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TOPIC Generation and Teaching Research as Inquiry

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ACRL Information Literacy Frame: Research as Inquiry

Discipline: Arts & Humanities

Subject: Rhetoric; First-Year Writing; Inquiry

Learning Theory: Academic Literacies

Special Populations: First-Year Students; Undergraduate Students

Developing research questions and topics remains one of the more challenging steps for undergraduate students completing research projects and assignments.[1,2] Yet the process of developing a research topic is often made invisible through popular, open-ended assignment prompts, like "choose a topic that interests you" or "ask a question you're passionate about exploring." Without support and instruction, we can leave students guessing about what a good research topic or question looks like, shifting the responsibility of identifying curiosities and refining topics squarely onto the student.[3,4]

ACRL Information Literacy Frame: Research as Inquiry

The Research as Inquiry frame from the ACRL Framework describes knowledge practices and dispositions particularly relevant to teaching students how to develop research questions and topics. As an example, the frame focuses on

- determining the scope of investigation;
- managing complex topics and developing sub-questions to limit scope;
- meaningfully organizing information; and
- valuing curiosity and persistence in developing research projects and questions.[5]

While these practices and dispositions can inform a process-based approach to helping students develop skills and ideas relevant to developing research topics, the role of affect, emotion, and contextual norms is largely absent from these descriptions. Noting this absence is particularly important.

Learning Theory: Academic Literacies

As academics, we know the thrill that can come from pursuing a research topic or question that fascinates or compels us. As instructors, we often want to share this type of experience with our students: we want to show them the beauty and excitement of impassioned inquiry. And our students are often excited about this opportunity as well. Coming from high school contexts, where prescriptive paper topics and assignment prompts are typical, being provided the space and opportunity to pursue one's own interest can be particularly empowering and exciting for new undergraduate students.[6]

We also know that the research process can be incredibly emotional[7] and that learning to complete coursework often requires new sets of skills along with a nuanced understanding of the contextual and social norms that accompany college-level work.[8,9] Learning theories can help us better understand these dimensions. One theory in particular, academic literacies, helps focus attention on the nuanced and situated nature of research by describing the often "deep affective and ideological conflicts" students experience as they move into meaning-making practices in higher educa-

tional contexts.[10] Academic literacies perspectives value student identities and meanings, understanding that power relations and social norms and expectations are entangled with the seemingly practical work of the research process.[11,12] A first-year student new to higher education, for example, may be excited to be offered the chance to write a paper or develop a speech on a topic of their own choosing yet be met with frustration when they realize that what they are excited about is too broad or too narrow for their project. Emotionally connected to the topic, they may resist suggestions to explore alternative perspectives or to simplify their focus as they may feel—often rightly so—that they are experts on their topics. Locating alternative perspectives may seem to only muddy the waters and make summarizing and synthesizing perspectives especially challenging for students maintaining simplistic assumptions of objectivity (often a holdover from previous dichotomous understandings of bias). In this way, the seemingly practical activity of choosing a topic becomes an epistemological and affective issue that needs to be expressed and understood. And while we should not foist the unpacking of all research issues on a single, semester-length course, we can provide a space to channel first-year students' excitement and perceived freedom into beginning the process.

While the Research as Inquiry framework describes research as being the product of "collaborative effort" and the process as including "points of disagreement" and "dialogue," we need to further explore ways of incorporating these and other social and affective facets into our library instruction practice. We do our students a disservice if we do not show them how to channel their ideas and excitement, if we do not provide encouragement that can help them trust their ideas as valid and respected in academic contexts. We do our students a disservice if we do not let them know that the ups and downs of research, the conversations with peers, the dialogue with instructors is not intended to be—nor should it—be a neutral process; it is and can be frustrating on a practical level but also on a personal level. We do our students a disservice if we are not upfront about the expectations we have about them and how these are part of a larger social and institutional power structure that determines what is considered "academic work." In short, we do our students a disservice if we do not take their excitement as honest and provide a structured opportunity to support them as they explore this excitement in an honest yet practical way.

Talking of Projects Inspires Curiosity: TOPIC Teaching Module

TOPIC is a process-based teaching module that includes activities, assignments, and an informal, low-stakes workshop that supports the development of research questions and topics. TOPIC draws on the theory of academic literacies to make the affective practice and institutional norms of developing a research topic visible. The TOPIC workshop[13] is designed to provide a space and the necessary support to help students reflect on the experience of these multiple dimensions of developing research questions as undergraduate students. The workshop environment is intentionally social with activities that help draw explicit connections among the social environments created during the workshop and the social and institutional environment in which students now find themselves doing work. The TOPIC module is focused to meet learning objectives drawn from both the Research as Inquiry frame and the academic literacies model. For more on this, see the Assessment section.

While portions of the TOPIC module are designed to be co-taught, instructors of undergraduate courses could easily lead the co-taught portions, freeing up time for the librarian to spend more time on search techniques or other general information literacy instruction that can complement the activity/assignment research parameters.

Lesson Plan

Learner Analysis

- The TOPIC module is designed to supplement and support instruction in an undergraduate-level course with a research assignment component. This module works particularly well with first-year students as it takes a process approach to teaching research and provides opportunities for students to reflect on and ask questions about college-level research assignment requirements in informal, low-stakes contexts.
- This activity was developed in collaboration with faculty and instructors teaching a required undergraduate general education course teaching critical thinking, reading, research, writing, listening, and speaking skills. The curriculum for the course is

built on the understanding of the public importance of diverse responses to controversial topics and a goal of many courses is to help students move beyond dichotomous notions of arguments and topics. Given this context, the workshop is particularly well-suited for classes and coursework seeking to help students move beyond simple understandings of topics by providing active-learning activities that ask students to identify multiple viewpoints and missing perspectives.

- While this activity works well in first-year courses with research/inquiry components, TOPIC can also be framed to work in upper-level and honors-level coursework, as well as it is designed as a peer-review context that mimics professional research experiences.

Limitations

- While it can be challenging to teach research process to students with varying degrees of previous research experience, the workshop is built to leverage these differences through peer-feedback and support activities.

Opportunities

- Providing time for questions throughout the workshop prompts student reflection on learning and provides time for students to clarify workshop and/or assignment goals and the chance to ask clarifying questions about the research process more generally. Given the community-building that often happens as a result of collaborative activities like those included in this workshop, students may feel comfortable asking more difficult questions about the nature of academic research assignments. For example, during a session run by the authors, students asked clarifying questions, like:
  - ▷ How do I ensure that I adequately answer my research question?
  - ▷ How specific should a question be at this point?
  - ▷ How do you pick a side to a topic when there are so many different sides to the topic?
  - ▷ How do you objectively report on the topic without being bias?

These questions prompted conversation about academic norms and expectations. We asked students to reflect on and share their previous experience and understanding of concepts like bias, so the conversation was grounded in helping students understand the differences between expectations in higher education and high school contexts, a conscious application of the academic literacies model.

Orienting Context and Prerequisites

- Students should have received course assignment requirements.
- Students should have completed the TOPIC Pre-Workshop Assignment prior to attending the TOPIC Workshop.

TOPIC Pre-Workshop Assignment

In preparation for the workshop, students are asked to reflect on their own understanding of research and research topics and identify a broad research topic of interest to them. After identifying the topic, students must brainstorm related keywords. Appendix 4A contains the worksheets students should complete and bring with them to the workshop.

Instructional Context

The following describes the TOPIC Workshop activity:

Materials required:

- whiteboards or easel-size sticky notes or sticky notes or 8.5×11 sheets of paper
- writing utensils, dependent on the writing surface, one for each student
- clock or timer
- phone with a camera (optional)
- TOPIC Brainstorm & Crowdsource Workshop Handouts, one for each student
- students need to bring completed TOPIC Pre-Workshop Assignment to the workshop

It is optimal to have a room large enough for all students to move around in and enough whiteboards for each student to have their own space to write questions. If whiteboards are not available but there is enough space in the room, easel-size Post-its or regular size Post-it Notes

can be used to record student questions. If whiteboards are not available or there are learners with mobility impairments, the activity can be completed with 8.5×11 sheets of paper. In this scenario, each student should have their own sheets of paper to be passed around the class. It is ideal to bring along enough writing utensils, whiteboard markers, pens, or pencils so that each student has their own. A clock or timer is required so the instructor can time the brainstorm rounds. We have found it helpful to take photos of brainstormed lists written on whiteboards or on sticky notes attached to the wall after the workshop to share with the larger class. If 8.5×11 sheets of paper are used, collect these from students to scan and share with the class for subsequent discussion.

Prior to students' arrival, complete the following:

- Set up the classroom in stations, one per student. At each station place: a Post-it sheet or a stack of Post-it Notes or two to three pieces of 8.5×11-inch paper, along with appropriate writing utensils. If you have whiteboard space available, place a marker at each station.
- Plan workshop timing. The workshop is built around multiple "crowdsource" rounds, where students will provide feedback to peers and brainstorm additional research questions related to a student's broad topics. See the table below in the Instructional Objectives and Learning Activities Section.

We have found it helpful in the run-up to the assignment to talk rather explicitly about research questions, thesis statements, and the inherent difficulty in writing an appropriate question within a topic that students may not know much about. In many cases, their cursory understanding of the traditional "controversy" essay makes their work more difficult by giving things the appearance of stark dichotomy (and thereby simplicity) when really the research space is a messy place with opaque borders. In this light, it is helpful to work through concrete examples with students. This can take many forms, including on-campus issues from the frivolous (e.g., the best dormitory) to the serious (e.g., why college is still worth the investment), or real-world issues (like worry about the Ebola outbreak). Working through concrete examples in class prior to the TOPIC Workshop helps students see how an initial question or thesis gets sharper through rounds of revisions and research.

Learning Outcomes and Activities

Learning Outcomes

1. Students formulate questions and synthesize ideas.
2. Students critically evaluate questions, formulate questions, and identify gaps.
3. Students organize and conceptualize information to identify possible gaps or missing perspectives.
4. Students determine an appropriate and meaningful scope of investigation.
5. Students describe justifications and meaning of chosen research questions.
6. Students reflect on the social nature of scholarship in the academy.

Learning Activities

1. Topic and Question Brainstorming *(LO1, 5 minutes, essential)*
   - Students write their broad topic on the whiteboard. Then students use their keyword brainstorm from the Pre-Workshop Assignment (Appendix 4A) and the "Research Lenses" (Appendix 4C) table in the TOPIC Workshop Handout (Appendix 4B) to brainstorm and record as many possible research questions about their broad topic as they can come up with.
     - ▷ Note: It is ideal if students develop questions for a particular assignment.
2. Crowdsourced Rounds *(LO2, 3 minutes per round, essential)*
   - Students rotate one station to the right or left or hand their papers to the person next to them. Then students use the "Research Lenses" chart (Appendix 4C) to add questions to their classmate's existing brainstormed list. In addition to adding questions, students should also be encouraged to write clarifying questions or notes about existing questions, as well as a star or otherwise mark questions they feel are particularly well written or compelling.
     - ▷ Note: It is ideal for each student to receive at least three rounds of feedback. Saturation and boredom tend to set in around round five or six.
3. Review and Organize Rounds *(LO3, 5–7 minutes, essential)*

- Students return to their original station and read through the questions developed about their topic. During this round, students organize questions into categories based on the perspectives the questions represent. Students using sticky notes can move notes around to create clusters. Students writing on the whiteboard or paper may write a list of the perspectives identified. Once complete, students should identify and write another list with perspectives not represented but of possible value to conversations about their broad topic. Students should then try to develop one or two questions from the missing perspectives.

4. Crowdsource Round *(LO2, 3 minutes per round; no more than 2 rounds, optional)*
   - Students rotate again, this time in the opposite direction and brainstorm additional questions framed from the "missing perspectives."

5. Quality Questions Round *(LO4, 5 minutes, essential)*
   - Students return to their original station and read through all the questions developed about their topic. During this round, students choose three to five questions they are interested in pursuing and feel meet the goals and parameters of their assignment. Students should record these questions on the provided TOPIC Brainstorm & Crowdsource Workshop handout (Appendix 4D).

6. Quality Questions Sharing *(LO5, 10–15 minutes, essential)*
   - Once students have completed their lists, volunteers should be asked to share their lists with the class (sharing only their top one or two questions), describing why they choose their questions and why they feel they would be good questions for their current assignment

7. Debrief *(LO6, 10 minutes, essential)*
   - Students return to desks or seats and respond to questions, like the following:
     ▷ What did you think about this activity? How did you feel during the activity? What did you enjoy most? What did you enjoy the least? What was challenging?
     ▷ Do you have questions about the assignment and how this activity relates?

8. Assessment *(LO6, 5–10 minutes, essential)*
    - Students complete Workshop Feedback Form (Appendix 4E), part of the TOPIC Workshop handout.

Assessment

Learning objectives can be assessed through a combination of: observation of workshop activities; a collection of a series of self-statements throughout the semester, leading up to and following the TOPIC Workshop; and authentic assessment of final student projects.

Observation

Observation should be conducted during the TOPIC workshop. The table below describes when observation can ideally be used to measure learning objectives during specific TOPIC Workshop activities.

Self-Statements

The series of self-statements are part of the TOPIC Workshop handouts, included at the end of this chapter. The self-statements should be collected at three times throughout the research process:

1. prior to beginning the research assignment (part of the TOPIC Pre-Workshop Assignment packet);
2. during the research process (after the completion of the TOPIC workshop, part of the TOPIC Workshop packet); and
3. after completing and handing in the research assignment (TOPIC Post-Workshop Assessment).

Authentic Assessment

Final student projects may be assessed to measure how students' final research question or topic met assignment parameters.

The table in Appendix 4F describes how data can be collected and learning outcomes measured throughout students' research process and during the associated TOPIC Workshop. Individual learning objectives are matched with associated data collection methods, measures, and the connecting theory and/or ACRL Frame.

Appendix 4A

Developing a Topic: Pre-Workshop Assignment

Identifying and developing a topic isn't easy. In fact, a good topic—one that is compelling, focused, and refined to fit assignment requirements—develops over the course of a research project or assignment. The following worksheet is designed to help you in this process.

1. Identify a broad topic.
2. Once you've chosen a broad topic to explore for your assignment, write your topic at the top of the Keyword Brainstorm worksheet attached.
3. Take 3–5 minutes and add as many words as you can about your topic under the broad categories provided on the Keyword Brainstorm worksheet. Try to come up with at least 2–3 words for each of the categories (Who, What, When, Why).
4. Use the words you just recorded as keywords to search online and in library resources to locate materials on your topic. As you search, record new terms you discover related to your topic. If you find a resource (an article, a blog post, a book, etc.) that is particularly relevant to your topic, take a moment and record the citation as you might want to return to that source later in your research.

Developing a Topic: Pre-Workshop Assignment

The following worksheet is designed to help you organize terms and ideas about your chosen topic.

1. Write your topic in the "Topic" space below.
2. Take 3–5 minutes and add as many words as you can about your topic under the broad categories provided (Who, What, When, Why). Try to come up with at least 2–3 words for each of the categories.
3. Using the words you just recorded, search one or more of the sources and tools provided in the Tools and Sources section above. As you search, try to find a few more terms that relate to your topic. As you come across more terms, record these below as well. If you find an information resource (an article, a blog post, a book, etc.) that is particularly relevant to your topic, take a moment and record the citation as you might want to return to that source later in your research.

Topic:

WHO	WHAT	WHEN	WHY

Developing a Topic: Pre-Workshop Assignment
Reflections
Please respond as honestly and as best you can to the following prompts.

1. Please describe how you expect to learn about developing a topic in this course.
2. What does a topic do? What is its purpose?
3. In your own words, define the term "topic."

Appendix 4B
Developing a Topic: TOPIC Workshop

Identifying and developing a topic isn't easy. In fact, a good topic—one that is compelling, focused, and refined to fit assignment requirements—often develops in fits and stages over the course of a research project or assignment. The following worksheet is an outline and guide for today's Topic Brainstorm and Crowdsource Workshop. This workshop is designed to help you along the path of developing your topics for your next assignment.

Materials required:
- Completed Keyword Brainstorm handout
- Willingness to learn new investigative methods that can: (1) help identify and explore multiple perspectives on a chosen topic; (2) help refine and narrow the focus of a chosen topic

1. Grab a marker or pen and write your research question or topic on the board or on the paper provided. If you are working at a whiteboard or other surface, make sure to bring along this handout along with your completed Keyword Brainstorm handout.

2. Your workshop leader/instructor will start a timer. For the duration of the timer, use the terms you recorded on your Keyword Brainstorm handout to develop research questions about your general topic. Each of your research questions should use one of the "lenses" provided below in the "Research Lenses" table.

3. Once the time has elapsed, your workshop leader/instructor will start another timer and begin the crowdsource round. At this time, move clockwise over to the next general topic. For the duration of the timer, add additional questions to your classmates' brainstorm list. Make sure that all your questions include one of the lenses provided below. If you get stuck and can't think of any additional questions, make notes, suggestions, or perhaps even put a star next to an existing question that you feel are particularly well written. Just make sure that your feedback is in some way constructive. ***Note: You will not use your keyword brainstorm handout during this round.***

4. Your instructor/workshop leader will prompt you to start and stop additional crowdsource rounds (step 4).

5. Review and Organize Round: Return to your original station. Review the questions listed under your topic. Do you see any themes emerging? Are there ways you could group the questions into categories around specific perspectives? For example, if your topic was "the cost of higher education," you may see questions written from the student perspective, an instructor perspective, or the perspective of a member of the public. If you are using a whiteboard and/or paper, make a list of the different perspectives. If you are using Post-it Notes, arrange the Post-its according to these perspectival categories. Once completed, write a list containing perspectives not represented but of possible value to conversations about your broad topic. Using the Research Lenses table, try to develop 1–2 new questions that are written from one of the "missing" perspectives.

6. Crowdsource Round II: Rotate, this time counterclockwise, to the next topic. For the duration of the timer, add additional questions that are written from one of the "missing" perspectives listed by your classmate. Make sure that all your questions include one of the lenses provided, below. If you get stuck and can't think of any additional questions, make notes, suggestions, or perhaps even put a star next to an existing question that you feel are particularly well written. Just make sure that your feedback is in some way constructive. ***Note: You will not use your keyword brainstorm handout during this round.***

7. Question Value and Quality: Return to your original station and read through all the questions developed about your topic. Choose three questions you are interested in pursuing for your current assignment. Why are you drawn to these questions? Are they a good fit for assignment parameters? Are you providing a glimpse into an often "missing" perspective? Feel free to combine questions if they are a good fit for your assignment. Record the questions you are interested in pursuing in the Research Question Form included in this document below. Tear the Research Question form off and hand it to your workshop leader/instructor before you leave.

8. Share: Volunteers share lists of three chosen research questions and describe why you chose questions and why they feel they would be a good fit for their current assignment.

Appendix 4C
Research Lenses

Which one? Informs perspectives or choices by synthesizing and comparing information about topic(s).	*Example: Which social media technology of the last 5–10 years has had the largest positive impact on personal relationships?*
How? Explores solutions or perspectives to particular problems or topics.	*Example: How should we solve the problem of rising student loan debt?*
What if? Explores solutions, perspectives, and options; can help form hypothesis.	*Example: What if the United States had national paid parental leave requirements, similar to that offered in countries like Denmark, Finland, and Iceland?*
Should? Explores ethical, moral, or practical ideas or solutions based on available information.	*Example: Should state money be used to fund school voucher or savings plan programs?*
Why? Explores connections and relationships that contribute to a topic or issue.	*Example: Why do students expect to get a good job after completing a college degree?*

The "Research Lenses" activity is adapted from Buffy Hamilton who writes at *The Unquiet Librarian* blog. The activity is drawn from the blog post accessible here: https://theunquietlibrarian.wordpress.com/2015/04/27/formulating-research-questions-with-birds-of-feather-collaboration-and-writable-surfaces/. The Research Lenses is based on work originally published by Riedling (2007) in *An Educator's Guide to Information Literacy*, p.22.

Appendix 4D
Developing A Topic: Handout Form

Name:

Research questions chosen:

In 1–3 sentences, describe one thing you learned today.

In 1–3 sentences, describe one thing you have a question about.

What does a topic do? What is its purpose?

In your own words, define the term "topic."

Appendix 4E
Developing a Topic: Post-workshop reflections

Please respond as honestly and as best you can to the following prompts.

1. Please describe how you learned about developing a topic in this course.

2. What does a topic do? What is its purpose?

3. In your own words, define the term "topic."

4. Please rate the following on a scale from strongly disagree to strongly agree. Place an X in the box that best describes your feelings about each statement.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I am better at developing topics for course-related research after completing this class.					
Class activities helped me improve my abilities to develop research topics and questions.					
Class activities helped me improve my understanding of conducting research.					
Class activities helped me understand college-level research.					

Appendix 4F

Learning outcome	Data collection	Measure	Theory/ Frame
Students begin to see research and inquiry as an ongoing process that can be iterative, creative, frustrating, and exciting.	Self-statements	Measured as a change in student conceptualizations of research throughout the course of the semester. Indicative sample self-statements: *"Today I learned to look/think a little deeper into my thoughts.' 'There may be more questions to ask and they may compel us."*	Academic Literacies Research as Inquiry
Students develop a deeper understanding of developing research topics.	Self-statements	Measured as a change in student conceptualizations of developing a topic throughout the semester. Measured as nuanced reflections describing the process of developing a topic.	Academic Literacies Research as Inquiry
Students move beyond dichotomous conceptualizations of topics or controversies toward understanding multiple perspectives.	Observation of workshop activities Self-statements	Measured in students' practices identifying and defining multiple viewpoints related to their question/topic brainstorm activity. Indicative statements: *"I learned that there are many viewpoints that can be related to a particular topic." "I learned to dig deeper into the topic to come up with controversial questions. Everyone has a difference in opinion." "I learned one topic can create a lot of questions."*	Research as Inquiry
Students develop strategies for organizing and conceptualizing ideas, research questions, and topics.	Observation of workshop activities Self-statements	Measured in students' practices of organizing and describing the variety of perspective related to their topics.	Research as Inquiry

Students determine topics/questions appropriate to the scope of assignment or investigation.	Observation of workshop activities Authentic assessment of student final projects	Measured as students' practices of identifying and describing the best topic or question during TOPIC workshop. Success is measured as students' topics matching assignment parameters, could be assessed with a rubric.	Research as Inquiry
Students develop a deeper understanding of instructor and institutional standards and expectations of how to develop a research topic or question.	Observation of workshop activities; in particular, Debrief questions (see Instructional Objectives and Learning Activities Table, above) Self-statements	Measured as students' descriptions and conceptualizations of research standards and assignment requirements.	Academic Literacies

Notes

1.   Alison J. Head, "How Freshmen Conduct Course Research Once They Enter College," *Project Information Literacy Research Report: "Learning the Ropes"* (2013), https://files.eric.ed.gov/full-text/ED548262.pdf.
2.   Alison J. Head and Michael B. Eisenberg, "Truth Be Told: How College Students Evaluate and Use Information in the Digital Age," *Project Information Literacy Report* (2010), http://www.projectinfolit.org/uploads/2/7/5/4/27541717/pil_fall2010_survey_fullreport1.pdf.
3.   Anne-Marie Deitering and Hannah Gascho Rempel, "Sparking Curiosity: Librarians' Role," *In the Library With the Lead Pipe* 2017, http://www.inthelibrarywiththeleadpipe.org/2017/spark-ing-curiosity/.
4.   Jean Donham, "College Ready—What Can We Learn from First-Year College Assignments? An Examination of Assignments in Iowa Colleges and Universities," *School Library Research* 17, (2014).
5.   Association of College & Research Libraries, *Framework for Information Literacy for Higher Education*, 2016, http://www.ala.org/acrl/standards/ilframework#inquiry.
6.   Head, "How Freshmen Conduct."
7.   Carol C. Kuhlthau, "Inside the Search Process: Information Seeking from the User's Perspective," *Journal of the American Society for Information Science* 42, no. 5 (1991).
8.   Mary R. Lea and Brian V. Street, "Student Writing in Higher Education: An Academic Literacies Approach," *Studies in Higher Education* 23, no. 2 (1998).
9.   Mary R. Lea and Brian V. Street, "The 'Academic Literacies' Model: Theory and Applications," *Theory Into Practice* 45, no. 4 (2006).
10. Lea and Street, "Student Writing."
11. Ibid.

12. Lea and Street, "The 'Academic Literacies' model."
13. The workshop activities are modified from previous work done by Buffy Hamilton (B. Hamilton, "Moving from Our Mindmaps to More Focused Topics with Question Lenses and Musical Peer Review," *The Unquiet Librarian* (blog), October 27, 2014, https://theunquietlibrarian. wordpress.com/2014/10/27/moving-from-our-mindmaps-to-more-focused-topics-with-question-lenses-and-musical-peer-review/; Buffy Hamilton, "Formulating Research Questions with Birds of Feather Collaboration and Writable Surfaces," *The Unquiet Librarian* (blog), April 27 2015, https://theunquietlibrarian.wordpress.com/2015/04/27/formulating-research-questions-with-birds-of-feather-collaboration-and-writable-surfaces/; and adapted from Riedling (Ann Marlow Riedling, *An Educator's Guide to Information Literacy: What Every High School Senior Needs to Know* (Westport, CT: Libraries Unlimited, 2007).

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