Revamping the Classroom Research Project

Rigor and interest are not mutually exclusive when students shift from "doing" research papers to engaging in authentic research.

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Imagine the early stages of a research project in a traditional English language arts classroom, in which students are typically asked either to choose topics from a list or to select their own topic that they must wholly commit to before moving forward. Choosing from a topic list usually results in students being disengaged from the start. Self-selection of a topic without guidance can be equally ineffective; for a majority of students, the hardest part of such a project is finding a suitable topic (Project Information Literacy, 2010).

A balance between rigidity and lack of direction *is* possible. As one example, let's consider students Mike and Fran, who have been paired by their teacher, Mrs. Graffius, to discuss possible research topics. Mike completed a paper for a science class several years before on the Great Barrier Reef. Fran knows that she will be spending the next few weeks studying World War II in her social studies class. Both have decided that they will use these topics as the basis for their English language arts research papers, and although their reasons for doing so are different, their levels of engagement and actual passion for their topics is about the same—low.

Instead of just accepting these topic choices, Mrs. Graffius asks her students to complete a "Problems of the Worlds" graphic organizer (Werner-Burke, Knaus, & DeCamp, 2014). This four-lens graphic organizer consists of four concentric circles, with the innermost labeled "My Daily Life." The next circle is labeled "My School," followed by "My Community," and finally "My Country and the World" as the outer circle (see fig. 1 on p. 43). Each of these circles is a lens through which students examine their topic.

Mike and Fran begin by using the four circles to brainstorm problems they encounter in their daily lives

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(such as having money for gas or getting enough sleep). Moving outward through the circles, they expand to issues they see others in their school coping with (such as drug or alcohol abuse or negativity). Then, they move into the community and identify problems that affect the residents, neighborhoods, organizations, and businesses in their area (such as unemployment or vandalism). They fill the final circle with problems and issues that they believe exist on a national or global scale (such as climate change or the use of genetically modified foods).

Mike and Fran independently fill in their organizers and then share their ideas with each other, a process that often generates additional topics. (On the topic of alcohol, Fran suggests that when they're broke and out of work, people may drink more. Mike, who's been thinking about crime, realizes that when you're angry and depressed, you may steal stuff and want to break things.) After this, the class comes together to complete one large, hand-drawn copy of the organizer. This step exposes Mike and Fran to more lines of thought, and they consider whether the issues others raised (such as human trafficking, suicide, and mass shootings) are related to the ones they generated.

After this activity, neither Mike nor Fran has chosen a topic, but both have abandoned their original choices because they are more engaged with the topics from the discussion.

Vetting Potential Topics

When the class meets again, Mrs. Graffius brings up the Edmodo website (www.edmodo.com) on her classroom's interactive whiteboard. Her students have used this site regularly to access her assignments and resource materials. Mrs. Graffius has used her iPad and a free service called Educreations (www.educreations.com) to generate brief slide shows about effective keyword searches, website evaluation, note-taking options, writing thesis statements, and citation requirements. These resources, as well as the schedule of due dates for the research project and related rubrics, are all posted on the Edmodo site.

After she provides an overview of these resources to the class, Mrs. Graffius guides students through two additional topic-vetting activities.

The Top Ten

Students brainstorm a list of five facts that they already know about a topic and five questions they would need to answer through their research. If they can readily list five facts and can't identify five additional questions, they aren't going to be adding to their knowledge base significantly with the potential topic and should consider another one.

If Mike had decided to stay with the Great Barrier Reef, this exercise would have at least pushed him to cover new ground. Now, however, he is thinking about vandalism, and the Top Ten exercise helps him realize

that although he thought he knew a lot about the topic of vandalism, many of the items he originally listed as things he already knows aren't facts but rather assumptions (for example, "vandalism is caused by anger"). His "already know" list quickly morphs into a "need answers" list, and he decides that one of the first things he will need is a clear-cut definition of what constitutes vandalism.

The Five-Minute Google

In this exercise, students have five minutes to find at least three credible and readable sources to answer one of their research questions. To complete this activity, they will need to have already been taught how to evaluate a source's credibility. It is also important that students be able to size up a site by visually scanning it and determining whether it is within their immediate realm of reading comprehension. Sites that are too simplified or too complex are not useful at this point, whereas "just right sites" can be incredibly fruitful. (Students can revisit more complex sites later, when they have developed deeper background knowledge.) Mike uses the search phrase "definition of vandalism, causes" for this exercise.

Fran has chosen to explore the topic of using genetically modified organisms (GMOs) in food. Her "already know" list includes her definition of the term and a few facts about the topic (companies own the seeds, crops are more pest-resistant, some people feel the foods are less healthy, GMOs are the opposite of organic foods). For her Five-Minute Google, she begins with the term "GMO benefits," but as she is typing, the Google search bar suggests "GMO disadvantages." She uses that phrase for her second search.

Fran scans her results, deciding that her first search result (an article from the publication *Nature Education*) might be more understandable after she familiarizes herself more with the topic. The second find (from the Common Ground organization) is more accessible. She skims the text and adds the phrase "World Health Organization" to her bank of key search terms.

When the buzzer sounds, Mike and Fran have determined that these topics and the accompanying resources are viable enough for them to continue.

Taking Notes

Mike and Fran's previous teachers required them to use note cards to capture and organize information.

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Mrs. Graffius introduces them to some digital options. In her demonstrations, Mrs. Graffius implements a think-aloud approach by articulating her thought processes during an actual note-taking activity. She has chosen the topic, "Learning Through Play and Games." As she works with different sources, she reads the titles aloud and predicts what might be in the different sections, making clear how she evaluates the word choices and determines key concepts and search terms. To keep the class engaged, Mrs. Graffius has also built in a few hands-on activities.

First, Mrs. Graffius demonstrates how to use PowerPoint to set up a series of slides as digital note cards. Referring back to her "Learning Through Play and Games" topic, she sets up slides with different headings (play in school, role-playing games, board games, computer games) and then searches for, selects, and pastes content from several sources onto the slides for these different categories. She color-codes the pasted text with its reference information and paraphrases, in black, what she has pasted on each slide.

Before moving on, Mrs. Graffius directs the students to draw out six slides on paper and label them with tentative categories related to their own topics. Mike has a bit of trouble coming up with six subcategories for his vandalism topic but eventually finishes (definitions, types, causes, punishments, amounts of damage, and laws). Fran finalizes her GMO list quickly (what it is, how it works, comparisons, benefits, disadvantages, controversies, and regulations).

Next, Mike and Fran's teacher demonstrates how to create an account and take notes with NoodleTools. This online service offers digital note cards that can be color-coded, tagged with keywords or visual cues, and stored on the web. The cards can be stacked online and organized with an outlining tool. Each card has a place to paste in the content and a separate space for students to add their own paraphrasing of the material, a step that can safeguard against plagiarism (Werner-Burke & Vanderpool, 2013). There is also a space for a thesis statement or driving question.

The final digital tool, Citelighter, requires users to download and install a custom toolbar on their web browser. When users find useful information online, they highlight it and hit the capture button in Citelighter. The service automatically pulls information from the source page to create a citation and begins to build

the bibliography. Writers can export the work to Word, e-mail it, or store it right on the web. Mrs. Graffius again models how to create an account and use the tool to take effective notes. She refers the class back to a previous minilesson on citation requirements and directs the students to create a full citation for one of their sources from the Five-Minute Google.

With tools like these, Mike and Fran realize that it will be far less tedious to take notes than it was with index cards. They return to their lists of subtopics and draft a thesis statement related to these topics. Mike's first try at a thesis statement is "Vandalism is a growing problem in our society." Fran's is in the form of a question that becomes the title of her paper: "GMOs: Are They Worth the Risk?" They then number their slides in the order that they think will fit best in their paper.

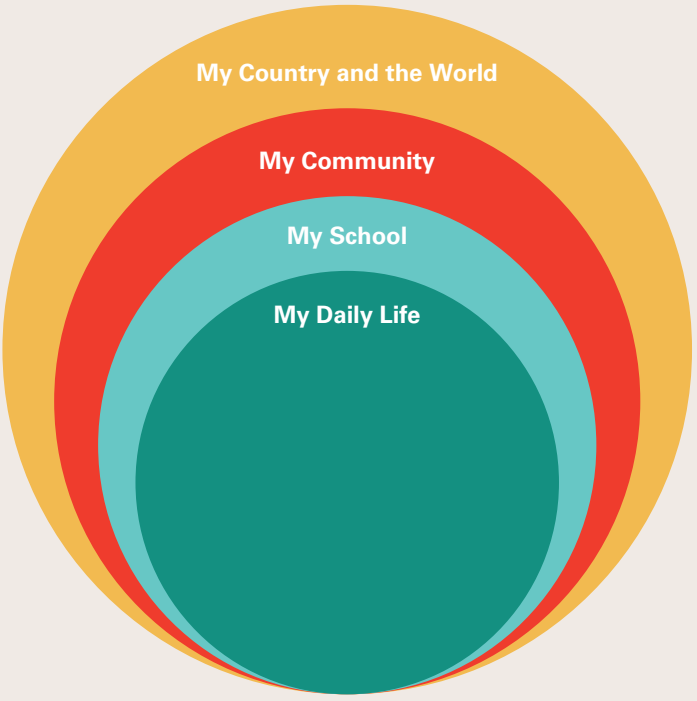
Casting a New Net

Surveys and interviews are not new, but tools like SurveyMonkey and e-mail turn students into sand-kicking fact-finders with superhuman capabilities. Instead of using surveys and interviews to collect information that is already readily available, students should use them to gather information that adds new depth to their work. For this reason, students should do a substantial amount of research before incorporating surveys and interviews into the project.

The students' four-lens graphic organizer (fig. 1), now titled "Resources of the Worlds," is again put into service. Using the same four circles and categories, Mike and Fran complete the organizer by asking themselves, "Who in my daily life/school/community/the world could be a good source of information on my topic?" Having already done some research that brought up occupations and organizations related to their topics, Fran and Mike are better positioned to answer the question than they were at the start of the project.

FIGURE 1. The Four-Lens Organizer

This structure of concentric circles provides support for student thinking in all phases of the research and writing process.



This graphic organizer is distributed to students under different titles at various points in the process. Each version has a different purpose:

- **Problems of the Worlds:** Students identify problems affecting people in each of the circles as a way of brainstorming research topics.
- **Resources of the Worlds:** Students identify resources in each of the circles that might help them with their research.
- **Your World Audiences:** Students identify potential audiences for their research in each of the circles.

Fran had already identified the World Health Organization as a high-quality source. When completing the organizer, she realizes that there is a source closer to home, in the form of an agricultural outreach center. A visit there leaves her with more pamphlets and print sources, but she is not able to secure an interview with anyone on the staff. She decides instead to survey community members to gauge the level of local awareness about the facts she uncovered in her research.

Mike had originally considered interviewing local residents who were victims of a large-scale egging incident he had read about in the local paper. However, his research has led him to think about hate crimes, and the new organizer propels him to think on a larger scale. He goes on to find a large amount of statistical information about hate crimes on the Federal Bureau of Investigation (FBI)

website, and he decides to conduct an interview to learn more. Mike's teacher helps him connect with a professor in the criminal justice administration program at a state university for this purpose. Mike also signs up on the FBI site to receive updates and so begins to receive useful reports in his e-mail.

The Fat and Skinny of It

Effective interview questions are open-ended—or "fat"—questions, requiring more than a one-word response (Skiffington-Dickson, Heyler, Reilly, & Romano, 2006, p. 14). Students should be prepared to listen and generate new questions that encourage the interviewee to expand on a comment or clarify points in the discussion. Mike creates a list of tentative interview questions and engages in a number of e-mail discussions with his university contact who is able to tell him about cases with which he had firsthand experience.

Survey questions, on the other hand, are closed—or "skinny." The goal is to collect responses from many people and to have the results reported in a form that can be easily aggregated. Fran reviews the question formats on SurveyMonkey and experiments with multiple-choice and Likert-scale formats before constructing her survey. She chooses 10 items from her research that had surprised her (for example, "Genetically modified produce is grown within 50 miles of our town") and organizes them into a true-or-false format.

Fran then asks the agricultural outreach center to link to her survey on its Facebook page. She also distributes small slips of paper with the survey link and a request for people to participate in taking it. After obtaining permission, she leaves these slips at the main desk at the local library. Within a week, Fran has results from about 40 people. She uses the bar graph feature in SurveyMonkey to show the results in her paper.

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Beyond an Audience of One

Too often, all the sweat of creating a research paper culminates with an audience of one—the teacher. Having an authentic audience is far more motivating than "writing for nobody" or just the teacher (Calfee & Miller, 2007, p. 277). By returning one last time to the four-lens graphic organizer, now titled "Your World Audience," students use the four categories to consider the questions, "Who is the best audience for my work? Who would benefit from it the most?" Identifying the audience helps them determine how to present their work.

Fran's 12-page paper titled "GMOs: Are They Worth the Risk?" morphs into a feature article titled "Eating Whole Foods for Health" that she submits to the local newspaper. For her 600-word submission, she selects only items from her paper that are related to whole foods, although the rest of the paper greatly informs her writing. In addition to writing his paper, Mike uses Educreations to prepare a two-minute slide show combining statistics from the FBI website and quotes from his university contact. He searches for and adds pictures of hostile-looking people and then records his own voice, asking repeatedly throughout, "Still think this isn't your problem?"

Real Skills, Real Knowledge

Classroom research can be an effective pathway to developing core literacy skills and knowledge of the world. As they conduct research, students develop information-gathering and communication skills they will need in other classes and in the workplace. They connect their academic work directly to the real world in a powerful and meaningful way. Through such research tasks, students like Mike and Fran gain the capacity to take ownership of their learning and make an authentic contribution to larger conversations beyond the classroom. EL

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