Research and Scholarly Work in Health Sciences Education: How to Get Started

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Presentation Goals

Provide an overview to starting health sciences education research and scholarly work.

• Idea development
• Types of scholarly and research work
• Framework of methods used
OU HCOM CORE Research Office

- Research Education
  - 710 Students, 728 Residents, and Hospital Clinical Faculty; 3 campuses and 27 residency hospitals

- Methodological Consultation and Collaboration
  - Statistical, Editing, Dissemination, etc.

- Medical Education and Clinical Research
Goals of Medical Education Research

According to the April 2015 AAMC Primer Research in Medical Education, Medical Education Research aims to:

“address contemporary issues and questions in medical education;

design, evaluate, and support curricular innovations; and,

assess and reform the culture underlying medical education.”

Anu Atluru, Anil Wadhwani, Katie Maurer, Angad Kochar, Dan London, Erin Kane, and Kayce Spear. Research in Medical Education, A Primer for Medical Students. OSR Medical Education Committee, AAMC April 2015.
Ideas: What can be studied?

- Knowledge
- Performance
- Perception or Attitudes
- Model/Best Practices
- Change in Curriculum
- Processes
Guiding Principles

• Start Simple
• Collaboration
• Engage Trainees
• Keep the End in Mind
• Authorship
Possible Challenges

• Linking curriculum content and design to patient care and outcomes
• Randomization and sample size
• Changing the curriculum
• Funding

Idea Development

- Gaps in the literature
- Own experience and observation
- Feedback from trainees
Medical Education Scholarly Examples

**Special/Brief Communication**

**Commentary, Opinions, Editorials**

**Twelve Tips**

**Reviews**
Medical Education Research Examples


Research Steps

1. Refine the Study Question
2. Identify Designs and Methods
3. Select Outcomes

Idea Development for Research

**Feasible**-logistics--population- sample size, etc.

**Interesting**-will it change practice?

**Novel**-new addition to medical knowledge?

**Ethical**-risk to benefit ratio; participants in harm’s way?

**Relevant**-clinical/educational importance

Overview of Research Approach

• **Quantitative**- involves a hypothesis and research design.

• **Qualitative**- “Answer questions about how learners and teachers make sense of complex learning environments, relationships and outcomes.”


• **Mixed Methods**- is a process of combining two or several tools to obtain customer information.
Qualitative Research Framework

• Framework
  – Ethnography- examination of cultures
  – Phenomenology- explaining experiences and occurrences
  – Grounded Theory- formulation of a theory from data

• Methods
  – Interviews and Focus Groups
  – Observations and Review of Documents

Case 1. Learnings from Anatomy

**Goal:** To determine relevant, positive learning opportunities to enhance the skills and attitudes of future doctors.

Sample Excerpts

Need to respect the body
“I think you just have to, you have to treat it [the cadaver] with respect; you have to ... I think the main thing is that you do feel, actually, a great deal of gratitude to the person and their family for letting you do that.” (Year 1 student)

Psychological preparation through desensitization
“Because you’ve never seen one [a dead person]; you don’t know how to act towards it, but yet, you know, you’re just using it as a piece of meat to, like, learn your way around the human body. and I think it’s incredibly useful: it teaches you to work with people because you work in a group.” (Year 5 student)
Learnings

Dissection has the potential to widen the spectrum of learning outcomes that are linked to important skills and attitudes.
Case 2. Fill Curriculum Gap in Medical Education

**Goal:** Determine research perception and needs of medical trainees.

Case 2. Mixed Methods Process Flow

Literature Review
Internal Information

Focus Groups:
1) Residents
2) First and Second Year Students
3) Third and Fourth Year Students

Preliminary Survey

Experts

Final Survey
Focus Group Moderator Question Guide

• Thoughts and perception about research
• Barriers and Needs
• Importance of research and research involvement
• Prior and current research experiences
Focus Group Findings

- They all have varied opinions on bench vs clinical research.

- They think actually doing research is an important part of medical school as well as reading current journal literature.

- Communication on course requirements and funding for more research oriented degrees is a problem. Other barriers to doing research as students are variety in research topic, time, and lack of professors advertising their research.
Experts’ Role

• Provided feedback on the survey questions based on experience
  
  – Language
  – Content
## Final Research Construct Items

<table>
<thead>
<tr>
<th>Factor/Component</th>
<th>Sample Items</th>
<th>Reliability</th>
</tr>
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</table>
| **1. Research needs/attitudes** | 1. Research is an activity I am interested in.  
2. It is important for me to have the skills needed to design a research study.  
3. It is important for me to be able to formulate a research question. | .899        |
| **2. Research climate** | 1. Research projects to collaborate on are easily accessible.  
2. I feel the climate at my facility is research friendly. | .876        |
| **3. Research skills** | 1. I can write a good single-case report.  
2. I can design and implement a retrospective research study.  
3. I can design and implement a prospective research study. | .812        |
Case 2 Conclusions

• Students and residents have positive overall research perceptions but students generally have a higher positive research attitude, more needs and less skills (p< .01).

• The identified constructs have allowed us to focus our resources and initiatives.
Case 3. Residency Directors Training Program

**Goal:** Determine Effect on Knowledge and Skills

Pre- and Post- Test

• Designed a curriculum

• Measured knowledge and skills in administration (Likert scale: 1=strongly agree; 5= strongly disagree).

• Non-parametric test
Results of the Wilcoxon Signed Rank Test on the 10 Content Cluster Areas

<table>
<thead>
<tr>
<th>Cluster Area</th>
<th>Median*</th>
<th></th>
<th>p value</th>
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<tr>
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<td>2</td>
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<tr>
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<td>1.7</td>
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<tr>
<td>Understanding the Millennial Residents</td>
<td>2.5</td>
<td>1</td>
<td>0.005</td>
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<tr>
<td>Selecting Residents that Fit the Program</td>
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<td>1.2</td>
<td>0.005</td>
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<tr>
<td>Preparing for Program Internal Review, Program Inspection, and Writing a Corrective Action Plan</td>
<td>2.9</td>
<td>1.8</td>
<td>0.005</td>
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<tr>
<td>Legal Issues in Residency Training</td>
<td>2.8</td>
<td>1.1</td>
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<td>Teaching Role of the Residency Director</td>
<td>2.3</td>
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<tr>
<td>Managing Time, Meetings, and Conflict</td>
<td>2.4</td>
<td>1.1</td>
<td>0.005</td>
</tr>
<tr>
<td>The Art of Delegation and Negotiation</td>
<td>2.8</td>
<td>1.7</td>
<td>0.028</td>
</tr>
<tr>
<td>Mentoring/Coaching</td>
<td>2.8</td>
<td>1.5</td>
<td>0.008</td>
</tr>
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</table>

* Likert scale: 1=strongly agree; 5= strongly disagree
Case 3 Conclusion

Statistically significant improvements were found in the osteopathic residency directors’ self-reported administrative knowledge and skills after participation in the RD RAP.
Thank You!