



Pathways for Engaging in the Scholarship of Teaching and Learning

Getting Started with Your Inquiry

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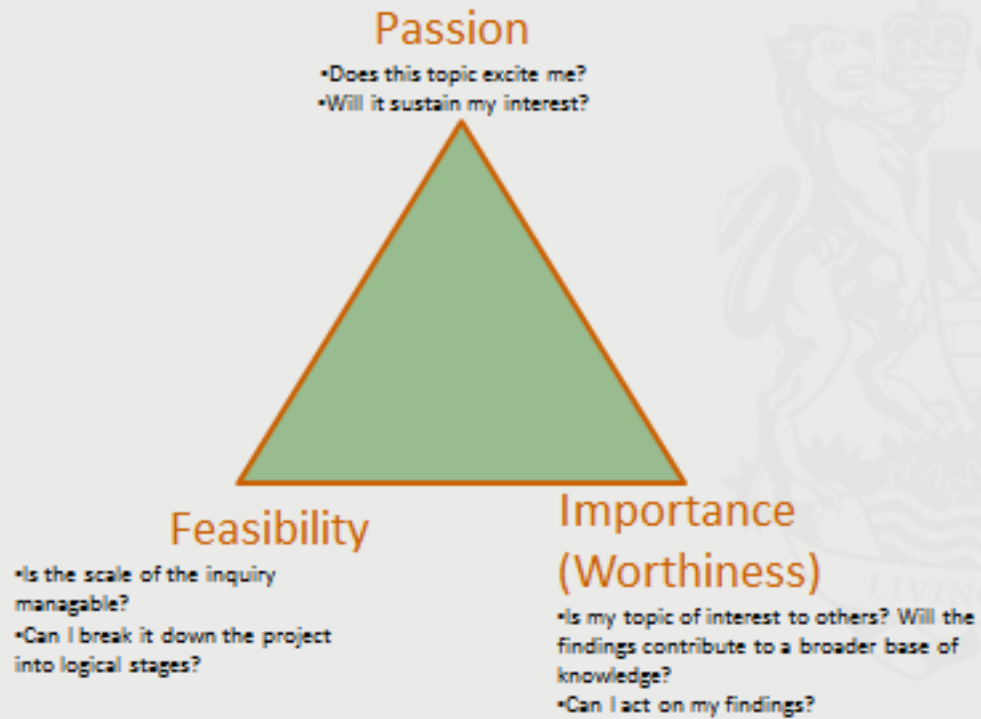
The Reflection Tree

Enclosed is a graphical template for structuring the “problem” of your inquiry. It is based on Suzanne Bailey’s work on designing and leading whole system change through the use of living system metaphors. Reflect on the questions and then record your answers on the template provided.

1. **The Problem of Your Inquiry**—State the unresolved issue, challenge, opportunity, or performance gap that is at the center of your inquiry.
2. **Energy**—What motivates you to resolve the issue? What gives you stamina and keeps you focused on wanting to solve the problem? List your responses under the sun.
3. **Beliefs and Values**—Why is the problem important to you? How are your beliefs and values on effective teaching and learning related to the problem? Write three or four beliefs that support your efforts to resolve the problem beside the trunk of the tree.
4. **Fruit**—What are the benefits of solving the problem? State what you think is the potential end result of your inquiry.
5. **Pests**—What’s getting in the way of solving the problem? What are the obstacles and challenges that need to be overcome for the inquiry to be a success? Write this information under the rabbit.
6. **Roots**—Reflect on the “roots” of your current perspective regarding the problem. What has influenced your view of effective teaching and learning that makes this issue a significant problem to solve? List the people, previous experiences, and literature that has influenced you under the roots of the tree.
7. **Other Trees**—What other colleagues, friends, and mentors share your views of the problem? List these supporters under the “Other Trees”.
8. **Cactus**—Who has different or conflicting views on the problem than you? What are their views on the issue? Write this information next to the cactus.
9. **Storms**—What would happen if the problem is not resolved? Write down your worst fears by the storm clouds.

Review the reflections you have just listed on your template. What patterns are evident? What were the most difficult parts of the template to complete? The easiest? What are the implications of your entries for the next steps of your inquiry?

Triangle of Significance



Tips for Developing Significant Questions

By Doug Hamilton

Developing your research question is one of the most important stages in your inquiry process. Your research question asks what you ultimately want to find out and act upon through your inquiry. A meaningful question will:

- keep you focused during the rest of your inquiry;
- help you determine eventually whether the data you gather sufficiently “answers” the question;
- guide you to appropriate follow-up action; and
- consider further questions that are outgrowths of your inquiry.

Cresswell (1994) recommends that any researcher not ask any more than two “grand tour questions” followed by no more than five sub-questions in any study. These questions will form the parameters and boundaries of your investigation. Preskill and Torres (1999) suggest that these open-ended questions are important in establishing a focus and guiding future decisions on methods of data collection and project planning. Without a good focused question, there may be a tendency to prematurely select a specific means of inquiry as well as the actual data collection methods.

In preparation for developing your question, assess the worthiness of your topic by answering the following questions adapted from Hopkins (1993):

- Is your topic an issue you can do something about? Does it need rethinking in order to be acted upon?
- Is the topic important to you? Does it motivate you? Will you still be interested in the topic next week or next month?
- Can you study and act upon the issue in a manageable time period?
- Are other faculty members interested in the topic? Are there ways you can work together to inquire into this topic?
- Is the topic consistent with and relevant to your department’s, school’s and faculty’s priorities?

Developing a suitable question involves some degree of patience, persistence, and revision. You may find that you create several different drafts or even versions of a question as you continue to refine your efforts. In developing your question, focus on key areas of your practice. Your question must have significance to your own professional situation. Brainstorming and concept mapping will help you create and augment a series of connected ideas.

When you write down your question for the first time, focus on getting it down on paper. Then you can play with the words and structure until it seems to be less awkward. Is the issue still as compelling as it was before you committed it to paper? If not, perhaps a review or rewrite is necessary at this point to ensure it retains your enthusiasm.

As your review your question drafts, try to ensure that a “yes” or “no” cannot answer the question and, therefore, prematurely, limit the inquiry process. Your inquiry will benefit immensely from open-ended questioning that leads to substantive thinking about the issue under study in your inquiry.

As well, try writing out your question and then define each major term or word in the sentence. This activity helps you reach a better understanding of what the key words mean specifically to you. This can be a helpful group activity as well.

Also, try projecting into the future and identifying the outcome of your inquiry. What is your vision of what you are trying to achieve? How will you know when you've achieved it? What are the anticipated results of your research? By projecting into the future you can sometimes determine if your question will allow you to obtain the information you are seeking. By using research to systematic inquiry to answer your question, will it help solve your problem or dilemma?

Furthermore, once you've written a draft question, review it to see if it is researchable. A question is researchable if information can be gathered that helps answer the question (Palys, 1997). Palys warns us that questions in which value judgements are imbedded are particularly challenging. To make these kinds of questions researchable, you might need to develop criteria to make the value judgements more explicit.

Here are some further tips:

- Start with a current issue, unresolved tension, or foreseeable problem—what knowledge would help you resolve this?
- Think about a particular student or group of students and how you might help them if you had more insight or information.
- Reflect on your teaching, or if you are a program head, your leadership, for a week: keep a short journal; brainstorm a list; draw a concept map.
- Keep your question open-ended. Start with phrases such as "What happens when...", "How do..."; "What is the role..."; or "What procedures...".
- Focus on only one issue in every question.
- Consider your first attempt at question-writing as a first draft, then revisit the source of intrigue in your workplace. Does the question respond to this issue?
- Share your draft question with a friend or a colleague to get a different perspective on its focus and structure.
- Remember that question-writing is part of the learning process. The structure of your question will evolve with time if you are persistent.

Now that you have developed a draft of your question that pleases you, how do you check if it is appropriate? Ask yourself the following questions?

- *Action-oriented* — Does the solution to the problem lead to an action that I can take? Can I do something about the issue?
- *Importance* — Is this issue worth my effort to understand and solve it? Will I continue to be interested in it?
- *Relevance* — Is the issue related to what I am currently doing in my role? How does it fit with other activities I am currently doing? Will answering this question potentially contribute to a broader base of knowledge related to the issue?
- *Manageability* — Can I handle the workload in investigating this issue? Is the scale of inquiry too big? Can I break the question into smaller questions that can be approached as stages of an inquiry?
- *Workability* — Can responding to this question blend into my professional environment and not cause a negative impact on my own workload?

Investing substantive time at the front-end of the project answering these questions will pay dividends later on when you are analyzing your findings and drawing your conclusions. However, spending too

much time trying to establish the “definitive” question can become a barrier to getting on with the research work. In the words of Hubbard and Power (1993):

... when it comes to research, the process needs to be as fulfilling as the final results. Finding and framing questions takes time and may involve lots of exploration through wonderings. . . . The benefits of teacher-research begin with finding and enjoying the possibilities in your questions, not with analyzing research results. And the research cycle continues with new questions as well as possible answers. (p.7)

Finally, remember these guiding principles for focusing your inquiry from McNiff, Lomax, and Whitehead (1996):

- I am the central person in my research.
- I am asking a real question about a real issue, and I am hoping to move towards a possible solution.
- I am starting from where I am.
- I am trying to bring about some improvement (remember—any improvement is still improvement, no matter how small).

References

Cresswell, J.W. (1994). Research design: Qualitative and quantitative approaches. Thousand Oaks, CA: Sage.

Hopkins, D. (1993). A teacher's guide to action research. Buckingham: Open University Press.

Hubbard, R.S. and Power, B.M. (1993). The art of classroom inquiry: A handbook for teacher-researchers. Portsmouth, NH: Heinemann.

McNiff, J., Lomax, P. and Whitehead, J. (1996). You and your action research project. London: Routledge.

Preskill, H. and Torres, R.T. (1999). Evaluative inquiry for learning in organizations. Thousand Oaks, CA: Sage.

Sample Questions from the *Ethics of Inquiry* (Hutchings, 2002)

1. John Holcomb – Mathematics Introductory, Elementary Statistics Course for Non-Math Students

How effective are hands-on projects using birth-weight data sets in helping students learn to actually do statistics?

2. David Takacs – Environmental Humanities -- Course on the Social and Environmental History of California

How do I (and my team teaching partner) use student work to determine if students demonstrate a more sophisticated understanding of politics, policy issues, and the connection between politics and values as a result of taking the course?

3. Susan Burgoyne – Theatre – Course on the Theatre of the Oppressed

What impact would learning about and engaging in the Theatre of the Oppressed have on student attitudes towards race and racial oppression?

4. Charles McDowell – Computer Science – Course on Introductory Programming for Computer Science and Computer Engineering Majors

How can pair programming be used effectively in an educational setting? How does it affect student performance, student enjoyment, and student perception of computer science as a discipline?

5. Tomas Galguera – Education – Teacher Education Program

What is the learning-to-teach process like for Latino teachers?

6. James Seitz – English – Composition Course

How do I help university students who seem to be stuck in eighth-grade habits of mind and expression – habits that seem intractable after so many years of practice?

7. Sherry Linkon – English and American Studies

What can be learned from developing, assessing, and interrogating the uses of technology in teaching interdisciplinary courses on history and culture?

From: Hutchings, P. (Ed.). (2002). *The ethics of inquiry: issues in the scholarship of teaching and learning*. Menlo Park, CA: Carnegie Publications.

QUESTION STARTERS*

- I would like to improve . . .
- Some employees (or stakeholders, clients, etc.) are unhappy about . . .
- really excites me. How can I apply it to my practice?
- What can I do to change . . . ?
- I wonder about . . .
- I am perplexed by . . .
- . . . is a source of worry and irritation. What can I do about this?
- How can the experience of . . . be applied to . . . ?
- What would happen if . . . ?

* Modified from:

Jersoski, S. et al. (1996). *Field-Based Research*. Victoria: British Columbia Ministry of Education.

Hopkins, D. (1993). *A Teacher's Guide to Classroom Research*. Buckingham: Open University Press.

WORKING WITH YOUR QUESTION—THE RATIONALE

⇒ What question do you really want to seek an answer to? *[Hint: Start with “How”, “Why”, or “What”. Use “When”, or “Who”, or “Where” if you need qualifiers. Avoid “Does”, “Can” or any other phrase that produces a “yes” or “no” answer.]*

1. How will answering this question benefit your organization?
2. How will answering this question help you improve your practice?
3. How is this question directly related to your utmost priorities as a professional?
4. By answering this question, what end result will you achieve?
5. What will happen if you don't respond to this question?

SOTL Questions

- Three types of research questions
 1. **What is . . . ?**
(focus on description and understanding of an approach)
 2. **What works . . . ?**
(focus on the effectiveness of an approach)
 3. **What if . . . ?**
(focus on a vision of the possible)

Hutchings, 2004

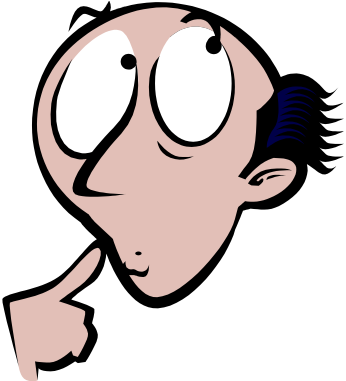



SOTL Questions

- Three types of research questions
 1. What is really happening when students produce briefs and posters using a collaborative learning approach? (Brian Peacock)
 2. What works best to support students in becoming more effective reflective learners? (Yeo Beng Teck)
 3. What happens if face-to-face class time is re-purposed for inquiry, application and assessment rather than lectures? (Lily Lim)

Gale (2010)

Getting Started in Practitioner-Research: Gathering Your Evidence

Developing the Question	Gathering Evidence
<p data-bbox="248 478 691 512">What do I really want to know?</p> 	<p data-bbox="846 478 1273 512">How will I come to know this?</p> 

Gathering Evidence: Key Factors in Deciding on a Strategy

- *Authenticity* - What kinds of evidence will help you truly understand the nature of the issue that you're studying and what you can do to improve your practice as a result?
- *Quality Control* - What kinds of measures can you put into place to ensure that your data gathering process is credible, rigorous, and defensible?
- *Managability/Feasibility* - What data gathering strategies are workable within the timelines of your study?
- *Triangulation/Complementarity* - How can multiple or complementary methods and sources be used in your study to strengthen your confidence in the findings?
- *Student Participation* - How can the project be made educationally valuable to students? How can students be involved in your study? How might they play a role in gathering and analyzing data?
- *Ethics* - How can you design your study and gather data in such a way that addresses issues related to privacy, confidentiality, power dynamics, consents and permissions, appropriate reporting and dissemination?

Data Literacy: Knowledge and Skills for the Data Informed Leader

1. Thinks about purpose

- ★ Decides what you need to know and why

2. Seeks to understand

- ★ Searches for increased understanding – doesn't presume an outcome
- ★ Reserves judgement – tolerates ambiguity and uncertainty
- ★ Continuously asks questions

3. Recognizes sounds and unsound data

- ★ Finds the necessary data
- ★ Ensures the data are worth considering
- ★ Is aware of the data's limitations

4. Understands what data is

- ★ Determines how to use different forms of data
- ★ Considers different ways to locate or gather the data
- ★ Applies proper data gathering procedures

5. Emphasizes importance of interpretation

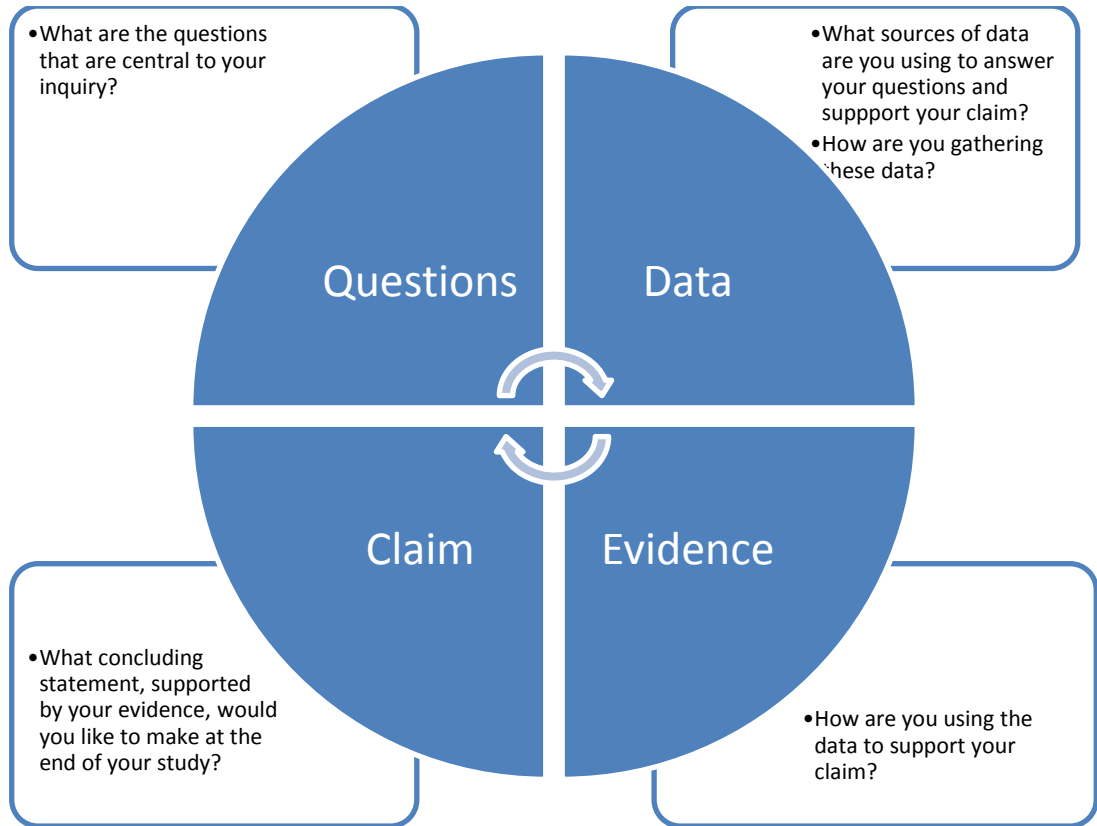
- ★ Links key data sources
- ★ Thinks about the meaningfulness of the results
- ★ Looks at the issue from multiple perspectives

6. Pays attention to reporting and audiences

- ★ Adjusts reporting to address specific audiences

Doug Hamilton (2010) (adapted from Earl and Katz, 2006)

Evidence Mapping



Developing an Effective Data Gathering Plan: A Brief Overview

Doug Hamilton, Royal Roads University

Now that you have developed your research question, your next step in the planning process is determining how you are going to answer the question in a meaningful, timely and manageable way. What evidence will help you respond to your question? From whom will you gather it? How? When? Where? These are the questions that initiate your data gathering plan. It is highly likely you have already given these questions some thought when you developed your initial question.

The first step is to develop a data gathering plan. A successful plan is developed around four basic questions:

1. What evidence is to be collected?
2. How does this evidence support the research claim you would like to make?
3. How is the evidence going to be collected?
4. Who or what sources will provide the evidence?

The amount of evidence that you expect to gather will depend on the scope of your inquiry. Is your focus confined to a small group of participants? A whole class? Is it focused on a specific subject or topic area in the course? Or will it involve ongoing data gathering over the entire course?

In general terms, it is advisable to determine which data are most suitable before deciding how and when to collect them. A key step in the development of your research plan is to examine all feasible alternatives available to you before deciding on your preferred method.

A good strategy is to list all the potential sources of data that could be gathered and from whom they could be collected. Then, consider which sources will respond to your research question most directly. Prioritize the sources of data in terms of direct relevance and importance to your inquiry. You may need to do a bit of visualization to think, in advance, about what sources will be most relevant. This is the key advantage of developing a data collection plan in advance.

Once you have prioritized all the sources of data, you will have a good idea what data may be readily gathered and what data might take some work to capture and collect. Your research plan eventually should include a description of each kind of data desired, the people who will yield the data (i.e. your students). How you plan on gathering them, when, and with what degree of regularity.

Choosing Specific Methods of Data Gathering

There are three basic methods of data collection most relevant to the kinds of data gathering relevant to pedagogical inquiry projects: (a) you can ask people direct or indirect questions (e.g. surveys, interviews, focus groups); (b) you can observe people in specific settings (e.g. using direct observation, audio-visual sources, sociometric techniques; and/or (c) you can review and analyze existing information (e.g. student work, document analysis, brief submissions, logs, journals, etc.).

Regardless of the method chosen, there are several considerations and background knowledge required before you begin this stage of your research. Investigate carefully the type of method you choose that

will best suit your research plan. You don't want to waste any time and resources once you start gathering your data.

When you're planning your data gathering, be sure to find out about protocols for the conducting research in your institution. Are SOTL-related inquiries subject to a formal ethics review? What other institutional guidelines exist?

Here are some tips for designing your data gathering plan:

- ⇒ Make (and keep) the project manageable.
- ⇒ Identify your central question(s) before deciding on how to gather your data.
- ⇒ Ensure you have any required institutional support before beginning your project.
- ⇒ Find out what data currently exists before gathering new evidence.
- ⇒ Consider using complementary data sources or research methods.

Qualitative? Quantitative? Or Both?

After determining the source(s) of your evidence, it will be immensely helpful to pause and reflect briefly to consider whether your data appears to be quantitatively- or qualitatively-based. Making the determination now will help guide your future decisions, such as how to gather the data, what quality control measures need to be included, what ethical guidelines will need to be followed, and how the data will be analyzed and reported.

Your choice of qualitative or quantitative data gathering strategies will depend on the focus of your inquiry; the values, beliefs, and world views you bring to the research; your preference or past experience with one approach or another; and what you plan to do with your data once you've gathered them. As well, your choice may be influenced by the kinds of methodological approaches that are considered acceptable with your discipline or field of teaching. Ultimately, you may even find that both forms of data are relevant to your study.

Many academic researchers consider quantitative and qualitative methods as coming from different paradigms of inquiry. Paradigms are "world views" or ways of seeing and experiencing reality.

What methods are best for you? In reality, you may find that your project has elements of both qualitative and quantitative inquiry, or you may believe that it is best to stick to one set of methods.

Some of the following factors may influence your choice of paradigm:

- Your previous experience/expertise with qualitative/quantitative methods;
- Your comfort with specific methods;
- Your views on research: Do you want to engage in an objective, detached process or do you want a close, interactive encounter with participants?
- The nature of the question: Does the "problem" seem to be best resolved through the collection of qualitative or quantitative data, or both?

Finally, developing an effective data collection plan will help to alleviate many challenges when you are gathering and/or analyzing your data. In planning your inquiry, keep the following points in mind:

- *Planning is a process, not an event.* Your plan will evolve as you gain more expertise and as your inquiry progresses. Therefore, your plan should be flexible enough to guide your evolving inquiry and not limit its development.

- *The plan is a map, not the territory.* Your plan is your best representation of what will happen in the future if all events remain under your control. Remember to update your plan as your inquiry proceeds.
- *Avoid paralysis by analysis.* Don't become overly caught up in making such a detailed plan that you delay getting your inquiry underway. Focus your planning energies on the most significant aspects of your study. What key decisions do you need to make? Who can help you? What resources do you need? What are realistic timelines?
- *Seek advice from someone you respect.* Your plan is a great communication vehicle because it should succinctly describe what you are going to do, why, when, how, and with whom. A trusted colleague, critical friend, or mentor, may be able to offer critical feedback on the degree to which your plan is meaningful and realistic.

When all is said and done, the quality of your study will depend on the quality of the research question that framed your inquiry in the first place. The most effective data gathering cannot support a question that is ill-conceived, insignificant, or irrelevant. Ensure that you are satisfied that the question you've chosen -- it provides a compelling reason to invest your time and energy and, perhaps, the resources of others, into your study.

DECIDING ON YOUR EVIDENCE WORKSHEET (Short Form)

1. Using your draft inquiry question, brainstorm all possible existing sources of data and determine if these are sufficient.
2. If these sources are not sufficient, brainstorm sources of data that could be gathered and from whom they could be collected.
3. Identify the sources that will respond to your research question most directly.
4. Prioritize the sources of data in terms of direct relevance and importance to your inquiry. You may need to do a bit of visualization to think, in advance, about what sources will be most relevant.

DECIDING ON YOUR EVIDENCE WORKSHEET (Long Form)

1. What is the most important evidence you can gather to support your research claim and to answer your research question?
2. What is the most appropriate and feasible way of gathering it?
3. What multiple sources are available from which you can collect data?
4. What techniques, methods, and instruments will help you gather the data?
5. When you are gathering evidence, what will constitute the data?
6. How can you ensure that the data you gather serves as good evidence?
7. What technologies will you use to help you collect and manage data?

ANALYZING YOUR EVIDENCE WORKSHEET

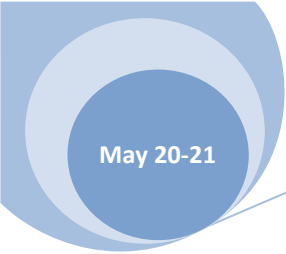
1. What systematic records of evidence will you gather and develop over time during your study?
2. What kind of evidence can you produce to show what is happening?
3. What improvements seem warranted by your evidence? On what basis?
4. What have you documented i.e. indicators, critical incidents, patterns, and trends in order to show that improvement has occurred or is warranted?
5. What evidence clearly supports your claim that your findings offer improvements to your practice? How can you show what you think you've achieved?
6. How have you ensured that you haven't over-generalized your results or taken your findings out of context?
7. How have you considered and evaluated alternative explanations for your findings?
8. How did you document changes to your practices derived from your findings?
9. How can you ensure that the conclusions you reach are fair and accurate?

BRINGING IT ALL TOGETHER*

1. What important learning issue, problem, opportunity, or question do you have that's related to your students' learning? Phrase this as an inquiry question.
2. What do you already know about this topic from previous experience, from other data gathering opportunities, and from the relevant literature?
3. What types of information already exist that will help you answer this question?
4. What other types of information (and from what sources) will help you answer this question?
5. What research strategies will help you gather data that will inform your inquiry question and information needs?
6. What time frame will be most appropriate and feasible to answer your inquiry question?
7. Where does a collaborative approach best fit within the scope of your study?
8. What practical problems and limitations exist in your inquiry process? How will you address these? What resources will be helpful in addressing them?
9. What ethical issues should you consider in doing the inquiry project?
10. What action strategies do you need to develop that best respond to your inquiry's results?
11. What audiences do you need to consider in communicating your findings and action strategies? What forms of communication are most appropriate?
12. How will you "go public" with your study's results?

* Modified from:

McKinney, K. (2007). *Enhancing learning through the scholarship of teaching and learning: The challenges and joys of juggling*. San Francisco: Anker.



Applications Sheet

Directions:

Please take a moment to recall the ideas, techniques, activities, and strategies explored in this session, as well as in the other sessions up to this point in the conference. Quickly list as many possible applications as you can. Don't censor yourself! These are just possibilities. You can always assess the feasibility or desirability of these ideas later.

Interesting IDEAS, TECHNIQUES, ACTIVITIES STRATEGIES, from this session	Some possible APPLICATIONS of these ideas to my work.

Adapted from Angelo and Cross (1993)

The Minute Paper

Please answer each of the following questions in one or two sentences:

1. What was the most useful or meaningful thing you learned during this session?

2. What question(s) remain uppermost in your mind as we end this session?

Adapted from Angelo and Cross (1993)

The Muddiest Point

What was the 'muddiest' point in this session?

(In other words, what was least clear to you?)

Adapted from Angelo and Cross (1993)