Research in Continuing Professional Education: How to Design It and Get It Published

Virginia (Ginger) G. Scott, Ph.D.
Nancy Fjortoft, Ph.D.
Joseph DiPiro, Pharm.D.
Learning Objectives

• Outline the steps necessary to develop a research project in continuing professional education.

• Identify factors that will either impair or enhance the opportunity to have a research project published.
How to Design A Research Study

Virginia (Ginger) G. Scott, Ph.D.
Conceptualizing Research
Operationalizing Research
Purpose of Research Design

• Provide answers to research question

• To control for variance
Criteria for Research Design

• Answer research question
• Control of extraneous independent variables
• Generalizability
• Internal and external validity
Research Designs

• Descriptive

• Explanatory
  – Experimental/Non-experimental
  – Case Study
  – Longitudinal
  – Cross sectional
Methods

• Sample
• Data Collection
• Data Analysis
Sample

• Sampling

• Sample Size
Data Collection: Quantitative

• Structured Interviews
• Self-reports
• Content Analysis
• Clinical/biophysiological data
Data Collection: Qualitative

• Personal interviews
• Focus groups
• Unstructured observation methods
Data Collection: Mix Methods
Data Analysis

- Quantitative
- Qualitative
Results
Discussion, Limitations, Conclusions
References


The Scholarship of Continuing Pharmacy Education

Nancy Fjortoft, Ph.D.
Dean and Professor
Midwestern University
Chicago College of Pharmacy
The Ps to Publishing

- Planning
- Partnering
- Persistence
Planning

- Program development
- Assessment and evaluation
- Budgets
Planning: Program Development

• Define your learning outcomes
  – Knowledge activity
    • Transmit knowledge, facts based on evidence
  – Application activity
    • Apply information learned in time frame allotted
  – Practice-based activity
    • Instill, expand, enhance practice competencies through systematic achievement of specified knowledge, skills, attitudes, and performance behaviors.

www.acpe-accredit.org/ceproviders/CPProviders.asp
Planning: Program Development

• What is interesting or novel about my program?
  – New area of learning?
  – New teaching technologies or innovations?
  – Can I compare outcomes between groups?
    • Practice setting of participant
    • Interprofessional programs: examine group differences
Planning: Program Development

• The impact of CPE on learning
• The impact of CPE on health outcomes
  – Patient dimensions
    • Economic
    • Clinical
    • Satisfaction and quality of life
• The impact of CPE on practice change.
  – New services implemented as a result of CPE
Planning: Assessment and Evaluation

• Assessment of student learning
  – Knowledge: test questions
  – Application: solve a patient case, demonstrate a skill
  – Practice: integrated long term activity that involves multiple skills, knowledge, attitudes
# Planning: Assessment and Evaluation

<table>
<thead>
<tr>
<th>Activity</th>
<th>Activity Purpose</th>
<th>Learning Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>Transmit knowledge</td>
<td>Questions/recall of facts</td>
</tr>
<tr>
<td>Application</td>
<td>Apply information</td>
<td>Case studies/application of principles</td>
</tr>
<tr>
<td>Practice</td>
<td>Instill knowledge, skills, attitudes</td>
<td>Formative and summative</td>
</tr>
</tbody>
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[www.acpe-accredit.org/ceproviders/CPProviders.asp](http://www.acpe-accredit.org/ceproviders/CPProviders.asp)
Planning: Assessment and Evaluation

• Evaluation of Teaching
  – New technologies
  – New organization/presentation of content
  – Interactive activities

• Overall Program Evaluation

• Evaluation of new administrative processes or systems
Planning: Budget

• Budget for your scholarship
• Program budget or departmental funds and resources
  – Consider your time
  – Consider external resources
    • Students for data input
    • Statistical consultants
  – Consider travel
  – Consider participant incentives

AACCP Annual Meeting
Partnering

- Discuss scholarship and the goal of publication with your faculty presenters within the program
- Discuss scholarship with the goal of publication with your colleagues
- Establish timelines, areas of responsibility, order of authorship
- Consider external resources
Sample Project 1

- Two independent groups, randomly assigned
- One intervention group, one control
- Intervention
  - Educational technology
- Post-test time 1, post-test time 2

Control → Time 1 → Time 2

Experimental → Time 1 → Time 2

AACP Annual Meeting
Analysis

- Student t test to examine between group differences in quiz score
- Paired t test to examine within group differences in quiz score
Considerations and Limitations

• IRB approval
• Plan for matching time 1 and time 2 data
• Plan for keeping groups separate but equal
• History and maturation
Sample Project 2

• One group
• Time 1 and Time 2
• Intervention
  – Commitment to Change

Fjortoft NF. The Effectiveness of Commitment to Change Statements on Changing Practice after Continuing Pharmacy Education. Amer J of Pharm Educ. 2007;71(6) Article 112.
Analysis

• Descriptive statistics
Considerations and Limitations

• IRB approval
• Appropriate length of time to implement change
• Self-reported data
• Social desirability
Sample Project 3

- One group
- Time 1, Time 2, Time 3
- Intervention: the program
- Outcome: learning

Fjortoft NF. Learning outcomes and behavioral changes with a pharmacy Continuing professional education program. Amer J Pharm Ed 2006:70(2) Article 24.
Time 1
Pre-test at the beginning of the program

Time 2
Post-test at the end of the program

Time 3
8-13 months after the program
Analysis

• Repeated measure ANOVA preferred
• Due to loss of sample size, two paired t tests were used
Considerations and Limitations

- Participant drop off
- No control group
- Veracity of Time 3 data as it was taken home test
- Time between Time 2 and Time 3
- Incentives
Getting ideas

• Read the literature
• Copy studies done in medicine
• Test your innovations
• Case studies
• Qualitative studies
Limitations of Educational Research

• The Program
  – Can you incorporate a control group?

• The Environment
  – Variability in participants’ practice areas, how does this impact learning or practice change?

• The Student
  – Variable levels of motivation and skills
Persistence
*The Final P to Publishing*

- Make a timeline
- Write an abstract
- Write a poster
- Pick your journal carefully
- Write your manuscript
Getting Your Scholarship Published
- An Editor’s Perspective -

Joseph T. DiPiro, PharmD
Editor, American Journal of Pharmaceutical Education
Example CPE Publications

- DeMuth JE, Hanson AL. Validation of a Formula for Assigning Continuing Education Credit to Printed Home Study Course. AJPE. 2007; 71 (6) Article 121.
- Tofade T, et al. Use of SMART Learning Objectives to Introduce Continuing Professional Development Into the Pharmacy Curriculum. AJPE. 2012; 76(4) Article 68
Criteria to Judge New Publication Ideas

- Is it useful for your intended readers?
- Does it meet a need?
- Is it timely?
- Does it have sufficient substance?
- Does it contribute something new?
- Is it high quality?
Publishing Your Educational Scholarship

• Create and design your program at the start with a mind toward publication
• Know the literature
• Identify a clear educational objective
• Understand state-of-the-art methods to address the objective
  – Plan your data collection
Common Issues with AJPE Submissions

- Unclear objectives
- Perceptions versus direct measures of learning
- Survey method response rates
- Descriptive versus evidence based
- Unclear contribution to the literature
Updated Guidelines for Manuscripts Describing Instructional Design and Assessment: The IDEAS Format

Therese Poirier PharmD, MPH, Michael Crouch PharmD, George MacKinnon PhD, Reza Mehvar PhD, and Mary Monk-Tutor PhD
AJPE, 2009, Issue #3, Article 55
Questions for Reviewers

• Is the topic of the manuscript appropriate for the Journal?
• Is the information of significant interest to the readers?
• Is the title accurate and sufficiently descriptive of the content?
• Is the purpose or objective clearly stated?
• Are the methods appropriate and scientifically sound?
• If a manuscript is based on data, do the data represent an adequate population and is a valid statistical justification included to support the conclusions?
• If the manuscript is descriptive of educational theory, content, or processes, is the information new to the majority of Journal readers?
Questions for Reviewers

• If the manuscript describes a new laboratory or classroom demonstration, or a novel method of instruction, does it include examples for teaching purposes?
• Are appropriate statistical tests used?
• Are the conclusions supported by the data presented?
• Are the tables and figures well designed and add to understanding of the text?
• Is information in the tables and figures redundant?
• Are the references cited the most appropriate to support the manuscript?
• Should the manuscript be shortened?
Applies to: manuscripts that describe and evaluate instructional design; new courses, parts of courses, integration of selected competencies across the curriculum (e.g., service learning, critical thinking, communication), assessment of instructional outcomes, and the use of technologies and new delivery methods.
Good Advice

• Seek input from education or methods experts
• Look at your manuscript from the perspective of reviewers
• Have someone read your drafts who will tell you the truth (even when it hurts)
• Contact the Editor with questions
Activity Learning Exercise