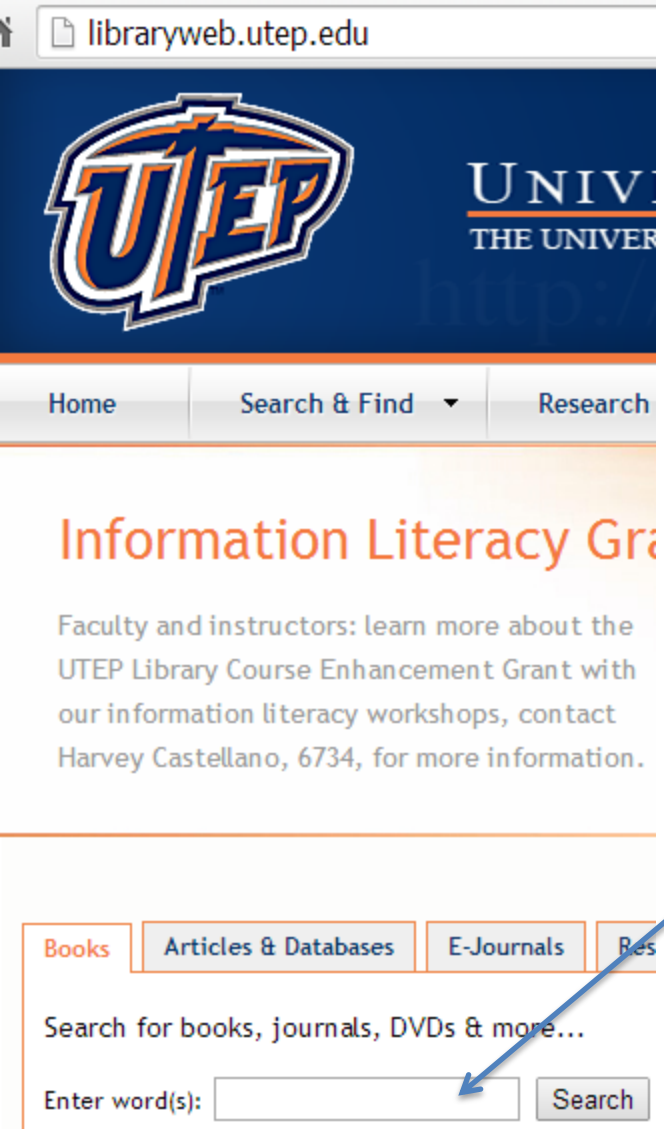
Data Collection Considerations

- Operationalize variables (“learning”, “enjoyment”, “engagement”, etc.)
- Any standardized/validated instruments?

  (if not, design and pilot one)
- Plan timeline of collection
- Is IRB approval or CITI training needed?
- Is funding needed?

How to search the many contemporary instruments?

in the box,
type
Mental Measurements Yearbook
with Tests in Print
or
PsycINFO



Need IRB approval/training?

YES, if you think you might want to report (i.e., publish or present) results or if you intend to contribute to generalizable knowledge.

Steps:

1.) If you lack current CITI certification (https://www.citiprogram.org), do the SBC (Social Behavioral Researchers) module; if your work involves federal funds, also do the RCR (Responsible Conduct in Research) module; takes a full afternoon, but is good for 3 years!

2.) Submit application for UTEP's IRB (forms are in https://irbnet.org) ;
allow plenty of time for review (and possible requested changes or clarifications). Understand distinctions (exempt, expedited, full board).

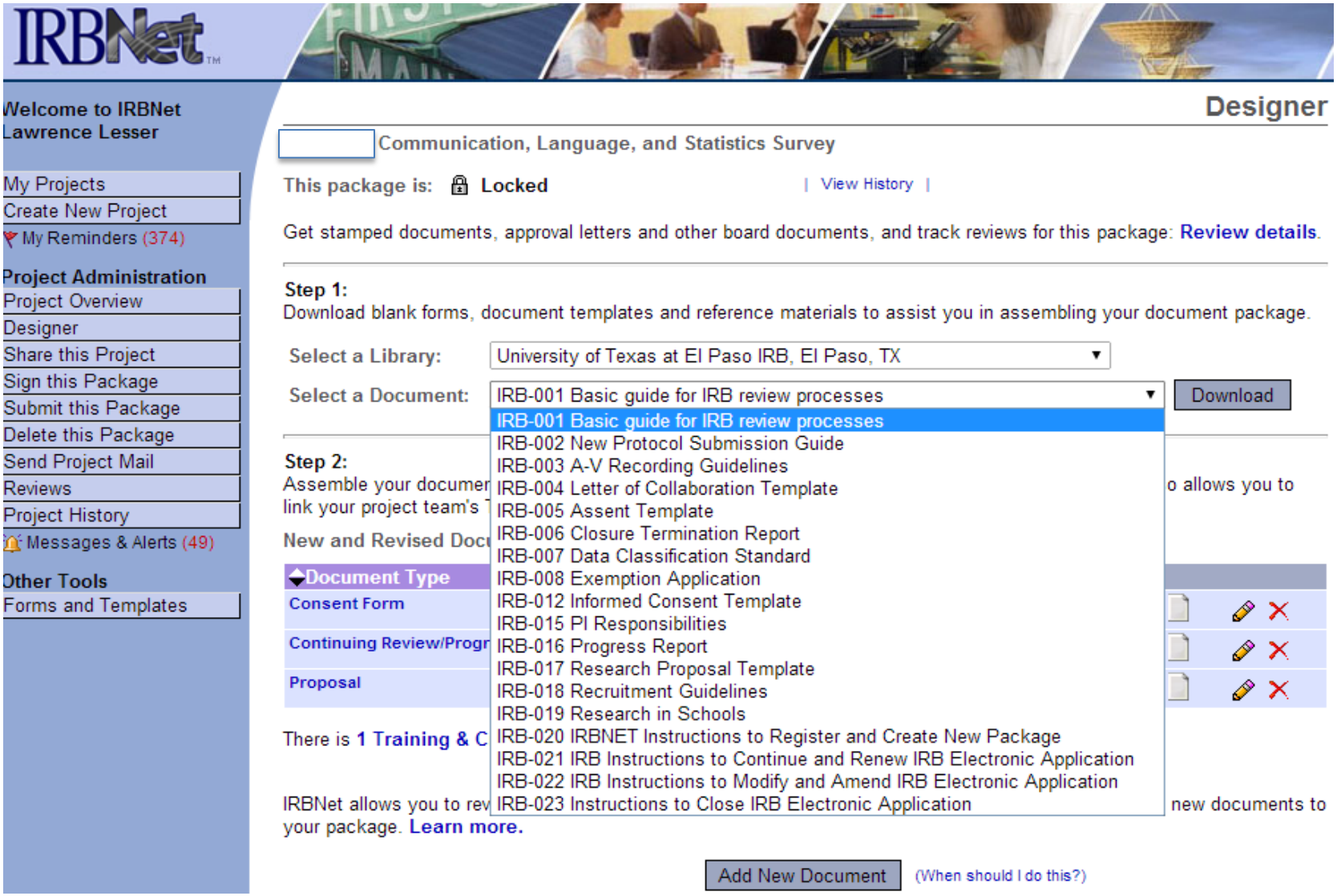
3.) After you get approval, you can solicit participants and collect data.

Questions? research.utep.edu/IRB Christina Ramirez, 747-7693, cramirez22@utep.edu

the IRB/CITI process helps ensure:

- You understand any related ethical issues
- Voluntary participation
- Privacy (confidentiality/anonymity)
- Disclosure/justification of any risks
- Any needed debriefing of participants
- You have design mapped out and will collect no more data than needed

Screenshot from IRBnet.org



How to do SoTL: Step 4 of 5

- Identify Research Question
- Design Study
- Collect Data
- Analyze Data and Draw Conclusions
- Discuss and Disseminate Results

Analyze Data and Draw Conclusions

- Use type of analysis (e.g., narrative analysis, rubric analysis, descriptive or inferential statistics) aligned with RQ and design
- UTEP has resources/training in software

  (e.g., COE's Research and Evaluation Lab supports SPSS and NVivo)
- Search http://expertise.utep.edu/ for a collaborator with desired background

(to enter yours: Digital Measures→Personal & Contact Information)

How to do SoTL: Step 5 of 5

- Identify Research Question
- Design Study
- Collect Data
- Analyze Data and Draw Conclusions
- Discuss and Disseminate Results

Can present at 3 types of conferences, if your discipline is “X”

- Disciplinary: “Conference on X” often has SoTL-friendly thread

- Disciplinary-Based Education: “Conference on X Education”

- SoTL: such as SoTL Commons Conference

what journals disseminate SoTL?

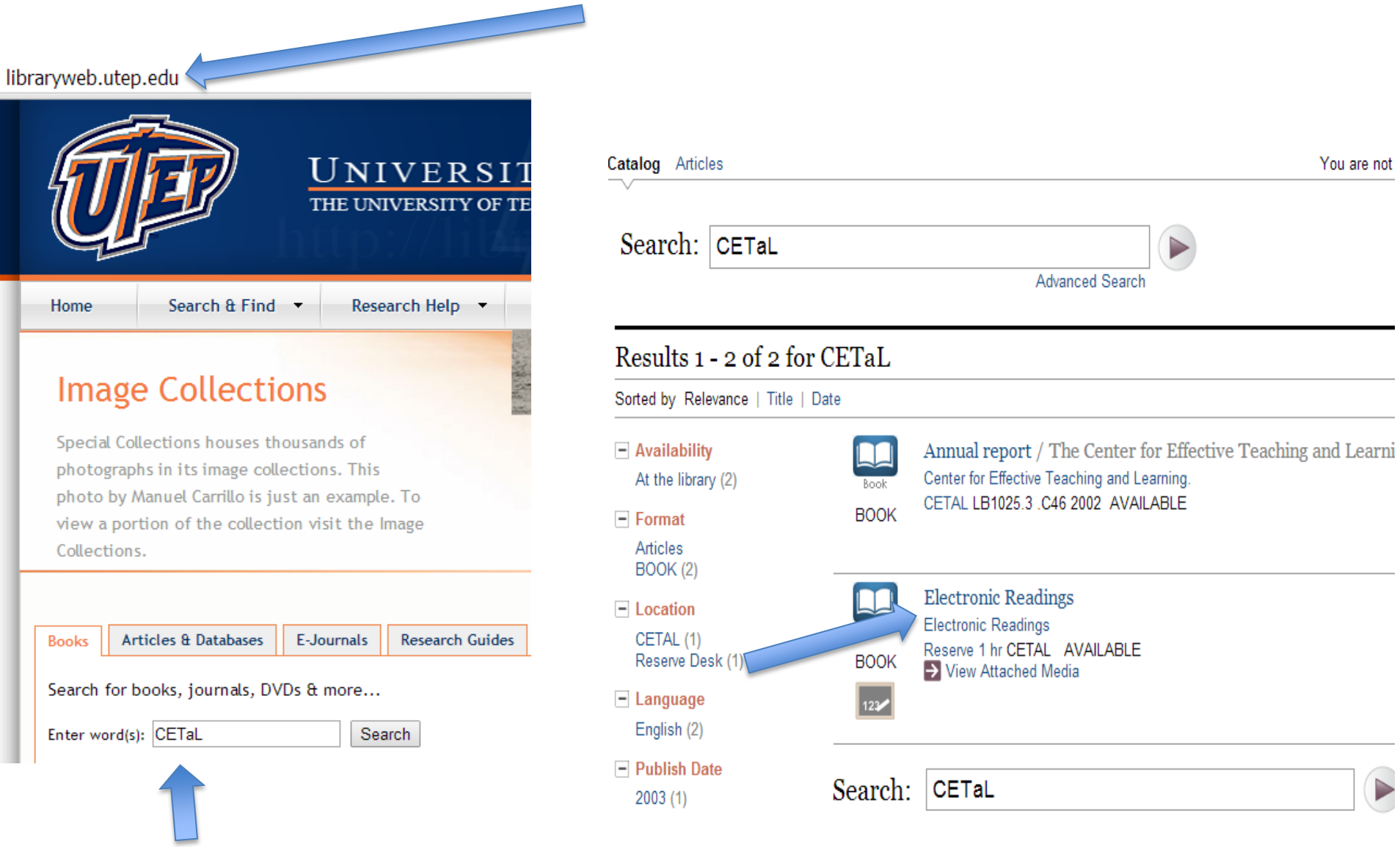
CETaL posted an e-reading that lists:

- Disciplinary journals in 60 disciplines,
- 70 general higher education journals, and
- 80 core SoTL journals (e.g., *IJSoTL*)

Here's how to access that e-reading

and identify one or more outlets to investigate…

fastest way to CETaL electronic readings via UTEP Library website



also, reference books

- general SoTL books such as:

C. Bishop-Clark & B. Dietz-Uhler (2012). *Engaging in the Scholarship of Teaching and Learning*. Sterling, VA: Stylus.

- discipline-specific SoTL books such as:

C. Bennett & J. Dewar (2014). *Doing the Scholarship of Teaching and Learning in Mathematics*. Washington DC: MAA.