<table>
<thead>
<tr>
<th>Methods Matrix</th>
<th>Qualitative Approaches</th>
<th>Quantitative Approaches</th>
<th>Mixed Methods Approaches</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What it measures?</strong></td>
<td>Describes attitudes, perceptions, opinions, ideas, or experience</td>
<td>Quantifies the measurement of attitudes or behaviors</td>
<td>Utilizes both qualitative &amp; quantitative data and qualitative &amp; quantitative analysis</td>
</tr>
<tr>
<td><strong>Philosophy</strong></td>
<td>• Seeks to make constructivist knowledge claims, based in participant experience and/or multiple perspectives</td>
<td>• Seeks to make post-positivist knowledge (cause &amp; effect) claims</td>
<td>• Seeks to make pragmatic knowledge claims, i.e., consequences of particular practices, problem-centered, pluralistic in its approach</td>
</tr>
<tr>
<td><strong>Research Questions &amp; Approaches</strong></td>
<td>• Divergent (open-ended) research questions</td>
<td>• Convergent (Close-ended) research questions</td>
<td>• Involves both divergent and convergent research questions</td>
</tr>
<tr>
<td></td>
<td>• Emergent / Fluid methods</td>
<td>• Pre-determined approaches</td>
<td>• Emergent/Fluid and pre-determined methods</td>
</tr>
<tr>
<td></td>
<td>• Ethnography</td>
<td></td>
<td>• Involves some combination of qualitative and quantitative data collection and analysis</td>
</tr>
<tr>
<td></td>
<td>• Phenomenology</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Grounded theory</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Methods</strong></td>
<td>• Seeks to amplify or generate theory</td>
<td>• Tests or verifies existing theory</td>
<td>• Various designs integrate data at different stages of inquiry, combining:</td>
</tr>
<tr>
<td></td>
<td>• Structured or semi-structured interviews</td>
<td>• Experimental design</td>
<td>• Qualitative and quantitative data and analysis, OR</td>
</tr>
<tr>
<td></td>
<td>• Case study (well-defined unit of analysis)</td>
<td>• Numeric data (data that can be quantified)</td>
<td>• Qualitative data with qualitative and quantitative analysis</td>
</tr>
<tr>
<td></td>
<td>• Observation; participant-observation</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>• Surveys or written interviews</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>• Image, graphic or textual, discourse or other narrative analysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Research Practices</strong></td>
<td>• Discloses positionality of the researcher (potential bias, transparency)</td>
<td>• Research Questions, which may be stated as hypotheses, identify dependent and independent variables</td>
<td>• Employs practices of both qualitative and quantitative studies</td>
</tr>
<tr>
<td></td>
<td>• Values participant perspectives</td>
<td>• Applies standards of reliability and validity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• May involve personal values in study</td>
<td>• Gathers quantitative data – something measured numerically</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Validates or explains findings (e.g., multiple sources of data; member-check)</td>
<td>• Claims to use unbiased approach or is able to measure for bias</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Interprets data to generate ideas for curriculum or reform (e.g., design-based research or quality improvement studies)</td>
<td>• Employs statistical procedures</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Often collaborates with participants</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Karen Spear Ellinwood, adapted from Creswell (2014)
Purpose Statement

Example Qualitative Study
The study will explore student perceptions of the value of feedback in clinical settings, and identify which factors in feedback situations students believe contribute to feedback being helpful or not in improving knowledge and skills.

Example Quantitative Study
This study will test the theory that written feedback with specific guidance for improvement enhances students’ knowledge or skills. The study will measure student progress by comparing their clinical performance before and after receiving mid-clerkship feedback over the course of three consecutive clerkships. All students will receive mid-clerkship feedback that tells them what they did well and what they need to improve. Half the students will receive additional guidance containing specific suggestions for how to improve knowledge and/or skills.

Example Mixed Methods Study
The purpose of this mixed methods study is to explore student perceptions of feedback in clinical settings, and to evaluate the impact of mid-clerkship feedback with and without specific guidance for improvement on medical student performance over the course of three consecutive clerkships.

Research Questions & Hypotheses

Example Qualitative Study
How do medical students perceive the value of feedback for improving knowledge and skills? What factors in the feedback situation do students perceive as contributing to their perception of feedback as helpful or not helpful?

Example Quantitative Study
Medical students who receive specific, written suggestions for how to improve knowledge and skills midway through clerkship experiences will perform, on average, significantly higher on clinical performance evaluations at the end of clerkship.

Example Mixed Methods Study
(Questions from both studies above would be included.)

Prepared by Karen Spear Ellinwood, PhD, JD, EdS, Director, Instructional Development, Education Scholars Program
Conduct a Literature Review

1) Search for peer reviewed articles and books that provide a broad review of the education and medical education literature on the theory or topic of study

2) Identify and review research articles that address your topic in medical education and address similar research questions

   **Goal:** Familiarize yourself with how experts in the field...
   - Frame and discuss the issue
   - Phrase their research questions
   - Utilize specific research methodologies and why

3) Search for presentations at recent medical education conferences that address questions closely related to yours

**Primary Goal** – Identify a gap in the literature so that you can
- Craft a study that will address that gap

**Secondary Goal** – If there is no appreciable gap, identify how your study would build on the studies that have been done.

*Example*: Test theory or model in different context or with different population, or explore attitudes or perceptions of feedback to understand local application of an educational theory or intervention

Create a Literature Map

The map provides a visual summary of your literature review. Set it up however is most helpful to you. 2 types are:

- Flow Chart
- Hierarchical structure

Reference


Notes

Think about whether your study will involve ______ and how to address these:
- Confounding variables
- Limitations
- Implications
- Control variables
- The need to address validity or reliability standards

Other questions or issues?
Sample of a Literature Review Map

Constructive Feedback in Medical Education

**Studies Defining Feedback**

- Studies or Meta Analyses
  - Describe behaviors, conditions or factors that people find “helpful” or “constructive”, or not; AND
  - Offer statistical analysis of significance of factors

**Studies or Meta Analyses**

- Understand WHAT it is & HOW it has been studied

| Qualitative Studies | Quantitative Studies | Mixed Methods Studies |

**Specific Feedback Models**

- Studies that Describe / Explain / Compare specific models or approaches to Feedback, without regard to educational setting

**Feedback Models used in Medical Education**

- Which ones
- How are they used
- Which settings
- Identify studies regarding settings/models similar to the one you propose to study

**Outcomes Studies RE: Feedback Model(s)**

- What are the advantages & disadvantages with respect to outcomes for learners and educators

| Single model studies | Comparative model studies |

**Questions a Lit Review Might Raise**

- Were there any flaws in the methodologies used? Limitations?
- How were these addressed?
- How do these studies inform your choice of methods?
- How will you address challenges or limitations?

**Questions a Funds of Knowledge Review Might Raise**

- Which feedback model is used or preferred in the setting you propose to study? Why?
- Will you study what is happening in relation to the ideal model? Or will you propose an educational “intervention” that uses the preferred model?
- Will you design a study that compares what’s being done with what the preferred model?
- What are the challenges with either design?
- How would you propose to address these?

**Funds of Knowledge Map**

What you know and need to know about local practices to address the specific research question

**Study Context & Local Practices**

- Which model, if any, do educators use in the local context
- How does the local context differ from contexts already studied?
- What training and/or self-directed learning have educators done locally?
- How are educators evaluated/assessed locally on feedback practices?

**The Gap!**

- What questions have not been asked or answered?
- What questions have been answered in part, using certain methods but not others, and could benefit from further explanation?
- Other questions?

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