The Scholarship of Teaching and Learning: Conducting the SoTL in Your Classroom

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Workshop Objectives

• At the conclusion of the workshop, participants will be able to:
  – Define SoTL as informed by their disciplinary knowledge
  – Explain the key steps of SoTL
  – Analyze a case and outline a plan to conduct a SoTL project
Overview

- Define SoTL
- Steps to Conduct a SoTL Project
- Introduction and Analysis of Cases
- Group Sharing
- Posters of Cases
Disclaimer

• We assumed...
  – The audience had limited knowledge and experience of SoTL
  – You wanted to be an active learner and apply the ideas Dr. McKinney presented
  – We could not teach you how to do a SoTL project in 2 hours
  – We were trying to teach a frequent flyer how to be a pilot of a 737 (in 2 hours)
    • You recognize the process, but you wouldn’t feel comfortable in the cockpit (yet)
  – We might create interest in SoTL for you to begin learning about SoTL
  – You would take your break as you choose
Who is a SoTLer?

• One who conducts action research
• Applies educational theory and research to practice
• Develops wisdom of practice
• Teaches well, demonstrates and shares effective practices with colleagues, develops pedagogical content knowledge, and makes knowledge public (Kreber, 2002)
Construct of SoTL

Continuum

“Novice” Teaching
Excellent Teaching
Expert Teaching
Scholarly Teaching
Scholarship of Teaching and Learning (Kreber, 2002)

Dimensions

Effective teaching
Sound disciplinary knowledge
Knowledge of how students learn
Teacher motivation
Teacher reflection

Constructed through

Formal research
Collaborative inquiry
Literature
Practice or experience
(Mentkowski & Associates, 2000)
Raise your hand if...

• You have conducted and publicly shared a SoTL project?
My Journey…from comfort to chaos to contributor and collaborator

• Comfort: “The principles guiding educational research are essentially the same as the principles directing scientific inquiry.”¹

• Chaos: Wait a minute…“How can I conduct educational research?!”

My Journey...from comfort to chaos to contributor and collaborator

- Contributor: Medical metaphor
My Journey…from comfort to chaos
to contributor and collaborator

• Comfort: “The principles guiding educational research are essentially the same as the principles directing scientific inquiry.”

• Chaos: Wait a minute…“How can I conduct educational research?!?”

• Contributor: Medical metaphor

• Collaborator: Empowered by Educational Resources and Researchers

My Journey…Example SoTL Contributions

- Using writing to develop critical thinking skills.

- The Teaching College course: A faculty, staff, and graduate student development program to enhance teaching quality.

- Keep your ear to the ground.

- Using quality circles to enhance student involvement and course quality in a large undergraduate food science and human nutrition course.
Key Steps of the SoTL Process

1. Identify the problem
2. Consult the literature
3. Design the study
4. Collect and analyze data
5. Make it public
Step 1:
Identifying the Problem
Central Questions

• What works?
  • Do my students learn better this way, and how would I know?

• What is going on?
  • What is actually going on when my students are trying to learn?

• What is possible?
  • What happens if I try this in a whole new way?

Randy Bass and Dan Bernstein
Georgetown University – University of Kansas, 2005
http://clte.asu.edu/teachingresources/scholarship/ISSOT
Framing SoTL Questions

- A clear research question for a SoTL project should
  - Concisely and clearly describe the setting for the classroom research (size of the class, is it an undergraduate or graduate class, etc.)
  - Avoid using ambiguous and vague terms to describe the hypothesis
  - Define realistic and achievable objectives that can be examined using appropriate methods of assessment
- A well-framed question is one for which procedures can be devised that offer the possibility of arriving at an answer

O'Loughlin, Valerie Dean. A "how to" guide for developing a publishable Scholarship of Teaching project. ADV PHYSIOL EDUC 30:83-88, 2006
Example

Vague research question:

What is the optimum number of homework assignments to give to an introductory level crop science course?

Clear research question:

Do students in CPSC 200 who complete weekly plant identification homework assignments achieve higher final exam scores than CPSC 200 sections whose students do NOT have homework assignments?
The “Toddler Strategy” for Clarifying Your SoTL Question

- What concepts do I see my students struggling with?
  - Why
  - Why
  - Why
  - Why
  - Why
  - Why
  - Why

I’m wise because I ask many whys.
The Cases

• Evaluation of Web-based Instruction
  Dr. Cleora D’Arcy & Dr. Darin Eastburn
  PLPA 200: Plants, Pathogens, and the Environment

• Which Is Better, On-Line or Hands-on Assignments?
  Ms. Laura Hayden & Dr. Gary Kling
  HORT 301: Woody Landscape Plants I
Group Discussion 1

• Read the case
• Discuss
  – What is the problem? (try the toddler strategy)
  – What is the dependent variable (outcome)?
  – What are the possible independent variables (antecedents)?
• 15 minutes
Step 2:
The Literature
Strategies to Consult the Literature

• **Searches**
  – Databases
    • ERIC
    • E.g., Ohiolink, Wilson Education Full Text
  – Online Journals
    • Education
    • Science Discipline-based

• Check with librarians & educational researchers

• Locate a related study as a launching point
What are some discipline-based journals that publish SoTL research?

✓ Check the abridged list of journals
Which journals should be added?
Which journals should be deleted?
Step 3:
Designing the Study
The research question drives the design, not vice versa.
Types of Methods

Quantitative Methods
Used for breadth and generalizability
- Questionnaires
- Achievement tests

Qualitative Methods
Used for depth of knowledge and transferability
- Interviews
- Artifacts

Triangulation Strengthens Study

Quantitative Methods

• Questionnaires
  – Dillman’s Tailored Method Design
  – Poorly worded items – invalid
  – How to develop a questionnaire
  – Resources (web, literature, on-campus)

• Achievement Tests
  – Face and content validity
    • Field tested by similar participants
    • Reviewed by experts
  – Reliability
    • Pilot tested by similar participants
Qualitative Methods

• Personal and Focus-Group Interviews
  – Useful in identifying a good research question
    (What is happening?)
  – Addresses questions of process
    (Why or how is it happening?)
• Qualitative data can be difficult and time consuming to analyze
• Due to richness of data, smaller sample sizes are needed
• Care must be taken to avoid biases
“To Be, or Not to IRB”

- Doing research with human subjects
- Need to complete if you share publicly
- Procedure is different at every university
- Better safe than sorry is the rule of thumb
Helpful Strategies

- Partner/Collaborate with an educational researcher
- Make use of available Campus resources

For example at UIUC: Center for Teaching Excellence, Survey Research Laboratory, and Illinois Statistics Office
Sample of SoTL Resources

• Websites
  – The Carnegie Foundation for the Advancement of Teaching
    • http://www.carnegiefoundation.org/
    • http://gallery.carnegiefoundation.org/
  – University’s Center for Teaching Excellence
    • http://www.sotl.ilstu.edu/
  – Learner-Centered Teaching Project
    • http://lct.aces.uiuc.edu/sotl.html

• Books
  – McKinney (2007), Enhancing Learning through the SoTL

• Journals (see list)
  – Buffalo State University’s list
    http://www.buffalostate.edu/orgs/castl/publish.html
  – Northern Kentucky University’s list
    http://pod.nku.edu/sotljournals.asp
  – Indiana University’s list
    http://www.indiana.edu/%7Esotl/bandj.html
Step 4: Collecting and Analyzing Data
Measurement CHALLENGES

- Student perceptions are not always reliable
  - Socially desirable responses versus legitimate feelings
- Difficult to conceptualize what is desired learning
  - Questions of validity (lack of scientific rigor) as students are all different
- Hard to measure learning that changes student perceptions
  - Difficult to track student learning longitudinally
Measurement STRATEGIES

• Use multiple methods to capture learning
  – Quasi-experimental designs: Control groups and pre/post questionnaires
  – Qualitative case studies: Interviews and student journals & assignments

• Use formative and summative assessments
  – Formative: More fluid and open
  – Summative: Aligned with standards and valid and reliable

• Seek information beyond course competencies
  – Human capital: Knowledge, thinking, motivation, career skills, dispositions
Data Collection Considerations

• Who should collect the data?
  • Instructor influence and bias
• IRB considerations
  • Required assignments
  • Student permission
• Questionnaires & Assessments
  • Open-ended questions
  • Closed-ended questions
    • Labeled scale
• Interviews
  • Consultants or hired interviewers
  • Transcribing – time consuming
  • Coding – complex
Group Discussion 2

• Brainstorm possible approaches to address question in the case study
  – Data collection
  – Data analysis
  – Rationale
  – Hypothesize anticipated outcomes

• 15 minutes
Step 5:
Making It Public
“An excellent teacher is not a scholar of teaching unless he/she participates in classroom assessment and research and makes his/her teaching public in the form of oral or written presentation.”

Hutchins and Shulman 1999
Why Communicate Results?

- Sharing is a two-way street
  - Makes new knowledge available to others
- Opens up your classroom
  - Increases accountability
- Raises questions about one’s practice
  - Enhances student learning
- Provides opportunities for merit
  - Professional Development
  - Presentations
  - Publications
- May influence administrative decisions
Venues for Presenting SoTL Projects

- Journal articles
  - NACTA Journal
  - Education Journals
  - Discipline Specific Journals
- Seminars
  - Teaching Academy Seminars
  - Departmental Seminars

- Conferences
  - Oral Presentations
  - Poster Presentations
- Websites
  - E.g., LCT website
Time for Group Sharing

1) By Case

- 2 or 3 tables share their ideas for a SoTL project with others who had the same case
  - 10 minutes

2) Case Authors

- Key points raised
- Next steps
- 15 minutes
What we hope was accomplished…

• What is SoTL?
• What are the steps of SoTL?
• What is an idea of a SoTL project you could conduct?
A SoTLing We Will Go!!!

http://lct.aces.uiuc.edu
Conceptualizing Research

1. What is the context?
2. What is the problem?
3. How do you see the problem?
4. How will you view the problem?
5. What do you want to know?
6. What do the research questions mean?
7. What is next?
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