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.

IAMSE

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

Murray, E., 2002. Challenges in educational research. Medical education, 36(2), pp.110-112.

Idea Development

- Gaps in the literature
- Own experience and observation
- Feedback from trainees

Medical Education Scholarly Examples

Special/Brief Communication

Lucander, H., Knutsson, K., Salé, H., & Jonsson, A. (2012). "I'll Never Forget This": Evaluating a Pilot Workshop in Effective Communication for Dental Students. *Journal of dental education*, *76*(10), 1311-1316.

Commentary, Opinions, Editorials

Norman, G. (2015). Identifying the bad apples. Advances in Health Sciences Education, 20(2), 299-303.

Twelve Tips

Gullo, C., Ha, T. C., & Cook, S. (2015). Twelve tips for facilitating team-based learning. *Medical Teacher*, (0), 1-6.

Reviews

Toronto, C. E., & Weatherford, B. (2015). Health Literacy Education in Health Professions Schools: An Integrative Review. *Journal of Nursing Education*, *54*(12), 669-676.

Medical Education Research Examples

Rdesinski, R. E., Chappelle, K. G., Elliot, D. L., Litzelman, D. K., Palmer, R. T., & Biagioli, F. E. (2015). Development and Use of an Instrument Adapted to Assess the Clinical Skills Learning Environment in the Pre-clinical Years. *Medical Science Educator*, 1-7.

Lee, A. S., Chang, L., Feng, E., & Helf, S. (2014). Reliability and validity of conversion formulas between comprehensive osteopathic medical licensing examination of the United States level 1 and United States medical licensing examination step 1. Journal of graduate medical education, 6(2), 280-283.

Research Steps

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

Beckman, T. J., & Cook, D. A. (2007). Developing scholarly projects in education: a primer for medical teachers. *Medical teacher*, *29*(2-3), 210-218.

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

Newman, T. B., Browner, W. S., Cummings, S. R., & Hulley, S. (2001). Designing studies of medical tests. *Designing Clinical Research. 2nd ed. Philadelphia: Linppincott, Williams & Wilkins*, 175-193.

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."

  Hanson, J. L., Balmer, D. F., & Giardino, A. P. (2011). Qualitative research methods for medical educators. Academic Pediatrics, 11(5), 375-386.

- **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

Hanson, J. L., Balmer, D. F., & Giardino, A. P. (2011). Qualitative research methods for medical educators. Academic Pediatrics, 11(5), 375-386.

Case 1. Learnings from Anatomy

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

Lempp, H. K. (2005). Perceptions of dissection by students in one medical school: beyond learning about anatomy. A qualitative study. *Medical Education*, *39*(3), 318-325.

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

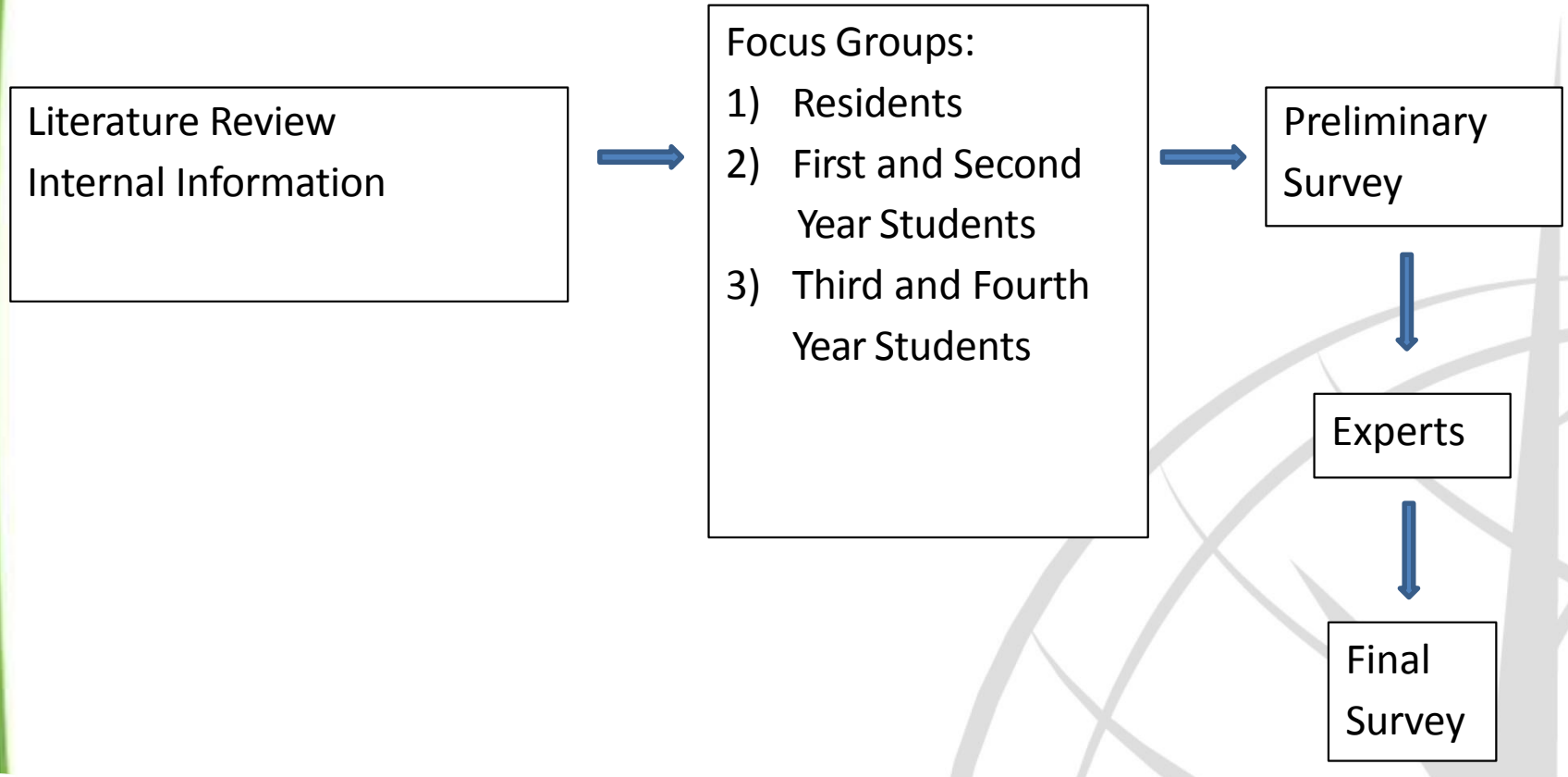
Dissection has the potential to widen the spectrum of learning outcomes that are linked to important skills and attitudes.

Case 2. Fill Curriculum Gap in Medical Education

Goal: Determine research perception and needs of medical trainees.

Brannan, G. D., Dogbey, G. Y., & McCament, C. L. (2012). A psychometric analysis of research perceptions in osteopathic medical education. *Medical Science Educator*, *22*(3), 151-161.

Case 2. Mixed Methods Process Flow



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

Factor/Component	Sample Items	Reliability
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

Sheehan, O. O., & Brannan, G. (2013). Ohio Osteopathic Residency Directors' Self-Reported Administrative Knowledge and Skills Before and After Participation in an Administrative Training Program. *The Journal of the American Osteopathic Association*, *113*(4), 290-295.

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

Cluster Area	Median*		p value
	Pre	Post	
Overview (Role of Program Directors, Personality, and Professional Development)	2	1.2	0.011
Leading in a Sea of Change	2.7	1.7	0.005
Understanding the Millennial Residents	2.5	1	0.005
Selecting Residents that Fit the Program	2.5	1.2	0.005
Preparing for Program Internal Review, Program Inspection, and Writing a Corrective Action Plan	2.9	1.8	0.005
Legal Issues in Residency Training	2.8	1.1	0.007
Teaching Role of the Residency Director	2.3	1.3	0.021
Managing Time, Meetings, and Conflict	2.4	1.1	0.005
The Art of Delegation and Negotiation	2.8	1.7	0.028
Mentoring/Coaching	2.8	1.5	0.008

*** 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!