**How did we get here? Program level**

Sue Mattson  
**Day job:** Course redesign  
**USA hire:** Fall 2014  
**Research interests:** Systems thinking, outcomes scaffolding, managing change  
**Teaching interests:** Biology, science education

2017-18  
- Summer SoTL Academy (20 faculty)  
- SoTL mini-grant Program (11 @ 1K)  
- SoTL showcase @ CoTL (10 projects)

2018-19  
- Summer SoTL Academy (26 faculty)  
- SoTL Mini-grant Program (18 @ $500 [internal dissemination] + $500 [external dissemination])  
- USA presentation options  
- Peer-reviewed conference or journal submission

**How did we get here? Faculty level**

Drew Lewis  
**Day job:** Math faculty  
**USA hire:** Fall 2016  
**Research interests:** Commutative algebra and algebraic geometry  
**Teaching interests:** Standards-based grading (SBG), Team-based learning (TBL)

2017-18  
- Awarded "Most Engaged New Faculty Member"  
- SoTL program mini-grant awardee  
- Taught SBG and TBL for the first time  
- SoTL showcase presentation at CoTL 2018-19

2016-17  
- Introduced SBG to faculty  
- Certified in TBL

**Summer 2016: Let's get this party started!**

- **Visioning**
  - SoTL 1, 2, and 5 years from now:  
    - End with and the answer  
  - Who is involved?  
  - What types of problems and questions are being researched?  
  - When are faculty conducting self-directed research?  
  - When is research being judged?  
  - Why are faculty doing this work?  
  - How is this work being used to support continuous improvement?

- **Theory of Change**
  - Outputs:  
    - Increased student outcomes  
    - Improved success & access  
  - Impact:  
    - Increased success & access

- **Staging**
  - Structure: Year 1  
  - Scale: Years 2 & 3  
  - Sustain: Years 4 & 5  
  - Study: Ongoing  
  - Share: Annual outlet

- **Designing**
  - Institutional fit  
  - Administrative support  
  - Staged priorities  
  - Program structure  
  - Incentive structure  
  - Staffing & managing  
  - Attraction  
  - Community building  
  - Onboarding  
  - Project support

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**Theory of Change**

**Outputs**

- Improved student outcomes  
- Increased success & access

**Impact**

- Increased success & access
Design hypothesis: If I do X, then Y will happen

**Design foundations**
- "keystone" variables of a complex SoTL system
- Represent interlinked problems/opportunities that change as a program develops
- Have design "solutions" that - can be informed by both the literature and experience - take on dynamic quality that often requires "Just-in-Time" (JIT) adjustments and inventions - are separately and cumulatively testable as program design hypotheses

What if X doesn't result in Y?

2017 Observations
- Projects stalled early — instrument knowledge, IRB delays
- Study designs misaligned and/or underdeveloped
- Inexperience with raw-to-publishable data work — processing data, analytic techniques, graphing skills
- Major efforts needed to ready project outputs into quality public forms
- Faculty underestimated, never found, or ran out of time
- Unfinished studies mean SoTL doesn't gain a foothold

2018 adjustments
- Institutional fit
- Administrative support
- Program priorities
- Program structure
- Incentive structure
- Staffing and managing
- Attraction
- Community role
- Onboarding
- Faculty support

2017 adjustments
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Onboarding: Content flow and session organization

Creating content for the Summer Academy has been an iterative process, too!
The tricky wicket has been finding the balance between providing necessary information about SoTL and providing active planning time for SoTL project development.

2017 Cohort
7 day workshop
- Day 1 (content day)
  - "Intro to SoTL" content
  - developing SoTL questions
  - identify study methods
  - sharing SoTL (locally and more)
- Day 2 (design day)
  - small group work
  - 1:1 consultations with experienced SoTL peers
  - individual work on proposals

2018 Cohort
1.5 day workshop
- Day 1 (draft day)
  - draft SoTL question
  - speed walking with peer feedback
  - identifying & review resources
  - transforming data sources
  - study design coaching session
- Day 2 (content day)
  - project "drafts" with peer feedback
  - ethics and SoTL
  - IRB considerations
  - sharing SoTL
  - mini-grant proposal consultations

2017 Cohort
2 day workshop
- Day 1 (content day)
  - "intro to SoTL" content
  - developing SoTL questions
  - identify study methods
  - sharing SoTL (locally and more)
- Day 2 (design day)
  - small group work
  - 1:1 consultations with experienced SoTL peers
  - individual work on proposals

2018 Cohort
1.5 day workshop
- Day 1 (draft day)
  - draft SoTL question
  - speed walking with peer feedback
  - identifying & review resources
  - transforming data sources
  - study design coaching session
- Day 2 (content day)
  - project "drafts" with peer feedback
  - ethics and SoTL
  - IRB considerations
  - sharing SoTL
  - mini-grant proposal consultations

So...from 2017 to 2018, much of the content stayed the same, but content was emphasized and organized differently to meet the needs of Academy participants!
It was clear “ready references” or aids in project planning would be helpful as additional resources for the 2018 Academy participants. So, we got to work!

A process called “speed stating” was used to help participants describe teaching/learning issues and gather peer feedback to identify a SoTL question.

Two other resources were created to describe different study designs and various data sources and methods that might be applied to a SoTL project.

Timing of content matters.
Peer interaction is part of the learning curve.
Starting with the end in mind is critical.

This is a prior knowledge problem that creates hurdles that overload faculty bandwidth.

SoTL Hurdles (handout)

2017 Observations
- Projects stalled early
- Study designs misaligned and/or underdeveloped
- Inexperience with raw-to-publishable data work
- Major efforts needed to ready project outputs into quality public forms
- Faculty underestimated, never found, or ran out of time
- Unfinished studies mean SoTL doesn’t gain a foothold

SoTL Ends:
- Apply SoTL locally to improve student outcomes
- Disseminate SoTL to benefit the broader community

Hypothesis: Scaffolding through hurdles can help build requisite knowledge and offset some bandwidth overload

Faculty support: Iterative scaffolding

Starting with the end in mind is critical...
Iterative scaffolding in Year 1: Scaffolding elements

Top priorities:
- Defining problems that lead to SMART questions
- Quality presentations as indicators of quality program

Iterative scaffolding in Year 1: Defining problems

Iterative scaffolding in Year 1: Study planning v1
Scaffolding SoTL: A Two-Year Iterative Process to Launch a SoTL Community

Iterative scaffolding in Year 1: Standard slides

- Top Priorities:
  - Problem definition
  - Research question(s)
  - Literature Integration
  - Study design
  - Data work
  - Writing SoTL
  - Presenting SoTL

- Items iterated:
  - This element's targets

- More attention needed:
  - Study design, data work, presenting SoTL
  - Literature Integration
  - Study design
  - Data work
  - Writing SoTL
  - Presenting SoTL

Iterative scaffolding in Year 1: Lessons Learned

- More attention needed:
  - Study design, data work, presenting SoTL
  - Literature Integration
  - Study design
  - Data work
  - Writing SoTL
  - Presenting SoTL

- Also:
  - Earlier coaching and additional feedback cycles

Iterative scaffolding in Year 2: Scaffolding elements

- Top Priorities:
  - Earlier articulation of study design, including data work, and details of implementation
  - Improve standard slides for quality presentation of a completed project

- Also:
  - Early engagement with peers and additional coaches to improve quality of proposals
Iterative scaffolding in Year 2: Standard slides

- Problem definition
- Research question(s)
- Literature Integration
- Study design
- Data work
- Writing SoTL
- Presenting SoTL
- Publishing SoTL

More attention needed:
- Study design, IRB, data work, writing SoTL
- Writing SoTL
- Presenting SoTL
- Publishing SoTL

Also...
- More attention needed: Study design, IRB, data work, writing SoTL
- Weight Summer Academy content toward “how to do” SoTL, proposal to be drafted at Academy, use coaching to converge on polished proposals, support earlier self-sufficiency

Iterative scaffolding in Year 3: Scaffolding elements (to midyear)

- Problem definition
- Research question(s)
- Literature Integration
- Study design
- Data work
- Writing SoTL
- Presenting SoTL
- Publishing SoTL

Top Priorities:
- Explicitly relate the problem and research question(s) to targeted student outcomes
- Provide novice-level support for choosing and articulating the details of study design
- Provide models for making the IRB process transparent and expedient
- Focus on writing SoTL, pre and presenting and publishing SoTL, next

Also...
- More extensive involvement of peer critique through iterative proposal drafting and increase self-sufficiency by adding quality check criteria
Iterative scaffolding in Year 3: Proposal checklist

- Problem definition
- Research question(s)
- Literature integration
- Study design
- Data collection
- Writing SoTL
- Publishing SoTL

This element's targets:

- Summer Academy emphasis

Are we there yet?

Lessons in progress:
- 18 proposals, 15 polished; polished proposals supported more successful starts and ongoing self-sufficiency, less intensive "human scaffolding" needed
- More attention needed: literature integration and, especially, all components of data work

Program level:

- Two iterative updates of this element planned; standard slides will be offered
Are we there yet? Faculty level

SoftHardware
- Problem definition
- Research question
- Literature synthesis
- Study design
- Data collection
- Writing draft
- Presenting draft
- Publishing draft

SoTL Commons Conference

And you may ask yourself, well
How did I get here?
Talking Heads, Once in a Lifetime (1980)