The Investigator

Scott C. Quinlan, PhD
Assistant Teaching Professor
Department of Epidemiology and Biostatistics

Scott will lead this project. Scott obtained his MS and PhD in epidemiology from The George Washington University. He joined the Department of Epidemiology and Biostatistics full-time in June 2016 and has extensive experience teaching introductory level graduate courses in biostatistics and epidemiology in the online and on-campus settings.

Background

- One of the initial courses Master of Public Health (MPH) students take upon matriculation is Principles and Practice of Epidemiology.
- This course introduces students to the foundational principles of epidemiology such as:
  - Measuring illness and mortality
  - Designing public health studies
  - Screening and surveillance
  - Outbreak investigation
- This is a challenging course for students and they are always seeking additional opportunities to practice and apply the concepts they have learned.
- The course currently includes different components that provide the students with the opportunity to practice:
  - Weekly lab sessions with practice exercises
  - Homework assignments
  - Ungraded practice problems
- The current practice opportunities are valuable, but have important limitations:
  - Lab exercises are static and limited by the 1 hour length of the lab
  - Homework assignments and practice problems ask students to retroactively assess results of real or hypothetical studies
- Practice opportunities would be enriched by providing students with greater immersion in all phases of real-world public health investigations.

The Planned Project

- This project will assess the feasibility of developing an online platform that provides students with interactive case study experiences.
  - Students would benefit from having more immersive experiences participating in public health investigations in all phases and types.
  - Cases studies have been shown to be valuable educational tools across a variety of academic settings. They have been shown to help students:
    - Synthesize complex analytic questions
    - See issues from multiple perspectives
    - Recognize the real world application of key concepts
  - The case study experience will begin by presenting a relevant public health issue and then guiding students through designing and implementing an appropriate investigation:
    - Choosing a study design
    - Defining cases and measuring exposure
    - Identifying outcomes
    - Analyzing and interpreting data
- The case study experience will be tailored to the decisions students make along the way.
- Throughout the case studies students will be asked questions to review key concepts and consider the implications of the decisions being made.
- Case studies will be available for a variety of topics that students typically struggle with during the course.

Planned Methods

There will be three key phases of this project.

- Initial public health student survey
  - Current MPH students will be invited to participate in a brief online survey to assess the interest and need for such an educational tool.
  - The survey will ask about interest in the availability of an online case study tool, key topics or concepts that would be useful to include, and any other features that would enhance the learning experience.
  - Engaging students early in the process is important as the development of the tool will be best guided by the intended end users.
  - Planned completion: Late fall 2018

- Survey of current public health educational landscape
  - Determine if similar educational tools are available at other institutions and how they are utilized.
  - Review strengths and weaknesses.
  - Identify useful features to consider for inclusion in the tool to be developed.
  - If existing tools are identified the goal would be to build on and expand these tools and tailor them specifically to the students in our program.
  - Planned completion: End of 2018

- Develop prototype for review by students and faculty
  - Identify and obtain the necessary software package for developing a robust and user-friendly online educational tool.
  - Undergo any necessary training on using this software.
  - Create a small number of initial case study modules using the software, likely focused on the topics students struggle with most frequently.
  - Invite a sample of students and faculty to review and comment on the initial prototype.
  - Update and expand the educational tool based on feedback received.
  - Planned completion: May 2019

Evaluation

A critical part of this project is to evaluate the educational experience provided by the online case study modules. A number of mechanisms will be used to evaluate the effectiveness of the case studies:

- At the end of each module the user will be directed to a short survey to provide immediate feedback on their experience.
  - General information on how the experience can be improved
  - Utility of the module in clarifying key concepts
  - The tool will be updated based on the feedback received.
- Short quizzes will be provided both at the start and the end of each module.
  - Assess how effective the module was in improving student understanding.
  - Help to identify additional gaps in understanding.

Future Directions

- The initial educational tool will be focused on case studies for Principles and Practice of Epidemiology and will initially be limited to a small number of modules.
- If the initial prototype is well received the educational tool can be expanded to include:
  - Additional modules and topics
  - Other courses in the MPH program
  - Substitute for formal assessments and lab exercises

References


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