

# Co-CREATE Your Class:

## Critical Reading Instruction for First-Year Students

*Caitlan Maxwell and abby koehler*

### Introduction

Our course, Library (LIBR) 239, is a credit course linked to a 100-level education course. Students take both courses as part of a program that introduces first-year students to teacher education and human services early in their careers. We aim to foster student agency and promote inquiry-based learning in reading, writing, research, speaking, and listening instruction. Addressing all of these “academic literacies” allows for “individual meaning making and academic knowledge construction” in their work as students, according to Lillis et al. in *Working with Academic Literacies: Case Studies towards Transformative Practice*.<sup>1</sup> We use active learning and critical pedagogy approaches to engage students in exploring these integrated academic literacies. In particular, our use of a non-traditional critical reading method in our course facilitates students’ understanding of the knowledge and research practices in their future disciplines (education and human services).

### Critical Reading Connection

As part of our work in LIBR 239, we use scaffolded approaches centered on the student’s experience with scholarly research. This includes adapting the CREATE (Consider, Read, Elucidate the hypotheses, Analyze and interpret the data, and Think of the next Experiment) method, an equity-building approach from the scientific disciplines, to facilitate critical reading strategies.<sup>2</sup> In this chapter, we focus on how we incorporate

interdisciplinary critical reading strategies such as the CREATE method, as well as writing center pedagogy, to critically analyze scholarly literature. In our use of CREATE, we acknowledge both the authors' and students' roles and authority as co-constructors\* of knowledge and experience in the research process, and by facilitating critical reading we empower students to work, understand, and eventually CREATE new knowledge in their education or human services fields.

## CREATE Method

We first encountered the CREATE method at our institution when working with a collection of first-year STEM courses. These courses were designed as part of a grant from the Howard Hughes Medical Institute's (HHMI) Inclusive Excellence program to address the problem of underrepresentation of historically marginalized female and first-generation students in the sciences. Faculty instructors of courses within the cohort program wanted to “better prepare students for navigating college, understanding and using scientific practices, and building quantitative reasoning skills specific to the natural sciences.”<sup>3</sup> To do so, they employed the CREATE protocol, which was detailed in a 2007 article by Sally Hoskins and collaborators in the journal *Genetics*.

The CREATE method asks students to read and analyze primary literature—in the Hoskins case, an article on genetics—while at the same time thinking critically about the intention and role of the authors and the work they did for the research itself.<sup>4</sup> The CREATE method encourages self-efficacy, content integration ability, and actively engages students as scientists with the research process in a particular discipline.<sup>5</sup> In CREATE, students explore how scientific research is conducted, and why, and they begin to work with someone else's research in ways that typical lab experiences (for example, reproducing a chemical test to find similar results) do not, or cannot, provide.

In the first steps of CREATE, students conduct a conceptual reading of an article's introduction for a broad understanding of the researcher's purpose and the relationship of that purpose to who or what was studied. Then, students perform a close reading of the article's methods and results sections. In our other instructional experience, students often skip methods and results in their initial reading experiences and instead head straight to the discussion or conclusion. When students begin with the discussion section, we unfortunately find that they can make false assumptions about the quality of the work described, the authority and credibility of the authors, and the relevance of the research to the students' activities (often, a deliverable like a research paper). In contrast, by giving students space to consider and reflect on the methods first, we can ask them questions about the reproducibility of and potential bias in the act of performing that research:

- Did the author have a large enough sample size to make this research worthwhile?
- Who or what aspects of this research might have been excluded by the author?
- Would someone else, like you, make the same choices the author did?

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\* “To construct with; construct together” “Definition of Co-Construct | New Word Suggestion | Collins Dictionary.” Accessed June 11, 2021. <https://www.collinsdictionary.com/us/submission/8726/co-construct>.

Further, when we ask students to analyze the results, which often include charts and graphs, we introduce visual literacy practice and collectively initiate the iterative process of research by connecting this section back to the broad understanding we established when we read the introduction. In dialog with the students, we ask, In what ways are the results directly connected to the purpose of the research itself?

While Hoskins and others found that this process can result in figurative lines drawn between variables tested in an experiment to an author's research question, this is not always the case for students working with articles outside STEM fields such as social sciences. The "lines" may not always be as straightforward or clear as the originally published description suggests. In addition, the original STEM-based CREATE pedagogy centers on one author's work alone; however, we situate the author's work in relationship with others' research methodologies in social science disciplines. In our course, we use an article written by one of the co-instructors in their education course to closely examine the author's methods and results. Then we conduct a series of discussions beyond what the original CREATE authors describe to bring forward the nuances of conducting quasi-experimental or qualitative research. We build on the original CREATE practice by talking with students about how the source we are working with will eventually enter into conversation with others through an annotated bibliography exercise, an assignment in their education course.

In much of our work, we find that many students often struggle with understanding the interconnected nature of scholarship and academic writing. The struggle deepens when students are then asked to reproduce these connections in their own writing or responses. The performative nature of those types of activities can pose hurdles to students in unfamiliar educational environments, and they can stand in the way of a student's deeper engagement with essential concepts of the discipline itself. By offering students space to consider different perspectives and approaches to research by people that they know, namely their education instructors, we're taking the scholarly conversation from the abstract into a living experience that they actively participate in and could use when completing their assignment.

The final step in the CREATE method seeks to shift student and instructor's focus away from knowledge of academic protocols and instead situate the students as scholars in their own right. "Think of the Next Experiment," the last stage, is when we can ask students to visualize that they are the ones doing the research described in the article and we ask:

- What lines of inquiry should the author pursue next? Describe what you think the research should "do" or "ask" next.

This prompts students to think about issues such as sample size, research parameters, methodology parameters and limitations, research question scope, and what avenues their own future research practices might take.

## Teaching Strategies

### Lesson Plans

#### LEARNING GOALS

Our main goals for using the CREATE method in Library 239 are to foster critical and strategic reading skills as well as to engage students as active scholars and professionals in

the education and human services discourse communities. We appreciate how the CREATE method encourages students to critically examine the methods and results sections of academic studies and works to predict the hypothesis or main argument and next steps for study. This particular aspect of the CREATE method seeks to demystify the process of academic research. It asks students to take an active role in participating in the scholarly conversation by doing educated guesswork on an author's potential conclusions and ideas for further research. Using the CREATE method also addresses some of our Teaching and Learning Division's (TLD) goals of building student agency and inquiry by engaging students in critical reading strategies for comprehending, evaluating, and retaining information as well as critically examining discipline-specific research methodologies and results.<sup>6</sup>

## LEARNING OUTCOMES

- Foster critical and strategic reading skills
- Engage students as active scholars and professionals in a discipline-related discourse community
- Strengthen academic literacies for researching, reading, and writing
- Practice strategies to increase agency, inquiry, evaluation, and collaboration

## RESOURCES/MATERIALS USED

- Anatomy of a Scholarly Article tutorial (NCSU Libraries)
- Strategic Reading Google slides (Hacherl Research and Writing Studio from Western Washington University)
- CREATE slide decks: Introduction, Methods and Results
- Introduction concept maps group work Google doc
- Methods and Results group work Google doc
- Scholarly article, broken into two portions: Introduction and Framework, Methods and Results

## Activities

### SESSION ONE

As an introductory framework for using the CREATE method, we facilitate discussion around reading strategies, the structure of scholarly articles, and the socio-political circumstances at play in academic writing, such as who is and is not represented by academic research, and who benefits from academic research among other considerations. We ask students to share their current reading strategies and then build on that by providing additional strategic reading methods from the Hacherl Research and Writing Studio. We compile all of these for a whole-class discussion, and often we see similar themes appear: finding or setting up a comfortable reading environment, taking breaks, previewing text by skimming, taking notes, highlighting, annotating, and creating a concept map or outline of the reading.

After this initial discussion about reading strategies, we ask students to share their understanding of what scholarly articles are and what “sections” might typically be

included. We then present the interactive Anatomy of a Scholarly Article image by NCSU (North Carolina State University)<sup>7</sup> and review the structure of a scholarly article and the kind of information contained within each section. We expand on this discussion by asking students to participate in a think-pair-share activity centered on their understanding of the general public's view of scholarly information. Individually, then in pairs, and then as a large group, we ask students to address the following questions:

- What do people pay attention to and what do they assume when reading scholarly literature?
- Whose voices are included?
- Whose voices are excluded?

In a follow-up large group discussion, we also ask students to reflect on how they determine authority and credibility when conducting research and reading sources. This provides a critical framework for addressing the socio-political context around perceptions of academic research. It also encourages examination of both the students' and authors' roles and responsibilities in the process.

Our next step is to lecture briefly on the elements of the CREATE method and why we chose to investigate it for the course. We describe how the method creates a space to develop strategies and processes to enhance clarity and understanding, where the goal is not to read through lots of literature but to explore the process of reading and understanding a text in ways they may not have experienced before. We refer back to this metacognitive aspect of the method throughout many of the CREATE lesson plans as a model for how the students can practice engaging with an article as scholars and professionals in a discipline or community.

With this understanding established, we check for prior knowledge regarding concept maps, the next stage of engaging with the Consider and Read steps of the method. For those unfamiliar with the activity, we share links to examples online and previous students' work. Having asked the students to read the introduction section of the selected article, we lead a class-wide discussion to brainstorm an initial set of high-level concepts and important terms they remember. At this point, students are broken into small groups and are asked to detail these concepts visually in the medium of their choice: a visual concept map, drawing, flowchart, comic, etc. We advise students that the goal is to engage their reading comprehension in a visual way, to collaborate with their group members, and to reach a consensus or shared understanding. For students with more experience in concept mapping, we also ask them to detail further thinking by addressing the following questions:

- Why are they making the visualization choices they are?
- What are the questions they could ask about what the visual doesn't show?
- What do they guess will be in the other sections of the article that might give more details or answer the questions the author asks?

After students complete this activity in a shared Google Doc, we do a gallery walk of the results and discuss the results as a group, comparing differences and similarities among the concept maps in order to develop a shared understanding of the key concepts and author motivations.

## SESSION TWO

Prior to the second session, we ask students to review the methods and results sections of the same article they were assigned in session one, which we copied into a second document to provide clear starting and ending points for reading. When we begin the class, we revisit the purpose for employing the CREATE method, this time focusing on the second half of the acronym: Elucidating hypotheses, Analyzing the data, and Think of the next Experiment. Our goal for the session is to generate predictions about future research based on educated guesses and evidence with an eye toward reading for social engagement. We review what prior knowledge and experience the entire class has had with these types of sections of an article by prompting them using the following questions:

- What do they know or guess the methods and results sections of articles might look like?
- What types of information do they guess will be included?
- What methods have some of the articles they've read so far used?

Finally, we recommend a few strategies for reading to record facts and evidence from these types of article sections and ask students to consider the following questions:

- Who or what was studied?
- How did the author study them? What methods did the author(s) use to conduct their study?
- What data did the author actually gather?
- What did the data say?

Next, we place students in the same small groups. We present them with a second shared workspace to compare their group members' understanding of the steps described in the sections as well as to brainstorm together where the research could go. We ask students to record two or three key facts about what was done (from the methods) and two or three facts about what was found (from the results). We also ask that students draft statements that reflect some guesswork in answer to the questions:

- Why did the author do what they did?
- What did the author conclude?

These prompts circle the results of the groups' fact-finding back to the larger concepts they visualized in the first session. Last, we present a final set of critical reading questions for the students to answer:

- In what ways could the author move the research forward?
- What should the author's next steps be if they wanted to continue this research?

These questions have no right or wrong answers, although students are encouraged to talk with the author (who happens to be their professor in this example) or to find more recent publications by the author to see what steps were actually taken.

## Discussion

Our first rollout of the CREATE process in winter 2020 had mixed results in a variety of ways. First, the initial article we chose was a study of digital literacy. The introduction and results sections were fairly long, and the methods were highly theoretical and

complex. After the first class, we decided to use a different article, one that was shorter in length, centered on a more straightforward research question, and was stylistically less rigorous. We chose an article written by one of their Education 110 instructors. This not only provided a more relevant, discipline-specific example, it also gave students an opportunity to potentially contact a familiar author if they had questions. Second, we noticed some initial hesitation and confusion around drawing cartoons of key concepts from the introduction (a recommendation based on Hoskin and collaborators' application of the CREATE model). This observation led us to choose concept mapping as the main visualization method, which made it easier to find examples that students could refer to and get inspiration from.

For the second iteration of using CREATE (winter 2021), we decided to use the CREATE method to lead students into a deeper conversation about research methodologies. The linked education course was co-taught this term, which meant that students could access two instructors who could share their experiences with multiple social science research practices instead of just one. Having had success with connecting the students to one of their professor's work previously, we recognized an opportunity to engage their second professor in dialog during class time about his non-Western approach to research, which includes a focus on storytelling and fostering a reciprocal research relationship with participants. This discussion built on the themes of the socio-political nature of research and whose voices have been historically represented in scholarly literature and whose voices are excluded and/or co-opted (with or without consent). We were also able to reflect on the underlying biases, approaches, and structures that perpetuate this inequity.

In future iterations, we are considering including additional conversations with their Education 110 instructors about non-linear approaches to critical reading in order to deepen their experience and participation in the research process. Because of our success and appreciation for the model, we've also considered adapting it for our integrated academic literacies workshops and other credit courses.

## Conclusion

The CREATE method offers a scaffolded approach to engage students in comprehending and participating in the research process through collective understanding and educated guesswork. Students critically engage in reading scholarship through visual and interactive methods while also proposing steps for future research. In addition, during small and large-group discussions around elements of deep reading, students are able to elicit their own prior knowledge and co-create an understanding of the practice of research as though they were doing the research themselves.

In our work with other courses, we have seen a kind of "hidden curriculum" at play in that students are assumed to know what research is and how it is conducted as well as have the educational experience to know how to do it themselves. When we adapt this critical reading approach for first-year students, we build equity into our practice and their learning experiences and establish the students as critical scholars and active participants in the scholarly conversation of their field or discipline. In addition, in our

use of the CREATE method, we place the source article in context, facilitating a discussion of how one research article can become a part of the broader participatory experience of scholarship.

## Notes

1. Theresa M. Lillis et al., *Working with Academic Literacies: Case Studies towards Transformative Practice*, Perspectives on Writing (Fort Collins, CO, Anderson, SC: WAC Clearinghouse, Parlor Press, 2015).
2. Sally G. Hoskins, “CREATE a Revolution in Undergraduates’ Understanding of Science: Teach through Close Analysis of Scientific Literature,” *Daedalus* 148, no. 4 (October 2019): 138–63, [https://doi.org/10.1162/daed\\_a\\_01764](https://doi.org/10.1162/daed_a_01764).
3. “HHMI @ WWU | College of Science and Engineering,” Western Washington University, accessed June 11, 2021, <https://cse.wwu.edu/hhmi-wwu>.
4. Hoskins, “CREATE a Revolution.”
5. *Ibid.*, 143.
6. “Western Libraries Strategic Plan 2018-2024,” Western Washington University Libraries, 2017, accessed September 7, 2021, <https://library.wwu.edu/files/final2018-2024plan.pdf>.
7. “Anatomy of a Scholarly Article,” NCSU Libraries, accessed June 16, 2021, <https://www.lib.ncsu.edu/tutorials/scholarly-articles/>.

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