

Scholarship of Teaching and Learning

Alexey Leontyev

*Department of Chemistry and Biochemistry
North Dakota State University, Fargo ND*

NDSU

NORTH DAKOTA STATE UNIVERSITY

 **AleksLeontyev**

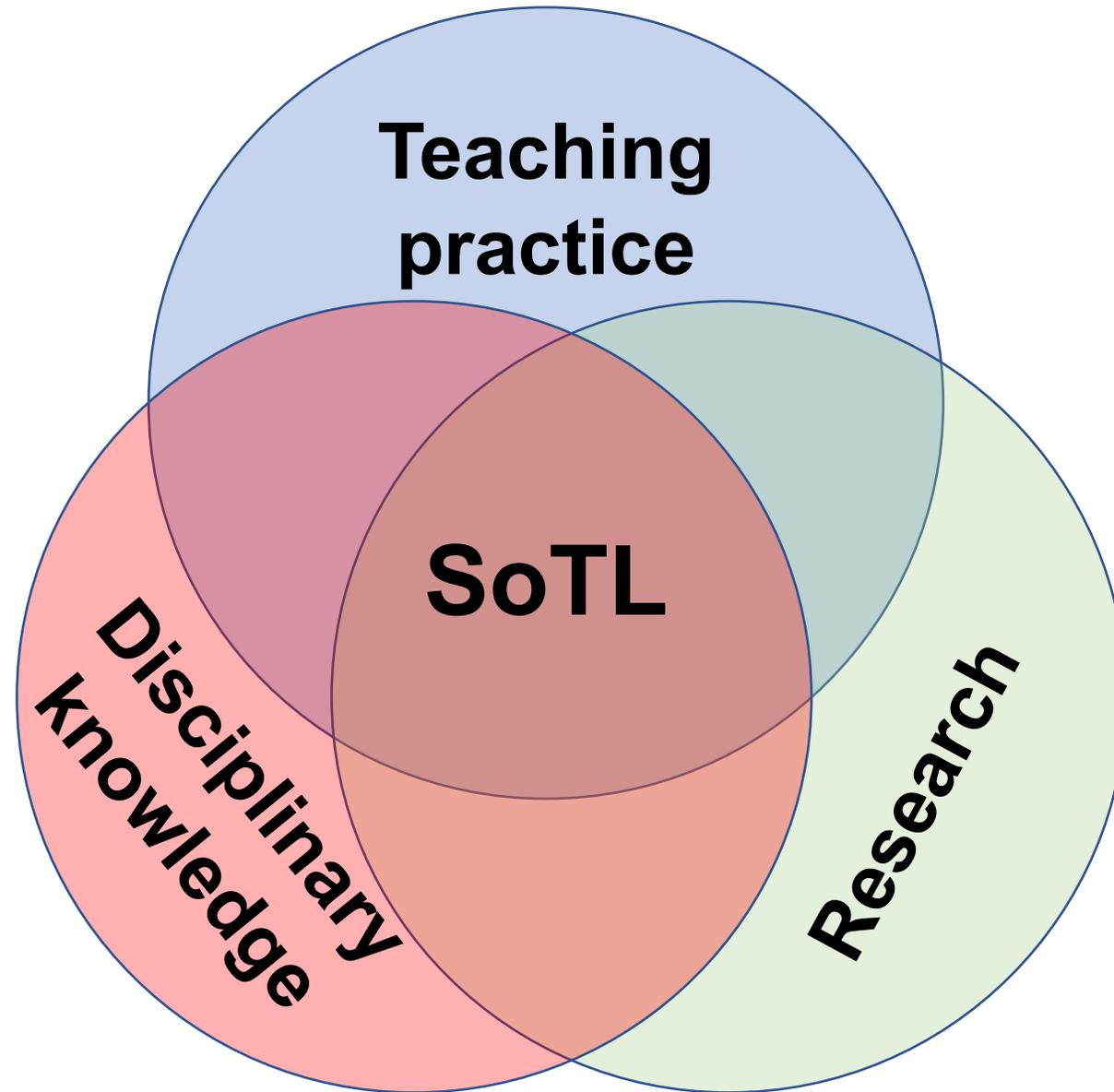
Part I: What is SoTL?



Definition of SoTL

- Systematic study of teaching and learning and the public sharing and review of such work through live or virtual presentations, performances, or publications
(McKinney 2006)

At the Intersection



What is SoTL?

Effective teaching, scholarly teaching, and SoTL are related but not the same.

Effective Teaching

Using teaching methods that support student learning

Scholarly Teaching

Grounding teaching in scholarly research on teaching and learning

SoTL

Creation/dissemination of scholarly work on teaching and learning

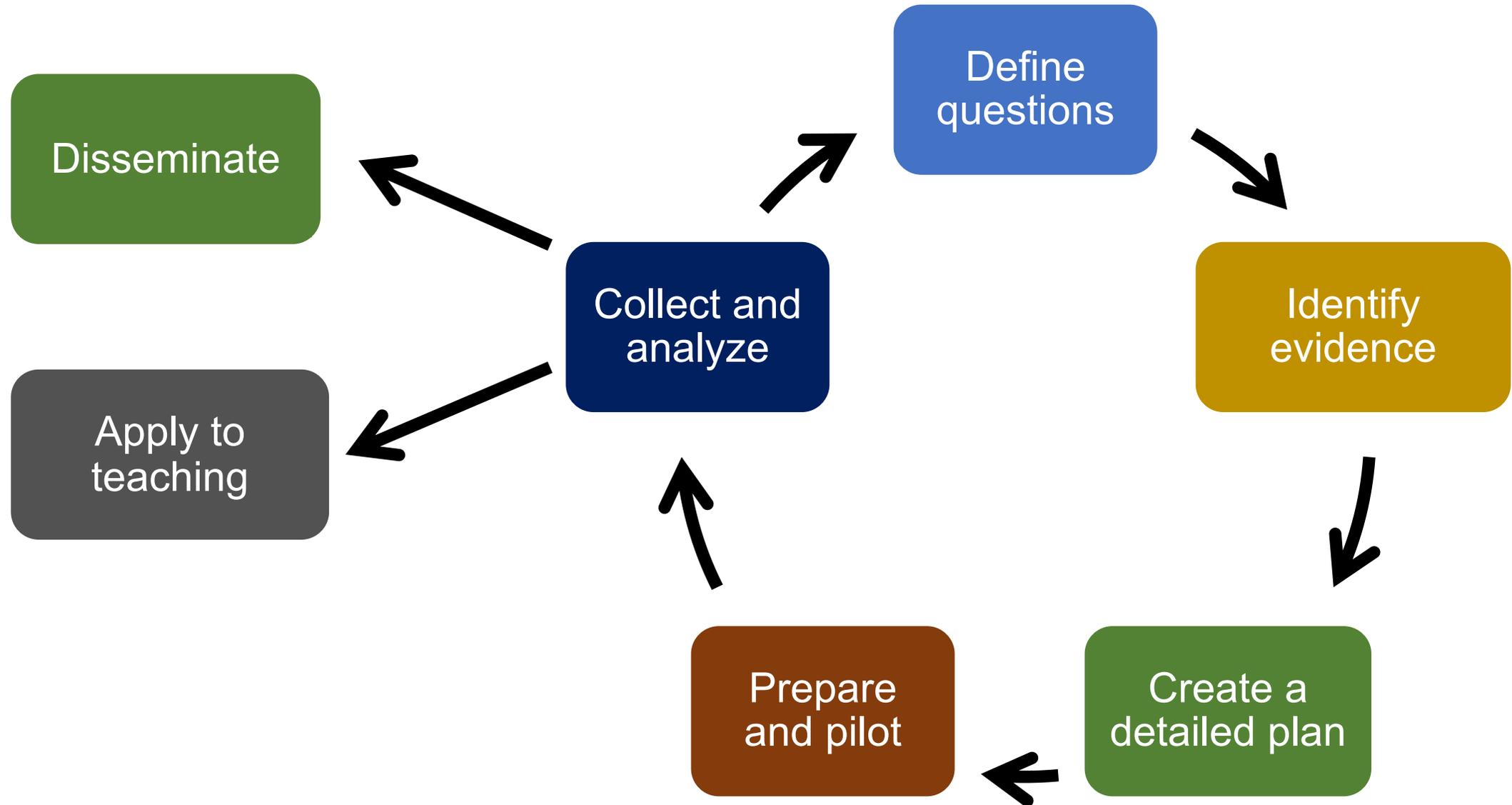
Consumption

Production

Part II: Getting started: Defining a question



SoTL Process

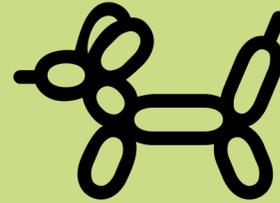


Major Types of SoTL Questions



What works?

Seek evidence of the (relative) effectiveness of particular teaching approaches



What/how is ...?

Seek to describe (as opposed to evaluate) a phenomenon observed in the classroom or the consequences of particular teaching approaches

Factors in Defining Questions

Practice

*What want to
evaluate?*

Impact

*What effect hope
to achieve?*

Context

*Where does it
take place?*

Lit Review

*What have others
said?*

Research Questions Templates

- **What works?**

- What is the impact of *_practice_* on *_area of impact_* in the context of *_context_*?

- **What/how is ...?**

- What are the factors that influence *_something_* in the context of *_context_*?
- How does *_something_* look in the the context of *_context_*?

Activity I: Research questions

Think – about your possible research projects. Consider the following dimensions.

Practice – What ignites your curiosity about teaching? Is there a particular problem you would like to address? What approach might you try?

Impact – What effect do you hope to achieve?

Context – In what context do the practice and intended impact take place?

Pair – discuss your projects.

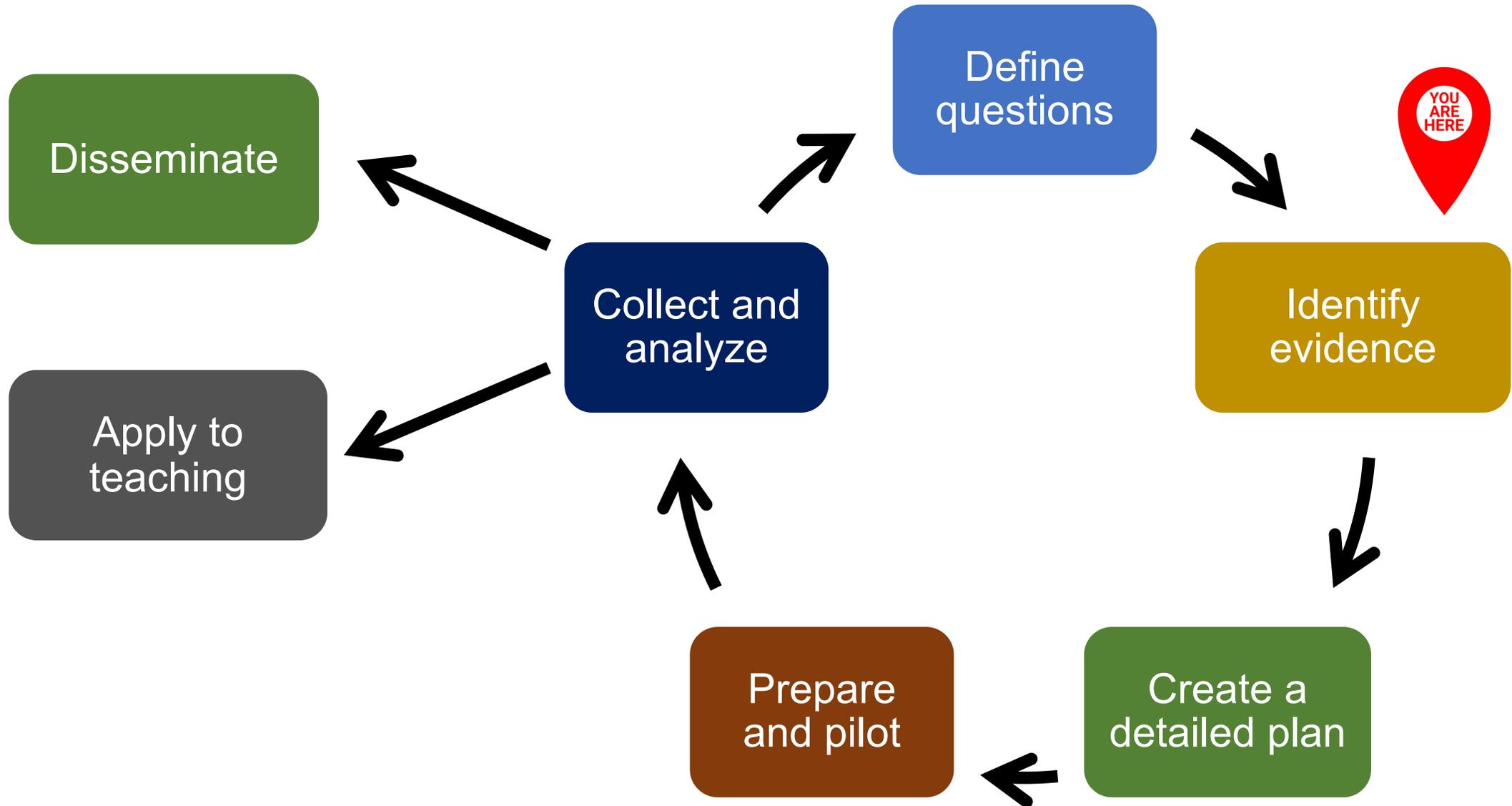


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Part III: Identifying evidence



SoTL Process



Example

Research Questions

What is the impact of pre-class videos on students in organic chemistry class?

What do you want to evaluate?

Chemistry knowledge

Ability to make connections

Students attitude to chemistry/confidence

How will you evaluate?

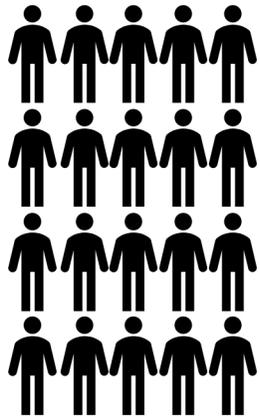
Exams (ACS, in-house),
concept inventories

Concept maps, reasoning chains, creative exercises

Surveys



Quantitative vs Qualitative



**Quantitative
methods**



**Qualitative
methods**



How large does your sample size need to be to publish the results? Because I teach at a smaller institution, I have had relatively small numbers of students in the SoTL projects I have done so far.

A COMPENDIUM OF SCALES
for use in the
SCHOLARSHIP OF
TEACHING AND LEARNING



EDITED BY:

Rajiv S. Jhangiani

Jordan D. Troisi

Bethany Fleck

Angela M. Legg

Heather D. Hussey

<https://teachpsych.org/ebooks/compscalessotp>

Examples of Research Tools (Chemistry)

- Implicit Information from Lewis Structures Instrument (IILSI) (Cooper *et al.*, 2012)
- Diagnostic tool to identify alternative conceptions related to acid strength (McClary & Bretz, 2012)
- Chemical Representations Inventory (Taskin *et al.*, 2015)

- Organic chemistry-specific achievement emotions questionnaire (Raker *et al.*, 2018)
- Attitude toward Chemistry semantic differential (many versions)
- Chemistry-specific Academic motivation scale (Liu *et al.*, 2016)



**Cognitive
domain**



**Affective
domain**

Activity II

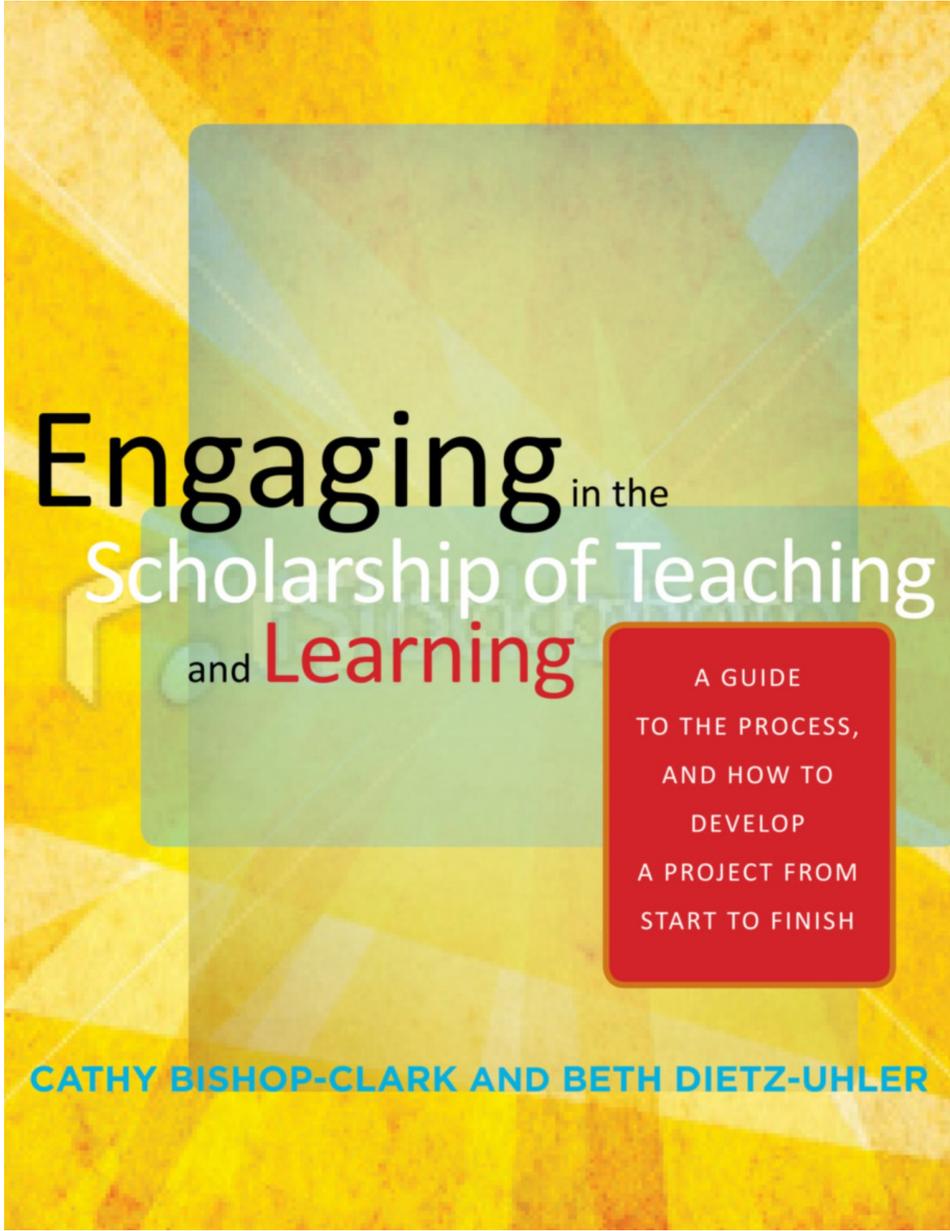
In pairs, discuss:

- **What will you be evaluating?**
- **How will you do so?**



Personal tips on SoTL projects

- IRB – start/check early!
- Find an accountability buddy (consider psychology/sociology colleagues)
- Use/modify published research tools/prompts when possible.
- Theory-based projects are better than personal empiricism.
- Pilot
- For treatment-control designs, report means, standard deviations, and sample sizes for both groups
- Think about ways of dissemination (JCE paper, BCCE presentation, etc) early.
- Involve students in data collection/analysis.
- Get a workbook!



Engaging^{in the} Scholarship of Teaching and Learning

A GUIDE
TO THE PROCESS,
AND HOW TO
DEVELOP
A PROJECT FROM
START TO FINISH

CATHY BISHOP-CLARK AND BETH DIETZ-UHLER

Thanks for attending!