Clinician Educator Career Development Workshop

Medical Education Research

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Speaker Disclosure

• The speaker has nothing to disclose
Learning Objectives

• Describe ideas for potential health sciences education research
• Explain four of the six steps of the scholarly process described by Glassick, et.al.
• Identify your next 1-2 steps to implement your research ideas
Contributing to the current body of knowledge

Drawing on the current body of knowledge
Research:
A systematic, scholarly approach to solving problems.
Four categories of Educational Scholarship

- Scholarship of **discovery**
  - Research
- Scholarship of **integration**
  - connects across disciplines and contextualizes
- Scholarship of **application**
  - Engagement; connections between research and practice
- Scholarship of **teaching**
  - Teaching and learning
What makes an activity scholarly work?

• Discuss with your neighbor the properties of a scholarly piece of work.
There are six criteria for Scholarly work - Glassick, et.al., 1997

- **Clear Goals**: Stated purpose, realistic objectives, important questions
- **Adequate preparation**: Understanding of the literature, appropriate skills, needed resources
- **Appropriate methods**: choice of methods that match goals, effective use and flexible application of methods
- **Significant results**: goals are achieved, results are important, field is advanced
- **Effective presentation**: presentation well organized, forums appropriate, message clear and sound
- **Reflective critique**: work critically evaluated, support6e with good evidence, evaluation used to improve future studies.

Criteria for Scholarly Work

1. Clear Goals
2. Adequate Preparation
3. Appropriate methods
4. Significant results
5. Effective presentation
6. Reflective critique
What problems/question(s) do you have related to your learners?

• Who are your learners?
  • Trainees – medical students, residents, fellows
  • Colleagues – physicians, nurses, other staff
  • Patients

• Take 2 minutes to write down any questions you may have about your learners.

• Share one with a neighbor
  • why you are interested in the answer to this question.
What learners are you primarily interested in studying?

A. Medical students  
B. Residents  
C. Fellows  
D. Colleagues  
E. Patients
Criteria for Scholarly Work

1. Clear Goals

2. Adequate Preparation

3. Appropriate methods:

4. Significant results:

5. Effective presentation

6. Reflective critique
Adequate preparation involves searching the literature

• Where is the education literature?
• What are some medical education journals?
  • AAMC Annotated list
• Academic Medicine - AM Last Page
  • http://journals.lww.com/academicmedicine/pages/collectiondetails.aspx?TopicalCollectionID=6
  • http://journals.lww.com/academicmedicine/Fulltext/2011/08000/AM_Last_Page__How_to_Perform_an_Effective_Database.31.aspx
• Medical Teacher – AMEE Guides
  • Medical Education Scholarship: An Introductory Guide, 2014
• MedEdPortal - https://www.mededportal.org/
Education research is messy

• Lots of factors influence learning
  • The learner
  • The material
  • The teacher
  • The environment
Theory Drives Education Research
Forces and factors in developing the master learner.

Competency-based medical education
- built on learner as driving force in educational process
- requires

Lifelong learning skill development
- Novice learner → Master learner

Self-directed learning skills

Self-assessment Skills
- influence
- inform
- impact
- calibrate

Self-concept
Self-efficacy
Illusory superiority
Self filling of knowledge gaps

Self-determination theory
(desire)

Cognitive load theory
(ability)

View of environment from situated cognition theory
(optimal context)

Reflection
- Self-monitoring
- External information seeking
- Self-directed assessment seeking

Developing the Master Learner: Applying Learning Theory to the Learner, the Teacher, and the Learning Environment
Schumacher, Daniel J.; Englander, Robert; Carraccio, Carol
Criteria for Scholarly Work

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# Education Methods include both Qualitative and Quantitative Parameters

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Quantitative Research</th>
<th>Qualitative Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Nature</td>
<td>Objective approach to seek precise measurement in numerical form</td>
<td>Subjective approach to seek in-depth description in narrative form</td>
</tr>
<tr>
<td>Knowledge of Study Variable</td>
<td>Variables are clearly understood &amp; defined in advance by the researcher</td>
<td>Researcher may have only rough idea about variables in advance</td>
</tr>
</tbody>
</table>
Basic Experimental Design

• X=intervention, O=observation

• Posttest only
  • X - - O

• Pretest-Posttest
  • O - -X- - O

• Crossover Design
  • O - -X- - O- - - - -O
  • O- - - - -O - -X - - O

• No control group → can not conclude causation, only correlation
Select appropriate method(s)

• Discuss with your neighbor methods that can be used in education research.
Refine your question

F - feasible
I - interesting
N - Novel
E - Ethical
R - Relevant
Criteria for Scholarly Work

1. Clear Goals
2. Adequate Preparation
3. Appropriate methods
4. Significant results

5. Effective presentation

Academic Medicine - Review Criteria for Manuscript

6. Reflective critique
What is your next step?

A. Clear Goal
B. Adequate preparation
C. Appropriate Method(s)
D. Submit IRB
Medical Education Resources

- **MedEdPortal DREAM: Directory and Repository of Educational Assessment Measures** ([https://www.mededportal.org/about/initiatives/dream](https://www.mededportal.org/about/initiatives/dream)
- Cook D. Twelve tips for getting your manuscript published. *Medical Teacher*. 2015
Relevant AM LastPage articles


Conclusions

• Consider “problems” in your education setting to identify scholarly projects.
• Use a systematic approach –
  • Glassick’s Six Criteria for Scholarly Work
• Familiarize yourself with the education literature