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Goal: Teach PA students how to systematically search the biomedical literature to successfully complete the literature review portion of their thesis projects

Role: You are an instructional technologist tasked with developing a program to reach your defined goal.

Audience: PA students in their Research I, II, III core course sequence

Task: Develop an implementation plan to accomplish the goal.

Stage 1 Desired Results		
<p>ESTABLISHED GOALS</p> <p>The big goals are that students will be able to successfully conduct a systematic search of the biomedical literature, critically appraise and synthesize the evidence, and write their literature review.</p>	Transfer	
	<p><i>Students will be able to independently use their learning to...</i></p> <ul style="list-style-type: none"> • Complete the literature review portion of their thesis project • Make evidence-based decisions in their clinical and research careers 	
	Meaning	
	<p>UNDERSTANDINGS</p> <p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> • the English language is imperfect and article indexing is imperfect, so search strategies need to be thorough • different databases contain different materials • only searching the journal literature can lead to publication bias in their research • literature searching is an iterative process • for a literature review to be scientifically sound, the search has to be reproducible • stacking the deck for certain outcomes or cherry-picking articles 	<p>ESSENTIAL QUESTIONS</p> <ul style="list-style-type: none"> • Why is a thorough search of the literature important? • What is at risk in only searching the journal literature? • Why do levels of evidence matter? • Why should you read articles that disagree with your stance on a topic?

	<p>that support your predispositions is not good science</p> <ul style="list-style-type: none"> • there are different levels of evidence in the biomedical literature • just because an article is published and was peer-reviewed, it doesn't automatically mean the study was conducted well 	
Acquisition		
	<p><i>Students will know...</i></p> <ul style="list-style-type: none"> • What subject headings and keywords are • A range of biomedical databases available to them to complete their research • The components of a methodologically sound search strategy • What critical appraisal is • What EndNote can do to facilitate the thesis-writing process 	<p><i>Students will be skilled at...</i></p> <ul style="list-style-type: none"> • Translating their clinical scenario into PICO and a concept table • Constructing and executing searches across various database interfaces • Using critical appraisal worksheets • Extracting key information across studies to create a matrix • Using EndNote
Stage 2 - Evidence		
Evaluative Criteria	Assessment Evidence	
Application, Interpretation	<p>PERFORMANCE TASK(S): Students will apply the PICO framework to their research question and interpret the process of creating a search strategy into creating one of their own for their topic on a worksheet.</p>	
Perspective	<p>Students will give feedback (improvements/suggestions/comments) on one of their peer's worksheets, which demonstrates understanding and synthesis of the taught material.</p>	

Application, Interpretation

OTHER EVIDENCE:

The bibliographies of students' finished thesis projects will indicate the long-term retention of this instruction.

Stage 3 – Learning Plan

Summary of Key Learning Events and Instruction

SESSION ONE – 60 min – lecture, small group work in a classroom

(Hook) Interactive polling – where have you looked for information for your thesis project? Which of the following databases contains the most journals?

(Where, Equip) Overview of the process, mini lecture on PICO

(Experience, Evaluate) Small groups turn scenarios into PICO tables, present back

(Equip) Mini lecture converting PICO into a concept table, searching, levels of evidence, resources available at school

(Experience, Evaluate) Same small groups convert their PICO tables into concept tables & find one article, present back

(Rethink) Present alternative ways the work could be done

PRE-WORK FOR SESSION TWO

Individual students take their thesis research question, create PICO, create concept table

SESSION TWO – 90 min – students with individual computers

(Where) Overview of agenda for the session

(Experience, Rethink, Evaluate) Students swap their pre-work with one another to receive feedback on their work so far (*this is also great because, as librarians, we aren't subject experts – their fellow students are likely to have more ideas for search terms than we are able to offer*)

(Equip) Demonstration of taking a search strategy and deploying it in a key database, results downloaded into EndNote

(Experience) Students try searching their topic in that same database, evidence of success is the creation of an EndNote library

(Equip) Demonstration of searching three more databases, distribution of databases by subject handout

(Experience) Students search multiple databases pertinent to their topic

(Equip) Demonstration of acquiring PDFs in EndNote and creating bibliographies

(Experience) Students do the same, creating a preliminary bibliography to give to their advisor

(Where) Wrap-up discussion and reflection on how their strategy evolved throughout the session, if they found what they thought they would, if anybody's changed their topic after finding what they did, etc.