Meet the Editors 2.0:
The Top 10 Mistakes We Make In Med Ed Research

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Disclosures:

• No Funding Relevant to this Presentation
• Other disclosures: AHRQ Grant: Improving patient safety using Virtual Reality (VR) to train and assess emergency personnel responding to a mass casualty incident (MCI).
Acknowledgements

• Jeff Love
• Doug Ander
• Dave Way
Learning Objectives

By the end of this session, participants will be able to:

- Analyze outlets for Education Research in Emergency Medicine.
- Discuss the top 10 Mistakes Made in Medical Education Research as Identified by Editors from leading EM Med Ed Research Journals.
- Identify emerging or hot areas for research in EM Education.
Meet the Panelists

- Dave Wald, Med Ed Portal
A Workshop Combining Simulation and Self-Directed Learning to Teach Medical Students About Pneumonia

Abstract
We developed a 2-hour workshop to help teach second-year medical students about pneumonia. The session includes a simulation component to add a direct patient care experience to the workshop. In addition, we have integrated a group self-directed learning activity to further engage our students and transition to a student-facilitated rather than a traditional faculty-led session. This portion of the workshop allows students to work together in teams to solve an unknown case. Both experiences complement one another and enhance the learning experience along with promoting critical thinking.

The workshop has received positive evaluations from our students and has been repeated to achieve learning objectives. Most students view working as a team as a positive experience and favor a student-facilitated session. Because of the success of this workshop, we have modified others to follow a similar format.

Please see the end of the Educational Summary Report for author-supplied information and links to peer-reviewed digital content associated with this publication.

Introduction
In 2013, we developed a workshop as part of our microbiology block to help teach second-year medical students about pneumonia. We designed this workshop to incorporate both a simulation and an active (self-directed) learning experience. The simulation component is just one facet of the exercise and serves to augment the learning experience. In addition to helping bridge the basic science-clinical gap, the integration of simulation into this workshop serves to add a direct patient care component and puts a focus on a specific clinical condition. In our experience, introducing simulation is beneficial for the students even in the preclinical curriculum.13

Self-directed learning as a form of active learning in student-centered rather than the faculty-centered model employed in traditional lectures or large-group teaching. Freeman and colleagues offered a consensus definition of active learning: “Active learning engages students in the process of learning through activities and/or discussion in class, as opposed to passively listening to an expert. It emphasizes higher-order thinking and often involves group work.” This statement very concisely defines the paradigm shift in medical education as self-directed learning engages the students in the learning process, shifts the level of responsibility for learning towards the student, and allows faculty to serve in the role of facilitator rather than lecturer. As a teaching modality, self-directed learning has been shown to have a positive effect on learning outcomes in health professions education.

As defined by the Liaison Committee on Medical Education, self-directed learning involves students’ self-assessment of learning needs; independent identification, analysis, and synthesis of relevant information; and appraisal of the availability of information sources. Based on our experience with this and similar workshops we have developed, these sessions should help to promote critical thinking.13

Methods
Our workshop is held during our microbiology block in the second year of medical school. It is helpful to schedule the workshop to coincide with the basic science course work reviewing pneumonia and respiratory pathogens. We identified six clinical conditions that are incorporated into the workshop to further highlight this material and build on the students’ medical knowledge. These six clinical conditions are presented to the students as unknown cases.

- Case 1A: Community-acquired pneumonia
- Case 1B: Pneumocystis pneumonia
- Case 1C: Tuberculosis
Original purpose:

- Share peer reviewed instructional and assessment material
- Recognize teaching / educational efforts as scholarship

Educational material:

- Original
- Previously implemented
- Content and material
  - Product in addition to process
# Publishing Criteria

## Glassick’s – Standards

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Description</th>
<th>Educational Summary Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear goals</td>
<td>The author clearly states the educational objectives of the work.</td>
<td>- Educational Objectives</td>
</tr>
<tr>
<td>Adequate preparation</td>
<td>The author uses prior work (e.g., existing scholarship and personal experience) to inform and develop the work.</td>
<td>- Introduction</td>
</tr>
<tr>
<td>Appropriate methods</td>
<td>The author uses a suitable approach to meet the stated objectives of the work.</td>
<td>- Methods</td>
</tr>
<tr>
<td>Significant results</td>
<td>The author achieves the goals and contributes to the field in a manner that invites others to use the work.</td>
<td>- Results</td>
</tr>
<tr>
<td>Effective presentation</td>
<td>The author effectively organizes and presents the content of the work.</td>
<td>- Entire Submission (ESR + Appendices)</td>
</tr>
<tr>
<td>Reflective critique</td>
<td>The author thoughtfully assesses the submission to refine, enhance, or expand the original concept.</td>
<td>- Discussion</td>
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</tbody>
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Meet the Panelists

• Shannon Toohey, MD, MAEd
• Associate Program Director
• University of California, Irvine
• w: http://www.JETem.org
• e: stoohey@uci.edu
• Online, open access educational repository
• Peer-reviewed
• Submission categories:
  ▪ Curricula
  ▪ Innovations
  ▪ Lectures
  ▪ Oral Boards
  ▪ Podcasts
  ▪ Simulations
  ▪ Small group learning
  ▪ Team-based learning
  ▪ Visual EM Banks
Meet the Panelists

• Shahram Lotfipour, *Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health (WestJEM)*
  – with help from Jeff Love, Doug Ander and Dave Way
Special Issue from CDEM and CORD in Educational Research and Practice
WestJEM.org

- Online & print, open access
- Peer-reviewed
- Submission categories:
  - Original Research
    - Quantitative and Qualitative
  - Brief Research Report
  - Systematic Review
  - Educational Advances (Innovations)
  - Brief Educational Advances
WestJEM has been accepting educational advances since 2007 and we now have the CDEM/CORD educational issue

UME and GME more than ever requires outcomes based studies

Go beyond questionnaire, or skill education and demonstrate competency based skills performance

Consider validated pre-existing surveys and consider combining with national available data

For residency consider across sites, or collaborate for multi-residency or for medical student multi-year studies.
Meet the Panelists

- Susan Promes
• Original Contributions: manuscripts addressing a new question or problem in emergency medicine education and training; scholarship of discovery, integration and application relevant to emergency medicine; and reviews

• Brief Contributions: reports less than 1,500 words of original/novel educational scholarship relevant to emergency medicine education and training

• New Ideas in B-E-D-side Teaching: educational case reports

• Education Case Conference: diagnosis and discussion of a problem commonly encountered between teacher and learner or as part of faculty development

• Commentary and Perspectives: commentary, letters to the editor, perspectives, or opinions covering timely or important topics related to educational theory or advances that are relevant to emergency medicine

• Book/Media Reviews

• Canvas/Transitions: poetry, essays, creative photographs, original artwork, personal narratives; writings about transitions for med student/resident/fellow /attending/researcher

• Quarterly, peer-reviewed, online

First Issue—January 2017
Other Medical Education Venues for Scholarship
• Academic Medicine
• Clinical Teacher
• Medical Education
• Medical Science Educator
• Medical Teacher
• Teaching and Learning in Medicine
• Journal of Graduate Medical Education

• https://www.aamc.org/download/484206/data/annotatedbibliographyofjournalsforeducationalscholarship.pdf
Traditional Medical Journals*

- New England Journal of Medicine
- Lancet
- American Journal of Medicine
- Annals of Internal Medicine
- Journal of General Internal Medicine
- Academic Pediatrics
- Pediatrics
- Annals of Surgery
- JAMA Surgery
- Annals of Emergency Medicine
- Academic Emergency Medicine
- Mayo Proceedings
- Cureus

* = that publish medical education
Additional Medical Education Journals*

- #Medical Education Online
- International Journal of Medical Education
- MedEd PORTAL
- Journal of Continuing Education in the Health Professions
- #BMC Medical Education
- Education for Primary Care
- Perspectives in Medical Education
- #Journal of Medical Education and Curricular Development
- Advances in Health Sciences Education
- Best Evidence in Medicine (BEME)
- Canadian Medical Education Journal
- #Journal of Medical Education and Training

* = lower impact factor
# = open access
Mistake 1: Don’t Justify the Study

- Wald-”Insufficient educational context for the innovation.”
- Wald-”The submission does not contribute to the field.”
- Toohey- “Needs assessment is not appropriately addressed to allow proper instructional design.”
- Lotfipour-”Lack of an appropriate question that is answered by the study presented.”
Mistake 2: Incomplete Literature Review

- Promes- “Not doing a comprehensive lit search prior to embarking on a project”

- Lotfipour-” No conceptual framework for framing the research. This sometimes comes either from not knowing the literature at a sufficiently deep level (ignoring the literature outside of EM); or not being clear as to why the researchers initiated the research…except that they needed a publication.”

- Lotfipour-” Chose citations by looking at titles or abstracts without reading the article. This often leads to the selection of an inappropriate citation that does not sufficiently support the statement or assertion made in the article.”
Mistake 2: Incomplete Literature Review

• This should arise early in the development of the idea, as it then permits refinement (or abandonment) of the study in light of the evidence available.
• Doesn’t mean that studies shouldn’t be replicated.
Mistake 3: Study Design-Comparisons

- Lotfipour-”Use of Pre/Post Design”

- Study where class had a pretest, some instruction, then a posttest, and showed a large gain, you’ve compared something (after) to nothing (before).

- When you compare the class at the end of the year to its performance at the start of the year, you’ve compared something to nothing.

- A + B is always greater than A. Something + something else is greater than something alone.
Mistake 4: Study Design-Data

- Promes-”Not consulting with a statistician prior to embarking on a study.”
- Promes-“Not applying the appropriate methods for the question.”
- Toohey-”Educational content has not been piloted, evaluated and manuscript does not present results from that evaluation.”
- Lotfipour-”Some obvious ones are sample size, single center, no clear hypothesis, conclusions are not supported by data, poor survey design, significance of results, assessment tools that lack validity.”
Mistake 4: Study Design - Data

• Students don’t know what they know. Studies of self-assessment (Eva and Regehr 2005) have consistently shown that self-assessed abilities are uncorrelated with actual performance measures.

• Since this is the case, it makes no sense to use self-proclaimed achievement or satisfaction ratings as an outcome in a curriculum.
Mistake 5: Study Design-Not Generalizable

- Wald-”Submission is not generalizable to other institutions”
- Lotfipour-” not generalizable”
- Lotfipour-”Lack of understanding for how to produce a result that generalizes to others”
- “The only people who care about education of pediatric gerontologists in Lower Volga are pediatric gerontologists in Lower Volga”

Mistake 6: Study Design - Measurement

Lotfipour - “Issues with measurement…This usually involves the use of an instrument, like a survey that was not properly developed…i.e. Did not make an attempt to establish content validity through expert review and pilot testing, or response process validity through pilot testing.”
Mistake 7: Curricular Design is flawed

- Wald-"There is a mismatch between the educational objectives and the instructional content."
- Toohey-"Learning objectives are not covered in the content."
Mistake 8: Single Site Educational Innovation

Lotfipour-”I do think the greatest loss of opportunity given our culture of collaboration in CDEM and CORD, is sticking to single center and not involving other Universities.”
Mistake 9: Follow Instructions for Authors

• Lotfipour-”Authors don't thoroughly read the"guidelines to authors" resulting in a manuscript that falls short of expectations (i.e topics, word counts, structure).”

• Wald-”Failure to adequately address revisions of reviewers/editor.”
Mistake 10: Hold the Salami

• Editors are becoming well-versed in identifying salami slicing, honorary authorship, failure to comply with ethical review board guidelines, and a host of other unethical practices.

• While most researchers can recognize and avoid flagrant ethical violations (e.g., plagiarism, data fabrication), it can be difficult in some cases to know if one is operating in an ethical grey zone.

• Salami slicing is the practice of breaking apart a single research study into smaller pieces to increase the number of publications.
Final Pearls

• Start with the end of mind and plan early to get it out the door!
• Sharpen your idea
• Select the right journal
• Discuss authorship and group expectations up front
• Adhere to ethical principles
Final Pearls

• Prepare the manuscript
• Use electronic reference management software
• Avoid common mistakes
• See it from the reviewer's eyes
• Prepare a cover letter
• Respond to the editor's and reviewers' reports (every suggestion even if you disagree)
• Don't be discouraged by rejection
• Reflect on your experience.
References


• McTighe and Wiggins, Understanding by Design http://www.ascd.org/research-a-topic/understanding-by-design-resources.aspx
