SUPPORT STUDENT LEARNING with SoTL WORKSHOP SERIES
Getting started with research questions

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Who I am?

• Associate Professor of Physics at KSU
• recently returned Fulbright Research Chair in STEM Education at University of Calgary
• Research Director at PhysPort
• Co-Director of PEER Field Schools

• Discipline-Based Education Research (DBER) (2001)
  • mostly physics, some math and computer science

• I show excitement and interest by engaging with and poking your work. This can sometimes come off as critical, but it shouldn’t be discouraging.
What is SoTL?

- Scholarship of Teaching and Learning.
- Mindset of approaching your teaching with a scholarly gaze
- Borrows methods from education research
- Develops organic questions from real practice
- Informs local changes
- (Publishable in peer-reviewed journals)
Research principles

• Research time is play time.
• Research questions are living questions.
• Share your results with a broader community.

• Having a research mindset makes us better teachers and mentors.
Case study: Inchargelessness
Research project evolution

- Research questions evolve as researcher interacts with data and literature
  - questions at beginning are generative of later questions
- Research context and interests determine available questions
  - first question is often, "what's happening here?"
- Case study: Negotiating a sign for metacognition
IMPRESS Summer Experience

Do science

Reflect on science

Reflect on self

Simple models

Impersonal

Tangentially personal

Complex models

Impersonal

Tangentially personal

Deeply personal

for two weeks

20 students

2 undergraduate student leaders

1 instructor

2-3 interpreters

2018: year 5
Metacognition

• Research questions
  • initial question: how do deaf & hearing students communicate?
  • how are power and expertise distributed?
  • authority: hierarchical vs. distributed, expertise: inherent (instructor) vs. emergent

• Data: a discussion about developing a sign for metacognition
  • Day 1
  • Full group discussion
Inchargeness

- Authority
  - Expertise: She is an authority because she knows a lot about this.
  - Inchargeness: She is the authority because she is in charge.
- Who is in charge?
- Is authority centralized or distributed?
Research on equity and inclusion

Mostly undergraduate experiences: learning environments

- Equal opportunity for all to learn to their fullest potential
- Equal access to *all parts* of learning environment
- Equal opportunity to participate, ask questions, voice ideas
Research interests and context

• What are you interested in?
  • Write down some of your research interests in education.
  • What are big questions you see in teaching and learning in your discipline?

• What can you study?
  • Are you in a classroom? video, interviews, test scores.
  • Are you in a lab environment?
  • Are you involved with an extra-course program?
  • ...

• Connect your interests and your access
  • Ok to trade your access and interests around.
  • Research groups are great!
Find a potential collaborator

• Make a group of 3
• Introduce your interests to your partner
• Play "yes, and"
  • When someone else is talking, think about how cool that is!
  • Find (at least) one interest in common with each person in your group
  • Say yes to their ideas, and nudge them to be more exciting or possible
• It's ok to have nebulous ideas at this point.
  • Try to find one thing to focus on together.
Narrowing your research interests to one research question
Good research questions

• A good research question is answerable.
  • No: "I want to develop a curriculum" is not a question.
  • Yes: "How effective is this curriculum at improving..." is a question.

• A good research question needs more than a few words to answer it.
  • No: "do students...": the answer is yes or no.
  • Yes: "how do students..." or "why do students...": the answer is long and complicated.

• A good research question is interesting!
  • Research time is play time.

Revise your question again?
Research questions

• Write your question in the form of a question.
  • Think about access, theories, methods
  • Be specific!

• Share your questions with a potential collaborator.
  • Ok to merge questions.

Be prepared to share your question with everyone.