Medical Education Fellowship
Part II Syllabus
Spring 2010

Faculty:

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Center for Educational Development and Research
David Geffen School of Medicine, UCLA
## Medical Education Fellowship II: Schedule-at-a-glance

<table>
<thead>
<tr>
<th>DATE</th>
<th>TOPIC</th>
<th>Instructor</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session 1</td>
<td>Feb 22 Getting started with educational scholarship</td>
<td>Sebastian Uijtdehaage</td>
<td>1540 LRC</td>
</tr>
<tr>
<td>Session 2</td>
<td>Mar 8 Finding and organizing literature with electronic databases</td>
<td>Rikke Ogawa</td>
<td>Biomed Library Classroom 1st floor</td>
</tr>
<tr>
<td>Session 3</td>
<td>Mar 22 The basics of educational research</td>
<td>Paul Wimmers</td>
<td>1540 LRC</td>
</tr>
<tr>
<td>Session 4</td>
<td>Apr 5 Designing an assessment instrument</td>
<td>Sebastian Uijtdehaage</td>
<td>1540 LRC</td>
</tr>
<tr>
<td>Special Session</td>
<td>Apr 12 Anticipating, eliciting and interpreting physical findings: A hypothesis driven physical exam</td>
<td>Georges Bordages</td>
<td>NRB Auditorium</td>
</tr>
<tr>
<td>Session 5</td>
<td>Apr 19 Creating effective multiple choice questions and surveys</td>
<td>Sebastian Uijtdehaage</td>
<td>1540 LRC</td>
</tr>
<tr>
<td>Session 6</td>
<td>May 3 Making sense of analyzing quantitative data</td>
<td>Paul Wimmers,</td>
<td>TLC Classroom 2nd floor Biomed Library</td>
</tr>
<tr>
<td>Session 7</td>
<td>May 24 Collecting and analyzing qualitative data</td>
<td>Sebastian Uijtdehaage</td>
<td>1540 LRC</td>
</tr>
<tr>
<td>Session 8</td>
<td>June 7 Navigating the IRB at UCLA</td>
<td>Wendy Brunt, Alison Orkin, Michelle Vermillion</td>
<td>1440 LRC</td>
</tr>
<tr>
<td>Session 9</td>
<td>June 21 Presentation of study proposals</td>
<td>MEF Fellows</td>
<td>1540 LRC</td>
</tr>
</tbody>
</table>
Objectives:

Building on Part I of the MEF, the second part of the MEF will focus on preparing a scholarly project in education such as, but not limited to, conducting a curriculum evaluation study appropriate for publication in academic journals or presentation at professional meetings.

Upon completion of the fellowship, you will be able to demonstrate the following competencies:

1. Identify opportunities to transform educational activities into educational scholarship
2. Determine what documentation is needed to support scholarship and plan accordingly
3. Formulate a valid and feasible research question.
4. Find literature that is relevant to your research question and informs the design of your curriculum and your research study.
5. Operationalize the research question in measurable terms and generate testable hypotheses.
6. Choose an appropriate qualitative or quantitative research design and sampling strategy.
7. Choose or develop appropriate data collection methods.
8. Develop a reliable and valid assessment, knowledge test, or survey instrument.
9. Recognize and avoid common statistical mistakes in research papers
10. Identify issues that impact the fair treatment of human subjects and prepare an application for review by the IRB.
11. Prepare a dataset for analysis and interpret basic statistical terms, such as power, p-value, and t-test
12. Appreciate the difference between qualitative and quantitative research studies and data analysis
13. Create an effective poster presentation
14. Prepare a manuscript for publication
15. Prepare a comprehensive plan for an educational scholarly project

Research Project

To complete the Medical Education Fellowship, you will design and carry out your own scholarly project. Projects might include, but are not limited to evaluation of educational interventions, descriptive studies of learning or problem-solving, survey research, or the development of an educational innovation suitable for peer review. The study may employ qualitative and/or quantitative research methods. Study proposals will be presented at the last seminar (June 21, 2010).

In the year following the seminar series you are expected to carry out the proposed project. You will meet periodically with MEF faculty advisors who are available for consultation and assist throughout your research project. The objective is to achieve educational scholarship that is suitable for peer-reviewed publication, including MedEdPortal. Fellows may collaborate on one project.

TEXTBOOK

Jack R. Fraenkel and N E. Wallen: How to Design and Evaluate Research In Education

SOFTWARE

EndNote version X3. By Thompson. Available at the UCLA Computer Store at discounted price for UCLA faculty.
SESSION 1

Getting started with educational scholarship

Feb 22, 2010
Discussant: Sebastian Uijtdehaage, PhD

Overview

1. Objectives of MEF part II
2. Educational Scholarship
3. Introduction to research process
4. Formulating a research question
5. Introduction to a blog to document the process of developing a scholarly project in medical education

Objectives

After this session, you will be able to
1. Describe the objectives of MEF part II
2. Identify the steps involved in research
3. Define educational scholarship
4. Formulate a feasible research question
5. Use the blog to document the process of developing a scholarly project

Required reading


Recommended reading

SESSION 2

Finding and organizing literature with electronic databases

March 8, 2010
Guest instructor: Rikke Ogawa

NOTE: LOCATION BIOMEDICAL LIBRARY MEDIA CLASSROOM, 1st floor.

Overview

1. Searching for literature that is relevant to your research question using online resources
2. Identifying the most relevant journals
3. Managing citations with EndNote

Objectives

After this session, you will be able to
1. describe the role and importance of literature review in the research process
2. find important online resources on medicine and medical education using PubMed, Web of Science, Eric and PsychInfo databases
3. identify and search electronic journals
4. develop effective search strategies
5. manage your citations/bibliography with EndNote

Suggested readings

Fraenkel and Wallen: Chapter 5 “Review of Literature”

Assignments

1. Create a blog at http://wordpress.com/ where you identify one or more of educational activities that lend themselves for scholarship. Explain your choice.
2. Given your preliminary list of educational activities, write down keywords, the issues, and questions you would like to research in the literature. Add these to your blog and bring a list to class.
3. Send URL of your blog to other MEF Fellows.
4. Purchase and install EndNote
Overview

1. What is scientific thinking in educational research?
2. Variables and their relationships
3. Reliability and validity
4. Methods for collecting data

Objectives

After this session, you will be able to
1. Apply your scientific thinking skills to educational scholarship
2. Identify independent, dependent, moderating and confounding variables.
3. Understanding the concept of reliability and validity.
4. Able to document the quality and quantity of your educational activity

Required readings

Fraenkel and Wallen: Chapter 8 “Validity and Reliability”; Chapter 15 “Correlational Research”

Assignments (to be posted on your blog)

1. Determine what evaluation is currently done of your educational activities, if any (e.g., as part of the School’s course evaluation). Document these on your blog.
2. Add to your blog what additional quality measures would you like to add in order to meet the criteria of scholarship?
SESSION 4

Designing an assessment instrument

April 5, 2010
Discussant: Sebastian Uijtdehaage, PhD

Overview

1. Choosing or developing an appropriate assessment instrument

Objectives

After this session, you will be able to

1. Operationalize outcome variables for your study.
2. Develop an assessment instrument
3. Determine reliability and validity of an instrument

Required reading

Fraenkel and Wallen: Chapter 11 "Instrumentation",

Assignments

1. Enumerate the outcomes (objectives) of your curriculum or educational activity
2. Specify how you intent to measure each outcome. Note that this may overlap with the previous assignment.
3. Post your ideas on your blog
SESSION 5

Creating effective multiple choice questions and surveys

April 19, 2010
Discussant: Sebastian Uijtdehaage, PhD

Overview

2. Choosing or developing an appropriate assessment instrument

Objectives

After this session, you will be able to

4. Create high-quality M/C questions that assess skill in interpreting data and making decisions
5. Construct clinical vignette questions that require application of knowledge.
6. Avoid common technical item flaws
7. Develop effective survey questions

Required reading

Fraenkel and Wallen: Chapter 11 “Instrumentation”,

Assignments

1. For those of you who plan to administer a survey among learners, draft a small set of questions and post to your blog
2. For those of you who plan to measure knowledge acquisition among learners, draft three multiple choice ("best answer" questions) and post to your blog
SESSION 6

Making sense of analyzing quantitative data

May 3, 2010
Discussant: Paul Wimmers, PhD

NOTE: LOCATION TLC CLASSROOM BIOMED LIBRARY 2nd FLOOR.

Overview

1. Analyzing quantitative data
   a. Measurement Scales
   b. Basic statistical terms and tests
   c. Power/p-value
2. Interpreting the results of statistical analyses
3. Recognizing and avoiding statistical pitfalls.

Objectives

After this session, you will be able to
1. Recognize different measuring scales
2. Calculate mean, median, variance and standard deviation using Excel
3. Interpret basic statistical tests and understand the meaning of p-values
4. Explain statistical power
5. Recognize common statistical mistakes in scientific papers and know how to avoid them

Required reading


Suggested readings

SESSION 7
Collecting and analyzing qualitative data
May 24, 2010
Discussant: Sebastian Uijtdehaage, PhD

Overview

1. Collecting and analyzing qualitative data.
2. Preparing a study proposal

Objectives

After this session, you will be able to
1. Appreciate the nature of analyzing qualitative data
2. Adequately prepare your research proposal and presentation (last session)

Required reading

Fraenkel and Wallen (2005): Chapter 18 “The nature of qualitative research”

Assignments

Get started with your final presentation. Post an outline on your blog.
Overview

1. Protecting your research subjects
2. Meeting the Human Subjects Protection Committee’s requirements
3. Distinguishing the difference between routine curriculum evaluation and research
4. Improve preparation of a manuscript
5. Review a medical education research manuscript

Objectives

After this session, you will be able to

1. Define factors that impact the fair treatment of human subjects
2. Explain when your protocol is exempted from IRB review
3. Apply for an IRB review of your proposed research study
4. Complete the online HSPC certification.
5. Prepare and review a medical education manuscript

Required readings (pick one of the following)

1. If available: Reed DA, Cook DA, Beckman TJ etc. Reliability of a method for measuring medical education research study quality. JGIM (in press).
5. Welch HG. Preparing manuscripts for submission to medical journals: The paper Trail (J Cancer Education: 2006;4;201-206

Assignments (to be posted on Angel prior to this session)

1. Register for the online certification program (http://training.arc.ucla.edu/ucla)
2. Complete the certification process
3. Bring certificate to this session.
Final presentations

In this session each fellow will present a plan for his or her scholarly project. Below are the suggested components of your presentation.

1. Introduction
   - Introduction to topic area and problem statement *
   - Very brief discussion of what is already known in your area of research and what is still lacking
   - Conceptual framework (see Beckman and Cook, 2007)
   - Research question*

2. Method
   - Description of your sample method and sample size *
   - Research design *
   - Description of the measurement instruments. Will you use existing instruments or will you create your own? *
   - Type of data and outcomes.
   - Data analysis: how do you plan to analyze the data?
   - Discussion of the feasibility of your study: How long will your study take? What resources (personnel, space, equipment/instruments, services, etc.) are needed? *
   - Address any ethical issues, if needed.

3. Potential impact of your study
   - Describe the implications of the expected outcomes of your study. What are the implications for education and/or practice?
   - What are the limitations of your study? *
   - What journal might be interested in your study?

* You are strongly suggested to include these items.