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Evaluation Strategy Report:

Noel Studio Fixing Flawed Questions Training Module

Executive Summary

In response to a needs assessment conducted by the Noel Studio GA Assessment Coordinator, the Noel Studio Director of Operations designed, developed, and delivered the asynchronous training module *Fixing Flawed Research Questions* for Noel Studio General Consultants (GCs) and Course-Embedded Consultants (CECs). The purpose of the training module was to promote student success in ENG 102/102R on research-based writing assignments through increased GC and CEC confidence and knowledge of the research process, with a focus on developing strategies to help students formulate/revise research questions that are appropriate and viable research for ENG 102/102R. This is a new training module; previous training on similar topics has been delivered synchronously during in-person, on-site workshops. It is worthwhile to invest time and effort to do a detailed evaluation.

The purpose of this evaluation is to determine how helpful the training module is, what the GCs and CECs have learned, how GC and CEC behavior changes after the training, and how/if the results will impact student success in ENG 102/102R on research-based writing assignments.

The strategy of this evaluation report is based on the *New World Kirkpatrick Model*, which approaches program evaluation through four distinct levels:

> **Level 1 - Reaction:** The degree to which learners find the training module favorable, engaging, and relevant to their work consulting students. (post-module opinion/confidence survey)
>
> **Level 2 - Learning**: The degree to which learners acquire the intended knowledge, skills, attitude, confidence, and commitment based on their participation in the training module (in-module rubric-scored flawed question revisions)
>
> **Level 3 - Behavior:** The degree to which learners apply what they learned when they return to consulting students (review of ENG 102/102R Records of Consultation)
>
> **Level 4 - Results:** The degree to which student learning outcomes are met because of the training module. (review of ENG 102 and ENG 102R research essay thesis statements)

Using the *New World Kirkpatrick Model* as a guideline, the following conclusions have been drawn:

- GCs and CECs find the *Fixing Flawed Research Questions* training module favorable, engaging, and relevant to their work consulting students.

- GCs and CECs are able to apply the concepts and techniques demonstrated in the training module to revise sample *Too Broad* research questions at an *Exemplary* or *Good* level as defined by the *Flawed Research Questions Revision Rubric* (Appendix E) at a percentage that exceeds expectations.
- GCs and CECs are able to apply the concepts and techniques demonstrated in the training module to revise sample *Too Narrow* research questions at an *Exemplary* or *Good* level as defined by the *Flawed Research Questions Revision Rubric* (Appendix E) at a percentage that exceeds expectations.
- GCs and CECs did not meet expectations for applying the concepts and techniques demonstrated in the training module to revise sample flawed research questions that *Closed* (Appendix E).
- A review of pre- and post-training Records of Consultation (RoC) demonstrates an increase in GC and CEC application of the concepts and techniques addressed by the training module post-training in all three flawed categories (Too Broad, Too Narrow, and Closed); however, the increase was less significant in relation to Closed research questions.
- A review of a selection of First-Year Writing research essays suggests students who participated in research question revision consultations develop more viable research questions than students who did not participate in any research question revision consultations.

Statement of Purpose

The purpose of this evaluation is to determine how effective the *Fixing Flawed Research Questions* training module is, what General Consultants (GCs) and Course-Embedded Consultants (CECs) have learned, how their behavior changed after completing the training module, and how the results will impact student success in Eastern Kentucky University's (EKU) first-year research-based writing course (ENG 102) and its co-requisite version (ENG 102R). To support the success of students enrolled in ENG 102 and 102R, GCs and 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.

The Noel Studio employs 26 GCs and 19 CECs. Thirty-eight (38) completed this training independently during their regularly scheduled hours. The Noel Studio has invested time in developing and implementing the *Fixing Flawed Research Questions* training module; it is time to conduct a thorough investigation of the module.

The evaluation took place during and after the training. The evaluation process was developed and implemented by the Noel Studio Director of Operations and has the full

support of the Assistant Director of Noel Studio Writing & Communication Programs, who provides direct supervision to the GCs and CECs and oversees both programs.

The training module's developer (Noel Studio Director of Operations) is responsible for generating the evaluation report and has worked closely with the GA Assessment Coordinator, Assistant Director of Noel Studio Writing & Communication Programs, GCs, and CECs to ensure that the findings are accurate and objective.

The results will be submitted to the Assistant Director of Noel Studio Writing & Communication Programs and the Director of First-Year Writing and Co-requisite First-Year Writing Courses in written format.

Results will be shared via a short presentation and Q&A session at a bi-monthly Noel Studio Coordination meeting and at the annual First-Year Writing instructor professional development.

Background Information

The Noel Studio for Academic Creativity is a student-focused integrated support service for writing, communication, and research. The Noel Studio's primary service is the consultation, a peer-to-peer conversation (similar to tutoring) focused on the student's questions, ideas, and expectations about their communication, writing, and/or research projects. To this end, the Noel Studio employs undergraduate and graduate students as General Consultants (GCs) or Course-Embedded Consultants (CECs). GCs work with undergraduate and graduate students from across the curriculum and are not restricted or connected to a particular major or course; however, they do see a high number of students from EKU's first-year research-based writing course, ENG 102. CECs are embedded in sections of co-requisite, supported versions of first-year reading (ENG 101R) and research-writing (ENG 102R) courses and consult exclusively with students from their assigned sections; students in ENG 102R are not allowed to schedule consultations for ENG 102R projects with GCs.

The Noel Studio provides both initial and ongoing training to ensure GCs and CECs are adequately prepared to assist students. Training modes and formats differ depending upon topic and audience (GCs and CECs vs. CECs vs. GCs), and include in-person, on-site training; synchronous online training; and asynchronous online training modules. While much of the GC and CEC training is separate and unique to each role, the Noel Studio prefers to provide common training when introducing foundational or universal topics. One such topic is assisting students with research. A needs assessment revealed GCs and CECs were not confident in helping students develop viable research questions. To address this gap, the Noel Studio designed, developed, and delivered the asynchronous training module *Fixing Flawed Research Questions* to the GCs and CECs.

The learning objectives for training module *Fixing Flawed Research Questions* are as follows:

- Using characteristics of flawed research questions and viable research questions, the learner will categorize a series of questions as either (1) flawed research questions or (2) viable research questions.
- Using characteristics of three types of flawed questions [(1) too-broad, (2) too-narrow, or (3) closed-question], the learner will categorize a series of flawed questions according to the type of flaw.
- Using contextual categories and "questioning your topic" approaches, the learner will construct viable research questions by revising too-broad, too-narrow, and closed-questions research questions.

The training module is synchronous and should take thirty to sixty minutes to complete. GCs and CECs are paid for time spent on the module and the accompanying opinion/confidence survey.

The training module is delivered through Google's G-Suite for Education platform and consists of a hyperlinked and audio-enabled Google Slides presentation and Google Forms.

Immediate feedback on flawed versus viable and flaw categories is provided using the hyperlinked slides feature of Google Slides. Feedback on flawed questions revisions is delivered one week post completion of the module.

The training module focuses on increasing GCs and CECs ability to help students formulate/revise research questions that are appropriate and viable.

Please refer to Appendix A for more detailed information and links for the Fixing Flawed Research Questions training module.

Description of the Evaluation Strategy

The evaluation strategy in this report is based on the *New World Kirkpatrick Model* of program evaluation. This report will address the evaluation strategy in detail and will include data collection methods, data collection instruments, results, and analysis and discussion of results at each level.

Level 1 - Reaction

This is a measure of how learners feel about the training module and will provide valuable feedback to help improve design, development, and delivery of future training.

Data Collection Method

A Level 1 - Reaction Sheet survey (Appendix B: *Level 1 - Reaction: Opinion/Confidence Survey*) was designed to measure GC and CEC reaction immediately after completing the asynchronous training module, *Fixing Flawed Research Questions*. The purpose of the survey is to give GCs and CECs an opportunity to highlight concerns and make recommendations for the training module. The survey was delivered via Google Forms immediately following completion of the training module.

Expected Results

The expected results are that GCs and CECs would feel the training module is valuable and relevant to consulting students in ENG 102 and/or ENG 102R.

Focus Areas of the Reaction [Opinion/Confidence] Survey

The reaction sheet addressed the following areas:

- GC and CEC perspectives on their comprehension of the concepts and techniques addressed in the training module.
- GC and CEC perspectives on how well they will be able use what they learned in consulting ENG 102 and/or ENG 102R.
- GC and CEC confidence in applying the concepts and techniques addressed in the training module.
- GC and CEC expectations as to what the training module would cover versus what it actually covered.
- Opportunity to make comments and suggestions.

Reaction Sheet Question 1 gauges the learners' perspectives on their comprehension of what they did/didn't learn. The following are the recommended standards for each answer choice above:

- Acceptable (Prior Learning): *I was ALREADY USING the techniques and concepts BEFORE THIS TRAINING.*
- Unacceptable (Learning Insufficient): *I am still at least SOMEWHAT CONFUSED about the techniques and concepts.*
- Unacceptable (Awareness Not Enough): *I am now SOMEWHAT FAMILIAR WITH the techniques and concepts.*
- Acceptable (Learned Sufficiently): I have a SOLID UNDERSTANDING of the techniques and concepts.
- Superior (Ready to Use): *I AM FULLY READY TO USE the techniques and concepts in my work.*
- Unlikely/Overconfident (Maybe Not Attending to Question): *I have an EXPERT-LEVEL ABILITY to use the techniques and concepts.*

Reaction Sheet Question 2 gauges the learners' perspectives on how well they will be able use what they learned in their work. The following are the recommended standards for each answer choice above:

- Acceptable (Prior Learning): *I WAS ABLE TO use these techniques and concepts BEFORE THIS TRAINING.*
- Unacceptable (Learning Did Not Work): *I AM STILL UNCLEAR about what to do, and/or why to do it.*
- Unacceptable (Learning Still Needed): *I NEED MORE GUIDANCE before I know how to use what I learned.*
- Acceptable (Enabled for Action): *I NEED MORE EXPERIENCE to be good at using what I learned.*
- Superior (Enabled for Performance): *I CAN BE SUCCESSFUL NOW in using what I learned (even without more guidance or experience).*
- Unlikely/Overconfident (Maybe Not Attending to Question): *I CAN PERFORM NOW AT AN EXPERT LEVEL in using what I learned.*

Level 1 - Reaction: Evaluation Results

The results were based on 23 opinion/confidence surveys collected from GCs (12) and CECs (11). The results and comments for each question are summarized on the below:

Q1: How well do you feel you understand the concepts and techniques taught in the Fixing Flawed Questions training module?

Legend:
- I AM FULLY READY TO USE the techniques and concepts in my work.
- I have a SOLID UNDERSTANDING of the techniques and concepts.
- I am now SOMEWHAT FAMILIAR WITH the techniques and concepts.
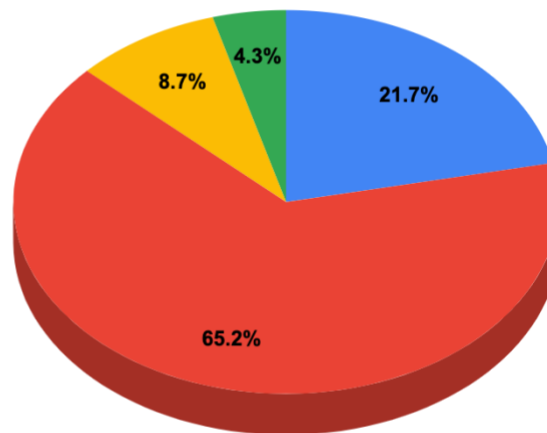- I was ALREADY USING the techniques and concepts BEFORE THIS TRAINING.
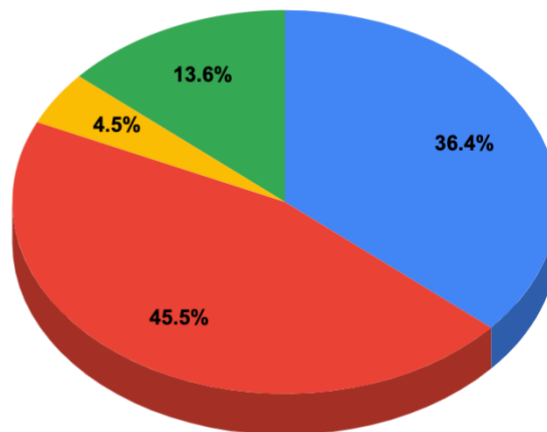
Pie chart values: 36.4%, 45.5%, 4.5%, 13.6%

Q2: How able are you to put what you've learned about flawed and viable research questions into practice during consultations with ENG 102 or ENG 102R students?

The next five questions were open-ended. A summary of the answers to each open-ended question follows (visit [Opinion/Confidence Survey Open-Ended Response Categories](#) to review full comments arranged by common categories):

Q3: Is there anything you're still concerned or unclear about regarding helping ENG 102 or ENG 102R students with research questions? If so, please elaborate: (11 responses)

GCs and CECs acknowledged a lack of clarity regarding:

- how to assist students who are resistant to feedback regarding modifying research questions; and
- what to do when a student's question is entirely too difficult to research given the parameters of the assignment.

Q4: Do you feel more confident overall in helping ENG 102 or 102R students develop viable research questions having completed this training module? How so? (23 responses)

Responses to this question align with the responses to Q1 and Q2: GCs and CECs (including those who already used the techniques and approaches) reported feeling more confident overall in helping ENG 102/102R students develop viable research questions after completing the training module. GCs and CECs noted the following as their top take-aways:

- concrete examples of and parameters for viable research questions;
- distinct techniques and strategies for revising flawed research questions; and

- unique and understandable language that is both constructive and approachable for ENG 102/102R students (i.e., avoids applying *bad/wrong* or *good/right*).

One GC or CEC noted that while they were more confident helping students with too-broad and too-narrow research questions, they were not as confident helping with closed research questions.

Q5: What did this training NOT cover or not cover fully enough that you want to know more about?: (23 responses)

GCs and CECs indicated that they would appreciate additional information/training on:

- how bias (their own and students') might impact research question selection, development, and/or revision;
- how opposing information might help or deter students;
- how to steer students away controversial topics or research questions that are beyond the scope of the assignment;
- How to determine if a research question passes the "so what?" test; and
- pre-searching as a precursor to developing research questions.

Q6: Which aspects of the learning helped you the most in learning what was taught? (23 responses)

GCs and CECs consistently cited hands-on practice (1) categorizing research questions by type and (2) revising flawed research questions into more viable research questions as highly beneficial to their learning.

Additionally, several GCs and CECs identified as highly visual learners and found the side-by-side comparison charts of flawed versus viable research questions beneficial to their learning.

GCs and CECs also noted multimodality (text + audio) and interactivity as beneficial to their learning.

Q7: What could have been done better to make this a more effective learning experience? Remember, your feedback is critical, especially in providing us with constructive ideas for improvement: (23 responses)

Most GCs and CECs requested:

- immediate feedback on their flawed-to-viable research question revisions;
- more detailed descriptions/explanations of the characteristics or nature of flawed and viable research questions;
- and additional scenarios, examples, and hands-on practice.

Approximately three respondents reported difficulty with audio (e.g., audio glitches, missing audio, etc.) and navigation (e.g., auto-play was not enabled on all slides, accidentally clicking the screen resulted in moving forward in the module before they were ready, etc.).

Two respondents would prefer in-person delivery.

One respondent requested an open-response area where they could explain the choices they made in their flawed-to-viable research question revisions.

One respondent would find informational videos more engaging.

Discussion of Level 1 - Reaction: Results
Overall, reactions for the training module at this level are positive and indicative of success in achieving the *Level 1 - Reactio*n learning objective, with most GCs and CECs finding the training module favorable, engaging, and relevant to their work consulting students.

GCs and CECs now have a stronger understanding of the techniques and concepts addressed in the training module, with 95.5% achieving ACCEPTABLE or SUPERIOR level in self-perceived comprehension of the addressed techniques and concepts. Of that 95.5%, only 13.6% indicated that they were using the techniques and concepts in their work prior to completing the training module. This 13.6% constitutes three consultants, one of whom has served as a GC or CEC for six semesters and one who has additional experience beyond what might be considered standard for time-on-the-job (two semesters)—extended experience facilitating brainstorming workshops primarily focused on helping students hone research questions.

While 4.5% reported an UNACCEPTABLE level of self-perceived comprehension of the techniques and concepts addressed, this is not necessarily an indication the training module was ineffective for this student. This percentage actually constitutes only one GC/CEC. Furthermore, this individual is in their first semester of employment; it is possible their answer reflects a lack of experience rather than a weakness in the training module.

GCs and CECs are also more confident in their ability to use the techniques and concepts addressed in the training module in their work, with 95.6% achieving ACCEPTABLE or SUPERIOR level in self-perceived comprehension of the addressed techniques and concepts. Of that 95.6%, only 8.7% reported they were able to use these techniques and concepts prior to completing the training module.

Given that 13.6% of GCs and CECs indicated that they were using the techniques and concepts in their work prior to completing the training module, this number is interesting and may necessitate further investigation. It is likely that much of the difference between these two levels (4.9%) can be found in the 4.3% of GCs and CECs who reported being able to now perform at an expert level in using what they learned, a level assumed to be UNLIKELY

/OVERCONFIDENT. Again, this 4.3% represents only one GC/CEC—the one who has additional experience beyond what might be considered standard for time-on-the-job (two semesters).

While the comments and suggestions from GCs and CECs confirmed the overall value of this training module, they also revealed opportunities for improvement in this individual module, as well as additional training avenues to pursue (see Level 1 - Reaction: Evaluation Results, Q3 and Q5). Level 1 - Reaction: Evaluation Results Q6 and Q7 demonstrate pedagogical approaches to keep in mind when revising and/or developing training for GCs and CECs (e.g., multimodality and interactivity, hands-on practice, detailed examples/scenarios, tangible strategies, etc.)

Level 2: Learning

This is a measure of the degree to which the learners acquire the intended knowledge, skills, and confidence based on their participation in the training module. The purpose of this level is to determine how effective or ineffective the training module has been by confirming whether the learning objectives of the training module have been met and if learning has occurred on the individual level.

Data Collection and Analysis Methods

GCs and CECs chose three flawed research questions (at least one too-broad and one too-narrow) from a list of too-broad and too-narrow research questions and three flawed research questions from a list of closed research questions.

GCs and CECs revised these flawed research questions into viable research questions using concepts and techniques introduced in the training module.

GCs and CECs submitted their question rewrites through two Google Forms: too-broad/narrow and closed (Appendices C and D).

Rewrites of flawed questions were scored according to the *Flawed Research Questions Revision Rubric* (Appendix E).

Expected Results

At least 80% of GC and CEC question rewrites in all three categories (Too-Broad, Too-Narrow, and Closed) will score *Good* or *Exemplary*.

Level 2 - Learning: Evaluation Results

The results were based on 295 *question revisions* (Too-Broad = 81, Too-Narrow = 81, Closed = 133) collected from GCs (22) and CECs (15) during completion of the *Fixing Flawed Research Questions* training module.

FLAW TYPE	EXEMPLARY/GOOD
TOO BROAD	88.88%
TOO NARROW	86.41%
CLOSED	69.92%

Discussion of Results: Level 2 - Learning

Success in achieving the *Level 2 - Learning* objective is less clear. While expectations of learning were exceeded regarding acquisition of the concepts and techniques for revising Too-Broad (88.88%) and Too-Narrow (86.41%) research questions, acquisition of the concepts and techniques for revising Closed research fell far short of the expectations (80%).

This is particularly interesting when considering the following comment from the Level 1 - Reaction Opinion/Confidence Survey Q4: *Do you feel more confident overall in helping ENG 102 or 102R students develop viable research questions having completed this training module? How so?*:

> *"I do feel like I am stuck on the close, but that may be because it would be beneficial to have someone to discuss the direction of the paper with."*

The training module includes information indicating that *Closed* questions are often also too-broad or too-narrow; however, of the *Closed* question rewrites that scored *Not There Yet* on the *Flawed Research Questions Revision Rubric*, the majority failed to achieve *Exemplary* or *Good* primarily because GCs and CECs merely changed the interrogative/question word and did not address any instances of questions being *Too-Broad* or *Too-Narrow*.

Level 3: Behavior

This is a measure of the degree to which GCs and CECs apply the concepts and techniques addressed in the training module to their consultations.

Data Collection Method

At the end of the Spring 2022 semester, WCOnline was utilized to pull all ENG 102 (GC) or ENG 102R (CEC) Records of Consultation (RoCs) that referenced research question development from each GC (22) and CEC (15) who completed the training module (38).

Efforts were made to pull an equal amount of pre-training module and post-training module RoCs for each GC and CEC; RoCs with no evidence of research question development or revision were discarded from the evaluation pool:

- GC and CEC pre-training module RoCs: *(# per GC; # per CEC - determined by average number of ENG 102/102R consultations covering research question development)*
- GC and CEC post-training module RoCs: *(# per GC; # per CEC - determined by average number of ENG 102/102R consultations covering research question development)*

Analysis Method

Research questions present on the RoC were scored according to the same *Flawed Research Questions Revision Rubric* used to score flawed questions rewrites in *Level 2 - Learning* (Appendix E).

RoCs were also reviewed for general evidence of the application of concepts and techniques addressed by the training module:

- Contextual categories:
    - Time periods (This year? Since 1990? In the future?)
    - Places (Global? Country? Region? State? City?)
    - Populations (Gender? Age? Other Demographics?)
    - Viewpoints (Social? Legal? Ethical?)
- Questioning your topic approaches (e.g., Which one?; How?; What if?; Should?; Why?)

Expected Results

A majority (80%) of GC and CEC RoCs will (1) feature research question drafts that score *Good* or *Exemplary* per the *Flawed Research Questions Revision Rubric* (Appendix E) OR (2) demonstrate application of concepts and techniques addressed by the training module about research questions.

Level 3 - Behavior: Evaluation Results

The results were based on a pre-training module and post-training module rubric-supported (Appendix E) comparison of GC and CEC Records of Consultation (RoCs) collected from GCs (22) and CECs (15) during the Spring 2022.

Results unknown; cannot conduct Level 3 in the given timeframe.

Discussion of Results: Level 3 - Behavior
Implications unknown; cannot conduct Level 3 in the given timeframe.

Level 4: Results

This is a measure of the degree to which targeted outcomes occur because of the training module. The student learning outcomes for ENG 102 and ENG 102R most closely aligned with the development of viable research questions are:

- Define a specific topic that integrates information in order to develop a well-organized and clearly stated thesis.

- Provide adequate and relevant supporting evidence gathered from the critical reading of college-level texts from primary sources.
- Analyze and synthesize evidence coherently around a clearly stated thesis throughout the text.

Data Collection Method

The ## ENG 102 and ## ENG 102R research essays associate with post-training module RoCs reviewed in Level 2 - Learning (intervention group) and *## ENG 102 and ## ENG 102R* research essays from students who did not participate in a research question revision consultation *(control group)* were pulled from the First-Year Writing Program's bi-annual assessment. WCOnline was utilized to ensure the control group essays were not associated with a research question revision consultation. Research essays were anonymized by the First-Year Writing Assessment Coordinator prior to review and results will be shared only in the aggregate. This secondary assessment was approved as exempt by EKU's Institutional Review Board [IRB Protocol Number: #1234]

Analysis Method

Thesis statements (which are reflective of a student's research questions) from *intervention group and control group* research essays were scored according to the same *Flawed Research Questions Revision Rubric* used to score flawed questions rewrites in *Level 2 - Learning* and research question development/revision in *Level 3 - Behavior* (Appendix E).

Expected Results

At least 70% of ENG 102 and ENG 102R thesis statements will score *Good* or *Exemplary*; 30% or less will score *Not There Yet.*

Level 4 - Results: Evaluation Results

The results were based on a rubric review (Appendix E) of the thesis statements from *## ENG 102 and ## ENG 102R* research essays associate with post-training module RoCs reviewed in Level 2 - Learning (intervention group) and *## ENG 102 and ## ENG 102R* research essays from students who did not participate in a research question revision consultation (control group) research essays collected during the First-Year Writing Program's bi-annual assessment.

Results unknown; cannot conduct Level 4 in the given timeframe.

Discussion and Analysis of Results: Level 4 - Results
Implications unknown; cannot conduct Level 4 in the given timeframe.

Conclusions and Recommendations

Considering the evaluation of the asynchronous training module *Fixing Flawed Research Questions*, we offer the following conclusions and recommendations:

- GCs and CECs find the *Fixing Flawed Research Questions* training module favorable, engaging, and relevant to their work consulting students.
- GCs and CECs are able to apply the concepts and techniques demonstrated in the training module to revise sample *Too Broad* research questions at an *Exemplary* or *Good* level as defined by the *Flawed Research Questions Revision Rubric* (Appendix E) at a percentage that exceeds expectations.
- GCs and CECs are able to apply the concepts and techniques demonstrated in the training module to revise sample *Too Narrow* research questions at an *Exemplary* or *Good* level as defined by the *Flawed Research Questions Revision Rubric* (Appendix E) at a percentage that exceeds expectations.
- GCs and CECs did not meet expectations for applying the concepts and techniques demonstrated in the training module to revise sample flawed research questions that *Closed* (Appendix E).
- A review of pre- and post-training Records of Consultation (RoC) demonstrates an increase in GC and CEC application of the concepts and techniques addressed by the training module post-training in all three flawed categories (Too Broad, Too Narrow, and Closed); however, the increase was less significant in relation to Closed research questions.
- A review of a selection of First-Year Writing research essays suggests students who participated in research question revision consultations develop more viable research questions than students who did not participate in any research question revision consultations.

The *Fixing Flawed Research Questions* is overall effective at increasing both confidence and skill in GCs and CECs helping students revise flawed research questions into more viable research questions. GCs and CECs are particularly satisfied with the concrete examples and parameters, explicit strategies, and hands-on practice afforded by the training module. Efforts should be made to ensure future revisions of this module and new training modules include similar components.

Additional investigation will be necessary to determine in what ways the training module is ineffective in adequately preparing GCs and CECs to revise *Closed* flawed research questions and/or if GCs and CECs self-perceived ability to apply the concepts and techniques was overly influenced by their confidence with *Too-Broad* and *Too-Narrow* flawed research questions.

Suggested revisions to the *Fixing Flawed Research Questions* training module include:

- move the training to a purpose-built platform (e.g., Captivate, Storyline, etc.) to accommodate increased interactivity and multimodality (e.g., quizzes that offer more immediate and direct feedback, video instruction, etc.);
- address glitches in audio and navigation concerns (these can likely be addressed with the move to a purpose-built platform);
- build in responsive practice activities that will allow GCs and CECs to move into more advanced research question revision scenarios as they proceed through the module;
- develop a prior knowledge check to help determine where GCs and CECs should start in the module and/or if they should progress to a more advanced module; and
- build in a reflection that allows GCs and CECs to elaborate on the choices they make in their flawed-to-viable research question revisions.

The results of the evaluation are rewarding and suggest an overall positive connection between the *Fixing Flawed Research Questions* training module, GC and CEC confidence and skill with helping students revise flawed research questions, and the research-related student learning objectives of ENG 102 and ENG 102R. In the future, the *Fixing Flawed Research Questions* training module should be required for all novice (≤ five semesters of experience) and new GCs and CECs and added to their first-semester professional development schedules. GCs or CECs with six or more semesters of service in the Noel Studio—or to those with advanced experience in developing or refining research questions through other venues (e.g., Noel Studio workshops)—should complete a prior knowledge check before initiating the training to determine if and/or what research question revision training is necessary.

Finally, in addition to revealing ways to improve upon the *Fixing Flawed Questions* training module, this evaluation revealed opportunities for additional training topics and/or new approaches to training that will prove indispensable in moving the GC and CEC training programs forward. Additional training modules and/or professional development seminars should be developed to address the following:

- how to assist students who are resistant to feedback;
- what to do when a student's exceeds the parameters of the assignment;
- how bias (their own and students') might impact research question selection, development, and/or revision;
- how opposing information might help or deter students;
- how to steer students away from topics that are controversial/beyond the scope of the assignment;
- how to determine if a research question passes the "so what?" test; and
- pre-searching as a precursor to developing research questions.

Appendix A
Instructions for Fixing Flawed Research Questions Training Module

**Fixing Flawed Research Questions Google Slides Training Module**
This week's PD Module, *Fixing Flawed Research Questions*, will introduce you to the concept of flawed and viable research questions and prepare you to help ENG 102R students construct viable research questions for their semester-long research projects.

Tips for completing this week's PD Module:
1. Use the Google Chrome browser to access the module.
2. Make sure you are in PRESENT mode: after opening the Google Slides module, click on or select "Present" in the top right corner of the Google Slides screen:
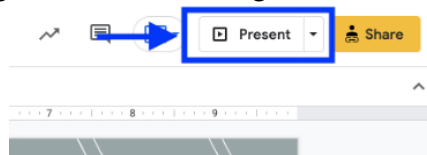
3. Navigate module by manually advancing the slides (you can click/tap the screen or use your computer's arrow navigation buttons).
4. On slides labeled "Practice" slides, you will navigate by selecting or clicking/tapping the appropriate button on each slide.
5. This module features auto-play audio on select slides. The live captioning feature built into Google Slides will create closed captioning for the audio. In PRESENT mode (see point 2 above):
   a. From the toolbar at the bottom of the screen, click the three dots to open the options menu, then click on *Captions Preference>Toggle captions (English only)* to turn on automatic captioning:
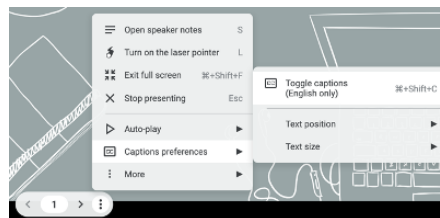
   b. When/if prompted, allow Google Slides to access your microphone.

   c. **NOTE**: You cannot use headphones if you want Google Slides to auto-generate closed captioning.

   d. You can access a transcript of the audio.

If you have questions or need assistance with any aspect of this week's module, contact Trenia Napier, Noel Studio Director of Operations and University Librarian:

- On the Noel Studio discord server (direct message or tag @Trenia)
- At trenia.napier@eku.edu
- In Noel Studio 310P
- At (859) 622-8322

Appendix B

Opinion/Confidence Survey for: Fixing Flawed Research Questions

Delivered via Google Forms

Fixing Flawed Research Questions Module Feedback Survey

Please answer the following questions about the Fixing Flawed Research Questions training module. We appreciate both positive and constructive feedback and have made this survey anonymous to ensure you are comfortable sharing your honest reactions and experiences with this module. Your feedback will help us improve this training module and/or provide insight into additional professional development needs.

If you would like us to follow up with you, share your email address and any questions you have in the last field.

What is your current role in the Noel Studio?
- General Consultant
- Course-Embedded Consultant

How many semesters have you worked in your current role?

Which additional roles have you held with the Noel Studio?

How well do you feel you understand the concepts and techniques taught in the *Fixing Flawed Questions* training module? Choose the one option that best describes your current level of understanding:

- I was ALREADY USING the techniques and concepts BEFORE THIS TRAINING.
- I am still at least SOMEWHAT CONFUSED about the techniques and concepts.
- I am now SOMEWHAT FAMILIAR WITH the techniques and concepts.
- I have a SOLID UNDERSTANDING of the techniques and concepts.
- I AM FULLY READY TO USE the techniques and concepts in my work.
- I have an EXPERT-LEVEL ABILITY to use the techniques and concepts.

How able are you to put what you've learned about flawed and viable research questions into practice during consultations with ENG 102 or ENG 102R students? Choose the one option that best describes your current readiness:

- I WAS ABLE TO use these techniques and concepts BEFORE THIS TRAINING.
- I AM STILL UNCLEAR about what to do, and/or why to do it.
- I NEED MORE GUIDANCE before I know how to use what I learned.
- I NEED MORE EXPERIENCE to be good at using what I learned.
- I CAN BE SUCCESSFUL NOW in using what I learned (even without more guidance or experience).
- I CAN PERFORM NOW AT AN EXPERT LEVEL in using what I learned.

Do you feel more confident overall in helping ENG 102 or ENG 102R develop viable research questions having completed this training module? How so?

Is there anything you're still concerned or unclear about regarding helping ENG 102 or ENG 102R students with research questions? If so, please elaborate:

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

Which aspects of the learning helped you the most in learning what was taught?

What could have been done better to make this a more effective learning experience? Remember, your feedback is critical, especially in providing us with constructive ideas for improvement.

Appendix C
Fixing Flawed Research Questions: Too-Broad/Too-Narrow
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Select THREE flawed research questions—ONE "too-narrow," ONE "too-broad," and a ONE additional question from either category—and rewrite them to be viable research questions using the methods you just learned about (e.g., adding/removing/modifying contextual qualifiers).

There are four "too-broad" options and four "too-narrow" choices, but you only need to rewrite three (1 too-narrow, 1 too-broad, and one additional from either category); leave the answer fields for the questions you do not choose to rewrite blank.

- [Too-Broad] What is the effect on the environment from global warming?
- [Too-Broad] What is the future of online education?
- [Too-Broad] What impact has education had on society?
- [Too-Broad] How should social networking sites address the harm they cause?
- [Too-Narrow] What factors influence the growth of farmers' markets in Miami, Florida?
- [Too-Narrow] What is the history of organic labeling of pork products in the city of Portland, OR?
- [Too-Narrow] How can we decrease the likelihood of death due to head-on vehicle collisions on I-70 in Salina, Utah?
- [Too-Narrow] What are the major factors leading to burnout in neonatal nurses aged 35-40 in Chicago?

Appendix D
Fixing Flawed Research Questions: CLOSED
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Select THREE CLOSED flawed research questions from the SIX options below and rewrite them to be viable research questions using the methods you just learned about. Select your questions in such a way that you can use at least two different "questioning a topic" approaches. Leave the answer fields for the three questions you do not choose to rewrite blank.

Remember: Closed questions may also be too-broad or too-narrow, so you may need to add/remove/modify contextual qualifiers in addition to shifting the question focus with "questioning a topic" approaches.

- Is racial profiling affecting arrest demographics?
- Is the traditional education model the most effective?
- Is exercise necessary to maintain a healthy body?
- Do ads affect voter turnout?
- Is alternative medicine a better cure than Western medicine?
- Does the Common Core result in better prepared students?

Appendix E

Flawed Research Questions Revision Rubric

Criteria	Exemplary	Good	Not There Yet
Objective 3: Focus a too-broad question and expand a too-narrow question.	Rewrite focus is appropriate and aligns with the original question topic.	Rewrite focus is fairly appropriate and aligns with the original question topic.	Rewrite is overly broad or narrow and/or deviates significantly from the original question topic
Objective 4: Transform closed-questions into viable open research questions.	Rewrite demonstrates ample opportunity for deep inquiry into the original question topic.	Rewrite demonstrates fair opportunity for deep inquiry into the original question topic.	Rewrite 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.