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Instructional Design Documentation:

CEC Training Module II: Fixing Flawed Research Questions

Instructional Problem

Course-Embedded Consultants (CECs) in ENG 102R share the responsibility of supporting students' research efforts with the instructor-of-record and librarians; however, because the CEC meets individually with their students on a regular basis (bi-weekly or weekly), the CEC encounters more opportunities to support individual students as they develop and hone their research skills. CECs must be comfortable and skilled in helping students navigate the research process. CECs express anxiety about providing research help to students with diverse research experiences and backgrounds, and whose topics may fall within disciplines of which the CEC has little knowledge. To support the success of students enrolled in ENG 102R, CECs must be confident in their ability to assist students throughout the research process (brainstorming keywords, developing search statements, selecting and using appropriate search tools, etc.), but especially in **developing viable research questions**.

AIM*:* Promote student success in ENG 102R through increased CEC confidence and knowledge of the research process, with a focus on CECs developing strategies to help students formulate/revise research questions that are appropriate and viable research for ENG 102R.

Goals

Set Goals
- Understand the difference between a research topic and a research question.
- Understand the difference between open- and closed-questions.
- Recognize a flawed research question.
- Use questions to focus a too-broad question.
- Use questions to expand a too-narrow question.
- Reconstruct research topics into questions.
- Transform closed-questions to open questions.
- Identify the central concepts in a research question.
- Brainstorm possible disciplinary viewpoints for a research question.
- Select appropriate research tools given the aim, scope, and disciplinary viewpoints of a given research question.
- Brainstorm keywords that represent the central concepts in a research question.
- Brainstorm broader, narrower, and like terms for keywords that represent the central concepts in a research question.
- Use Boolean operators (AND, OR, NOT) and keywords to create search statements.
- Use metacognitive critical reading techniques to read a results list with purpose.
- Refine search statements and research questions based on search results.

Refine Goals
- Differentiate between research topics and research questions.
- Differentiate between open and closed-questions.
- Recognize a flawed research question.

- Apply questions to focus a too-broad question or expand a too-narrow question.
- Reconstruct research topics into questions.
- Reconstruct closed-questions into open questions.
- Identify the central concepts in a research question.
- List broader, narrower, and like terms for keywords that represent the central concepts in a research question.
- Identify disciplinary viewpoints for a research question.
- Select appropriate research tools given the aim, scope, and disciplinary viewpoints of a given research question.
- Use Boolean operators (AND, OR, NOT) and keywords to create search statements.
- Use metacognitive critical reading techniques to read a results list with purpose and refine search statements and research questions based on search results.

Rank Goals
1. Recognize a flawed research question.
2. Differentiate between open and closed-questions.
3. Reconstruct closed-questions into open questions.
4. Apply questions to focus a too-broad question or expand a too-narrow question.
5. Identify the central concepts in a research question.
6. List broader, narrower, and like terms for keywords that represent the central concepts in a research question.
7. Use Boolean operators (AND, OR, NOT) and keywords to create search statements.
8. Use metacognitive critical reading techniques to read a results list with purpose and refine search statements and research questions based on search results.
9. Identify disciplinary viewpoints for a research question.
10. Select appropriate research tools given the aim, scope, and disciplinary viewpoints of a given research question.

Second Refinement
- Recognize why a flawed research question is flawed.
- Understand how to transform research topics into research questions using one or more of the following: "questioning a topic" approaches: "Which one? How? What if? Should? Why?
- Understand how to transform closed-questions into open questions using one or more of the following "questioning a topic" approaches: Which one? How? What if? Should? Why?
- Recognize when a research question is too broad or too narrow.

Final Ranking
1. Recognize why a flawed research question is flawed.
2. Understand the difference between open and closed-questions in relation to research viability.

3. Recognize when a research question is too broad or too-narrow for the scope of the common ENG 102R research assignment.

Learner Characteristics

General and Specific Learner Characteristics
- Learners are student employees serving as Course-Embedded Consultants (CECs) in co-requisite first-year reading and research-writing (ENG 102R) courses.
- Learners must maintain full-time student enrollment status at EKU during the semester in which they are employed as CECs.
- Each learner is assigned to a single section of ENG 102R and works closely with their paired instructor to support students.
- All learners work twenty hours per week to fulfill the CEC requirement, which includes one hour of mandatory training through the Noel Studio.
- The majority of learners are undergraduate students, but a few are graduate students.
- All learners are classified as adult learners; most fall within the common parameters used to define traditional college students.
- A few are nontraditional college students returning to attain a bachelor's or master's degree after having not been in a formal educational environment for several years.
- Majors and disciplinary backgrounds of learners vary, although English majors are heavily represented.

Prerequisite Knowledge and Other Requirements
- All learners understand the difference between a *research topic* and a *research question*.
- The majority of learners have served at least one semester as a CEC in ENG 101R prior to serving as a CEC in ENG 102R.
- Learners will work closely with the paired instructor to understand the scope of the common ENG 102R research assignment.
- A few learners have served at least one semester as a CEC in ENG 102R.
- Learners prior knowledge and experience with research varies:
  - Most learners have completed and passed a first-year research-writing course series themselves (e.g., EKU's ENG 102/102R); however, some learners may have tested out of this standard requirement (e.g., through Advanced Placement courses and exams).
  - Learners' own majors will influence and/or dictate their understanding of the research process, further complicating the process of speculating prior knowledge/experience.

Contextual Analysis

Orienting Context

The designer must ensure the instruction is directly relevant to the learners' roles as an ENG 102R CEC by offering practical application techniques that learners can apply when consulting with ENG 102R students about their research projects. A member of leadership (the Assistant Director, Directors of Operations, CEC Coordinator, and/or a CEC Peer Mentor) should provide feedback and an opportunity for CECs to ask questions and/or reflect on the training within a week of completion to ensure CECs are ready to apply techniques learned to consultations.

Instructional Context

CECs participate in initial and ongoing training through the Noel Studio. Initial training occurs prior to the start of a semester, is typically synchronous and in-person, and covers foundational and universal skills and general work requirements. The learning module in question will be part of ongoing training for CECs embedded in sections of ENG 102R. Ongoing training is mandatory and constitutes one hour per week of a CECs required 20 hours of work; the learning module in question will count for the full hour the mandatory training for one week. Training is modular and self-paced, with the restriction that modules must be completed the week they are due. Since training is part of their weekly hours (required to be no more than 20 hours per week), CECs are not to work ahead. Ongoing training modules are currently delivered/completed via the Google G-Suite for Education platform and accessed through Blackboard.

Transfer Context

While individual ENG 102R instructors will vary in when they introduce the research project, most instructors will introduce the research project and have students begin selecting and refining their research topics/questions within the first three weeks of the semester. CECs must be prepared to assist students in the research process as soon as it is introduced. As such, the learners should complete the learning module in question close to the beginning of the semester as possible, preferably in Week 2; a member of leadership (the Assistant Director, Directors of Operations, CEC Coordinator, and/or a CEC Peer Mentor) should provide feedback within a week of completion. Learners will use knowledge gained in this module in the completion of connected modules focused on brainstorming keywords and developing and refining search statements and strategies (i.e., selecting and using search tools).

Task Analysis

1. Read the student/sample research question.
2. Determine if the question is flawed. For example, consider the following questions about the question (this is not an exhaustive list):
    a. Can the question be answered with a yes or no? [closed-question]

b. Can the question be answered in one sentence or a single paragraph? [closed-question]

c. Would this question be answered by compiling a set of facts or a list? [closed-question]

d. Have entire books been written to answer this question? [too broad]

e. Is the question focusing on a specific town/population/topic on which there might not be much information published in peer-reviewed, academic sources? [too focused/narrow]

f. Is the question dealing with an event/topic that is exceptionally current and might not be published in peer-reviewed, academic sources yet? [too focus/narrow]

g. Does the question ask for a conclusion to be drawn once the facts are known? [possible viable research question]

h. Would answering this question help someone else who has an interest in this topic? [possible viable research question]

3. If the question is flawed, determine how so:
   a. It is too broad for the scope of the assignment.
   b. It is too narrow for the scope of the assignment.
   c. It is a closed question that can be answered with a simple yes/no, statement of fact, presentation of a timeline, etc.

4. If the question is **a** or **b**, employ contextual categories to focus or broaden. For example (this is not an exhaustive list):
   a. Time periods (This year? Since 1990? In the future?)
   b. Places (Global? Country? Region? State? City?)
   c. Populations (Gender? Age? Other Demographics?)
   d. Viewpoints (Social? Legal? Ethical?)

5. If the question is **c**, employ a "questioning a topic" approach (this is not an exhaustive list):
   a. Which one?
   b. How?
   c. What if?
   d. Should?
   e. Why?

6. If the question is not flawed and is instead a viable research question given the scope of the assignment, proceed to identifying the main concepts and developing keywords with the student.

Instructional Objectives

Objective 1

Learners will **differentiate** (label) between flawed research questions and viable research questions. [*Concept-Application*]

Initial Presentation:
Learners will be provided examples of flawed AND viable research questions, along with an explanation of why each is flawed or viable.

Generative Strategy [Organization]:
Given a series of research questions, the learner will label each example as either: (1) flawed research question or (2) viable research question.

Evaluation:
Immediate feedback only, no formal evaluation.

Objective 2

Learners will **categorize** (sort) flawed research questions by type. [*Concept-Application*]

Initial Presentation:
Learners will be provided with examples of flawed research questions and explanations of how each is flawed (too-broad, too-narrow, and closed).

Generative Strategy [Organization]:
Given a series of flawed research questions, learners will label each question as: (1) too-broad, (2) too-narrow, or (3) closed. Learners can try again if their first label is incorrect.

Evaluation:
Immediate feedback only, no formal evaluation.

Objective 3

Given too-broad and too-narrow research questions, learners will **construct** viable research questions. [*Procedure-Application*]

Initial Presentation:
Learners will be provided examples of questions that are too broad and examples of questions that are too narrow and explanations of why each is too broad or too narrow; learners will then be shown how the following example contextual categories can alleviate the flaw:
- Time periods (This year? Since 1990? In the future?)
- Places (Global? Country? Region? State? City?)
- Populations (Gender? Age? Other Demographics?)
- Viewpoints (Social? Legal? Ethical?)
- Relevant issues (Political? Economical? Social?)

Generative Strategy [Elaboration]:
Learners will rewrite three questions (at least one too-broad and one too-narrow) of their choosing from *Objective 2* to construct viable research questions using the contextual categories and/or their own approaches.

Evaluation:
Rewrites of flawed questions will be scored according to a rubric (Appendix B); a majority (2) of rewrites must score *Good* or *Exemplary*, with 1 or fewer scoring *Not There Yet*.

Objective 4
Given closed-questions, learners will **create** viable research questions. [*Procedure-Application*]

Initial Presentation:
Learners will be provided with examples of closed-questions and examples of how "questioning your topic" approaches (e.g., Which one?; How?; What if?; Should?; Why?) can alleviate the flaw.

Generative Strategy [Elaboration]:
Learners will use "questioning your topic" and/or their own approaches to rewrite three closed-questions of their choosing from Objective 2; they must use at least two "questioning your topic" approaches.

Evaluation:
Rewrites will be scored according to a rubric (Appendix B); a majority (2) of must score *Good* or *Exemplary*, with 1 or fewer scoring *Not There Yet*.

Pre-Instructional Strategy - Objectives
Learners will be introduced to the learning module with metacognitive, reflective questions about their own experiences with successful and unsuccessful research questions (e.g., what makes a research question "good" or "bad"), and then presented with the standard definition of a viable research question [EG-RUL] and the objectives for the module. This pre-instructional strategy was chosen because learners are familiar with objectives and because metacognitive, reflective activities are often incorporated into their training materials. Additionally, their ongoing training is transparently scaffolded according to Bloom's Taxonomy, learning objectives are commonly included in their initial and ongoing training materials, and they interact with the learning objectives of ENG 101R/102R when working with students.

Sequencing Content - Concept-Sequencing: Sophistication
Sequencing will move learners from the simple to more complex, sophisticated tasks. Learners will start by simply differentiating between flawed and viable research questions before categorizing flawed questions by type. Next, learners will rewrite simple "too broad/narrow" questions to create more viable research questions before moving on to the more complex

activity of rewriting closed-questions into viable research questions using "question a topic" approaches.

Subject-Matter Expert (SME) Review

The designer is serving as the primary SME for this ID project; however, a design document will be prepared for validation by adjacent SMEs: the CEC Coordinator, who oversees training initiatives; the Assistant Director of Writing & Communication Programs, who is the direct supervisor for CECs; and the CEC Peer Mentors, experienced CECs who provide mentorship and targeted feedback to new CECs. This review will be performed over the course of a week via the comments section of Google Docs. Comments, questions, concerns, and/or ideas will be captured in the draft; the designer will meet one-on-one (in-person or via Zoom) with members as necessary to clarify, then generate a final design document to facilitate development and report changes.

Target Audience Review

Once initial materials are prepared, usability testing will be performed on a representative small sampling of the target audience (i.e., CECs embedded in ENG 102R). Participants will go through the module as designed, then complete an opinion/confidence survey to collect additional information beyond that captured through the module itself (e.g., learners' ability to sort flawed/viable research questions, learners' facility with revising/constructing viable research questions, etc.). Modifications may be made based on the results of both the in-module activities and the opinion/confidence survey before the module is rolled out to all ENG 102R CECs.

Evaluation

To align with standard Noel Studio practice, CECs will be asked to provide feedback regarding the professional development module "Fixing Flawed Research Questions" via an opinion/confidence survey (Appendix A). Feedback will guide revision of the *Fixing Flawed Research Questions* module and/or add additional modules as necessary.

Appendix A

Opinion/Confidence Survey

How many semesters have you worked as an ENG 101R CEC?

How many semesters have you worked as an ENG 102R CEC?

Which additional roles have you held with the Noel Studio?

Do you feel more confident overall in helping ENG 102R develop viable research questions having completed this training module? Why/why not and/or how so?

Did you learn a new skill or approach for helping ENG102R students with research questions from this training module? If so, what? If no, why do you think that is?

What did this training NOT cover or not cover fully enough that you want to know more about?

Appendix B

Fixing Flawed Research Questions Rubric: Objective 3

Criteria: Focus a too-broad question and expand a too-narrow question.	
Exemplary	Focus is appropriate and aligns with the original question topic.
Good	Focus is fairly appropriate and aligns with the original question topic.
Not There Yet	Focus is overly broad or narrow and/or deviates significantly from the original question topic.

Fixing Flawed Research Questions Rubric: Objective 4

Criteria: Transform closed-questions into viable open research questions.	
Exemplary	Demonstrates ample opportunity for deep inquiry into the original question topic.
Good	Demonstrates fair opportunity for deep inquiry into the original question topic.
Not There Yet	Demonstrates minimal opportunity for deep inquiry into the original question topic, significantly changes the original question topic, and/or is posed as a closed-question.