My Water Body: *RAD Undergraduate Guerrilla Research Documenting Water Quality in Florida*

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Undergraduate writing continues to be an in-class experience that has little meaning to anyone except the course instructor and the students themselves. In addition, undergraduate research is still seen by most as an unachievable pedagogical practice, much less an expected and regularized outcome. But this does not have to be the case. The use of shared research-based writing templates can work as a basis for RAD (repeatable aggregable data driven) undergraduate writing projects. The additional use of guerrilla research methods (using readily available technologies in novel ways to conduct quick analyses of small or overlooked datasets) is also well suited to a classroom environment and can be applied to transform traditional student papers into publishable projects with student-generated data. These pedagogical approaches convert traditional papers into tools to collect valuable qualitative and quantitative information and are appropriate for undergraduate courses in any discipline that emphasize writing and research. The "My Water Body" assignment asks students to describe a local water body (beach, river, water fountain, shower) and to complement the description with a scientific analysis of the site's water purity. Apart from accomplishing the customary expectations of a writing assignment (i.e. learning and assessment), the project results in a method of advocacy for Florida’s water
bodies that is meaningful to students, teachers, and Floridians in their roles as engaged scholars and good citizens.

**Repetition is RAD**

Repeating the same class exercises and readings year after year is generally frowned upon in composition studies. Teachers are expected to refresh their syllabi on a regular basis with new topics, assignments, and readings. Otherwise, courses might become stale, and teachers might get caught in a rut. A deeper reason informs this imperative to revise syllabi and to shun repetitive assignments, since repetition of the "common prompt" mirrors the current-traditional writing pedagogy of the late nineteenth century (e.g. everyone in class gets the same standardized writing assignment every semester). Furthermore, current-traditional rhetoric generally has come to imply canned or reductive teaching. To counter this prescriptive writing pedagogy, teachers began offering students more latitude and agency in the classroom. Students became much more likely to choose their own paper topics and to collect their own sources.

The classical tradition of Greek progymnasmata (rhetorical writing exercises), however, does present a timeless precedent that argues for the value of repeating exercises; in fact, many of the templates that inform this RAD research approach derive from progymnasmata. The "My Water Body" assignment is a form of Eckphrasis, a visually oriented description that works to persuade an audience toward an opinion or interpretation. Illustrations of this trope range from images of 9/11 with airplanes crashing into the Twin Towers (to argue for war) to a mother crying at the death of her son in a drive-by (as an argument for gun control). It is up to instructors to prevent the obvious downsides of repeated assignments. Assigning the same writing projects semester after semester requires the same level of intentionality and rigor as any other pedagogical decision so that assignment templates do not become an excuse for stagnate practice and student plagiarism. Repetition does not have to mean redundancy.

Repetition can also embody the fundamental recursiveness that has become de rigueur in composition classrooms. Donald Murray, when he first defined process-based writing pedagogy in the 1970s argued that the writing process is theoretically without an end point; papers are always "unfinished" and "evolving." When do
you stop revising an idea, a theory, or a criticism? Apart from the contrivance of classroom logistics, the answer is potentially never. These repeatable templates capture a reality of the writing process beyond the classroom; at the end of the semester, they are published, archived, and reiterated. A student who decides to focus on virginity narratives (or any of the other templates) might find herself collecting student samples years later, and so the accruement of data continues. Such is the strength of repeatability, which “real” scholars employ in their research.

Repeatable assignments are not only rooted in longstanding rhetorical traditions, they also help solve a perennial problem concerning a preponderance of anecdotal research in the field of composition and rhetoric. In an article on “NCTE/CCCC’s recent war on scholarship,” Richard Haswell (2005) defines RAD research as a “best effort inquiry into the actualities of a situation, inquiry that is explicitly enough systematized in sampling, execution, and analysis to be replicated; exactly enough circumscribed to be extended; and factually enough supported to be verified” (Haswell 2005, 201). Composition scholars have been complaining for decades that research in the field should not be taken seriously if it continues to remain anecdotal. In her book Composing Research, Cindy Johanek (2000) argues that “reliance on the personal anecdote has contributed more to ‘lore’ than to ‘research,’ two components of our knowledge-making that have always had an unfortunately strained relationship” and that “‘research’ that shares only anecdotal evidence seems to have found a prominent place in our recent scholarship—and unfortunately so” (Johanek 2000, 9). RAD research answers the perennial criticism about a lack of data within and about composition assignments by marrying an established interdisciplinary research practice with a traditional rhetorical pedagogical concept—repetition. It also offers a counter-script to scholars who stick with the status quo by downplaying the value of quantitative data altogether. Haswell (2005) writes “Since about the mid-1980s, there has been a fairly common opinion in NCTE- and CCCC-sponsored journals, even in Research in the Teaching of English, that hard facts on gain in student writing from the beginning to the end of a writing course are difficult to get or are not worth getting (e.g., Thompson,
The notion that pre-post gain studies may be not possible or not meaningful, however, seems to find little support again in publications outside of NCTE/CCCC” (Haswell 2005, 209). RAD research helps fill the data vacuum that exists within the field of composition and rhetoric.

Not only do RAD research practices give the standard composition narrative credibility for scholars, they add substance and meaning for students. Student investment in the larger research project goals is essential, be it on water purity, an ethnography of an intentional community, or a study on the effects of propaganda. To alleviate the innate repetitiousness of this template approach, students should be given choices among RAD projects. In the case of the water purity paper, the student’s site location (a pond, shower, fountain, local pool) breathes life into each reiteration. Further, the genre and form of the research varies. It might be an editorial in the newspaper, a plea to a politician for support, or part of a grant application. Just as the assignment genre can vary, so can the research methods. Johanek (2000) concurs: “While place might determine what research methods are possible, the research question determines what research methods are necessary” (Johanek 2000, 3). The hybrid (qualitative/quantitative) structure of the “My Water Body” assignment is determined by the template, but the form and purpose are determined by the student’s frame and the course goals. The students should have an invested relationship with their chosen projects; for example, the descriptive component of the Water Body template requires students to explain why their site choice is personally important. The rhetorical challenge is to extend this sense of importance to the audience—data can help.

RAD research is not only a way for undergraduates to contribute to research in the field, their teachers function as longitudinal research project coordinators, thereby foregrounding their status as scholars. Scholarship based on RAD research helps provide credibility across disciplines, many of which have recognized the value of RAD research for decades. For Haswell (2005), “a method of scholarship under attack by one academic discipline in the United States but currently healthy and supported by every other academic discipline in the world does not need defending” (Haswell 2005, 200). RAD research also reinforces Writing in the Disciplines writing-to-learn principles.
by debunking the master narrative that teaching writing is too hard for teacher-scholars across disciplines and promoting a like-mindedness concerning the importance and relevance of arguments based on data, not just anecdotes or “lore” in comp/rhet speak.9

Finally, the application of RAD research in conjunction with the creation of an undergraduate research journal in which students have the opportunity to publish their work in a real place with a real audience has done what composition scholars Michele Eodice, Anne Ellen Geller and Neal Lerner argue is an essential component of any high-impact teaching practice: create meaning. In their article, “What Meaningful Writing Means for Students” (2017), they write: “students find writing projects meaningful when they have opportunities to connect on a personal level, to find meaning beyond the specifics of the assignment itself, and to imagine future selves or future writing identities connected to their goals and interests” (Eodice, Geller and Lerner 2014). Creating a meaningful learning experience for students is at the heart of any pedagogical best practice because it leads to the successful acquisition of knowledge—no matter the discipline.

**Guerrilla Research**

To say that technology now informs every aspect of our lives has become a platitude, and yet how often does technology help inform the content of student work? Guerrilla research methodology makes use of data available to our students through their smart phones, related apps, conventional computers, and low-cost diagnostic tools. In their explanatory article “Guerrilla Research Tactics” (2014), Caldwell and his co-authors (Osborne, Mewburn, and Kraal) write: “Guerrilla research tactics require creative design thinking, the desire to make tangible artifacts as well as clever use of social media, ubiquitous technologies, and a willingness to explore alternative research methodologies. GRT [guerrilla research tactics] should be easy to implement and easy to use” (Caldwell et al. 2014). Students can use their phones to effortlessly record an interview via voice memo, have it transcribed with an app, and take photos to complement and time stamp a narrative. Marc Zimmer echoes Caldwell’s call to action in his article “Guerrilla Puzzling: A Model for Research” (2007) and argues that a guerrilla research model “should be considered by faculty members at
predominantly undergraduate institutions. It is cost-efficient, its time span is appropriate for undergraduate participants, and it can produce significant results. It is a great way to get students involved in research at an early stage in their academic careers” (Zimmer 2007). In addition, because these undergraduate studies marry qualitative/quantitative (hybrid) approaches to undergraduate research and adhere to WAC/WID best practices they are applicable for writing and research assignments across disciplines.

With guerrilla research, a premium is placed on utilizing overlooked technologies that might provide new insights. The "My Water Body" project, for example, passively incorporates metadata in the form of digitally time-stamped and location verified site photographs that help document the collection process and takes advantage of phone-based apps and five-dollar water purity tests to document the water quality of natural and municipal water sources in Florida. Another novel application of an overlooked technology is a narrative template that requires students to use readability statistics to answer the prompt, "Was I Taught to Write?". Students write a narrative reflection (qualitative) of their saved papers from high school and college with readability statistics (quantitative) as a numerical benchmark. One recorded interview, one water sample, or one statistical analysis does not mean much in terms of research credibility, but when these assignments accrue data through repetition, results become meaningful, particularly when they are vetted and published via an online journal devoted to undergraduate research. Combining RAD research methodology with guerrilla applications creates a sustainable foundation for a research journal on reform. The undergraduate research published in New Leaf is a representation of the templates in practice; as such, it is a model for students repeating similar projects and for teacher-researchers interested in applying any of the exercises. As research accumulates, both audiences can revisit the online journal site to see how the project results aggregate.

Not only can technology be an essential and efficient part of the meaning-making process in undergraduate writing assignments and help students-scholars (and teacher-scholars) compile important and easy-to-get aggregable research, it is an essential part of today’s literacy. Cynthia Selfe argues in her still relevant call to action, "Technology and Literacy: A Story
about the Perils of Not Paying Attention” (1999): “Composition teachers, language arts teachers, and other literacy specialists need to recognize that the relevance of technology in the English studies disciplines is not simply a matter of helping students work effectively with communication software and hardware, but, rather, also a matter of helping them to understand and to be able to assess—to pay attention to—the social, economic, and pedagogical implications of new communication technologies and technological initiatives that affect their lives” (Selfe 1999, 432). Teachers still make the mistake, too often, of assuming that because they are younger, students are automatically more tech savvy than their instructors; the opposite is just as often true. It is imperative that teacher-scholars embrace digital literacy as an essential learning outcome, across disciplines; the use of guerrilla research tactics gives them the necessary theoretical and practical tools to do so.

Promoting Civic Engagement and Student Voice

Informed by RAD research ideas and guerrilla research tactics, many of the assignment templates available in New Leaf have a gadfly ethos. According to Caldwell and his co-authors “Influenced by guerrilla activism, the key characteristics of GRT is a political agenda, the use of the unexpected, and the unconventional design that created opportunities for interactive, unique and thought-provoking experiences for the researcher and participant alike” (Caldwell et al., 2014). Collecting water samples might seem civically benign from most stakeholder perspectives; however, through an institutional lens, this watchdog behavior may appear non-procedural, invasive, or even threatening. This research paradigm is potentially threatening because technology has empowered the individual student in such dramatic ways; a five-dollar water purity test purchased on Amazon can expose an endemic problem (even one on a college campus); however, this gadfly perspective is welcomed and cultivated through the progymnasmata exercises that serve as the genesis for many of the template projects. In the case of the "My Water Body" ekphrastic template, the student is cast as an environmentalist, as someone with a deep appreciation of the aesthetics and practical value of water. This ideologically informed role can easily transcend the normative parameters of a class and become a self-identifying
persona. This is especially true since the students enrolled in classes using template projects assignments are also the editorial board members of the journal and are responsible for editing content, updating the website, and determining the direction and research interests of the journal. After the course ends, students can volunteer to remain on editorial board and as members of the student cooperative.

*New Leaf* recognizes and empowers student scholars by giving them credit for their work, another revolutionary move in the field of composition studies for which the norm remains referring to student work anonymously to protect them as an object of study. In "Young Scholars Affecting Composition: A Challenge to Disciplinary Citation Practices" Amy Robillard (2006) argues we should see "student writing as scholarship rather than as an instantiation of a particular pedagogy for which a teacher can take credit" (Robillard 2006, 267). The fact that Robillard's argument that student writing be seen as scholarship itself rather than the object of study was considered relevant in 2006 once again positions composition studies as an outlier in terms of recognizing the efficacy of undergraduate research as a pedagogical best practice. The first undergraduate research conference was held in 1978. Since then, the Council on Undergraduate Research (CUR) has helped promote and sustain undergraduate research opportunities. Its mission statement includes the following: "CUR believes that faculty members enhance their teaching and contribution to society by remaining active in research and by involving undergraduates in research, and students succeed in their studies and professional advancement through participation in undergraduate research." Students too enhance their "contribution to society" by actively engaging with the world around them and offering an audience tangible research along with a thoughtful narrative. Yet, undergraduate research has yet to truly scale up. In "The Role of Digital Technologies in Deeper Learning" Chris Dede (2014) argues that "the balance must shift toward certain kinds of instructional approaches that, while far from new, have rarely been put into practice in more than a small subset of the nation’s classrooms and schools. They include, for example, collaborative investigations, extended inquiries, apprenticeships, interdisciplinary projects, and other opportunities for students to discuss and debate complex ideas, to connect academic
subjects to their personal interests, and to confront open-ended, real-world problems” (Dede 2014, 2). RAD research templates combined with the use of guerrilla research strategies expand the possibility of meaningful collaborative inquiry that results in precisely this kind of significant undergraduate research and civic engagement.

The following student "My Water Body" papers are published in the undergraduate research journal New Leaf and exemplify the approachability and credibility of this hybrid research model. Elena Lambert, Magdaline Thulluru, and Reilly Cash were all students in a Fall 2016 Freshmen Seminar at Stetson University. Their work is published in New Leaf (2017, Volume 2, Issue 1). The assignment itself is flexible; it can be an essay or a shorter, more informal writing assignment that befits discipline specific genre conventions like a field report or an editorial. Published papers should be used as in-class models for your own students, another pedagogical best practice, both to teach them how to write papers like these and to support their identities as student researchers with an authentic purpose, tangible audience, and meaningful incentive—publication. With publication an attainable goal, the assignment goes from an easy A to resume worthy.

_Elena Lambert, a new transplant to the Sunshine State, chose an iconic beach on Florida’s west coast as the subject of a Freshman Seminar paper._

**The Contaminated Water of St. Petersburg**

I have been living in Florida for a year now. In that year, I have spent ample time exploring the beaches, specifically surrounding the Tampa Area. I have favorite a few: Treasure Island, Caladesi Island State Park, Clearwater, Madeira, and St. Petersburg beaches. St. Petersburg has quite a few hotels lining its beach, as it’s a bit more of a commercial area than the state parks. It attracts almost 25 million tourists per year. One of the most esteemed hotels on the beach is The Don Cesar beach resort. It is an iconic, pink, looming palace of a place, and appears luxurious. Inside, it lives up to its standards, but beyond the cabanas, powder white sand, and exclusive water, I have noticed a huge defect.

For someone who used to find Cape May, New Jersey, the most tropical place on Earth, I have become accustomed to Florida’s scenic beaches and clear water. Yet, the St. Petersburg beach specifically
surrounding this resort is disappointing. It reeks something especially foul; the water is tainted green and brown but not from dirt and algae. I am slightly germophobic, so I have wondered as I’ve dipped my toes in the water there if I am entering a toxic environment. I have noticed trash on the shoreline as it comes in with the tide. It is not like there are used needles washing up, but to say the least, I find it disgusting. I wonder if I am compromising my health and safety by enjoying a day on the beach.

I completed a water test outside of Don Cesar from the shoreline at the end of October (2016). The test revealed elevated levels of lead, bacteria including the presence of E Coli, Crypto Sporidium, Salmonella, Naegleria, and Fowleri, which is a brain eating amoeba! It isn’t guaranteed that you contract these diseases when swimming but it is frightening for sure. The test also showed that the water had an unusually large amount of pesticides, iron, nitrates, chlorine, copper, and alkalinity. All of these are usually present in water, even drinking water, but large amounts are problematic and can cause health problems. These elevated levels can cause developmental, neurological, gastrointestinal, reproductive, and organ damage, and even increase cancer rates. It is very disheartening to know all of this and not really realize a vacation or visit to the beach could be harmful. I think the resort should be responsible for putting a warning sign in front of the beach to let guests know what they are really swimming in. I don’t litter into the beach, and I don’t pee or willingly contaminate the water, so I feel at loss personally on how I could help this problem. I am now going to rinse off before and after I enter the water. I usually do not get water up my nose, but I think at this point, dipping my head in the water is frightening in a way.

St. Petersburg beach is an idealistic place, even more so at the Don Cesar Beach Resort. In a way, it is an illusion to think that the place or water itself is the place to be. Ignorance is bliss, but as humans with fragile lives, we must be aware of what we are susceptible to and how we can minimize risks. The Don Cesar Beach Resort at St. Petersburg can be dangerous to swim in and I will remember that as I choose where I spend my days basking in the sun from here on out.

Magdaline Thulluru evaluated the public water supply in her hometown municipality, Palm Beach and Palm
Water is Essential

Water is essential to our lives; not only do we use it for survival, but we use it daily for hygiene and our cooking tasks. We can’t over exaggerate the importance of clean and safe water; without it we would die of many water borne diseases. However, over the years, many have started questioning the safety and the cleanliness of the water we actually use. I’m sure many of us have seen and heard headline on the news about contaminated water, especially in Florida. Over the summer of 2016, Florida suffered a horrid water contamination; toxic blue algae covered many bodies of water, such as lakes, beaches and rivers all over the state. These toxic algae have caused the death of many of our local animals and will probably cause future economic and health crisis even though our local Florida government and scientists have ensured the public that the water that we use is safe.

Nevertheless, for the safety of our children and ourselves, it is our responsibility to test the water we use. Hoping to determine the possibility of health crises that might arise from drinking and using contaminated water, I compare and contrast the chemicals and bacteria found in two water companies that my family members use. Palm Beach water utilities and Palm Spring utilities are the two water companies that provides water for my family members. Using a water test kit from bought from Home Depot I tested if there was any possibility of e-coli, lead and other chemicals in the water we use every day. The water from both houses conclude that the water we use is very clean The Palm Beach water utilities had a lower rate of alchelie than the Palm Spring’s water utilities. Other than that, both water companies had relatively clean water. Even with the water contamination going on throughout Florida it was very reassuring to see that the water my family and I use is very clean.

Reilly Cash describes water quality in the St. Johns River, a water source that has been analyzed multiple times, with each test underscoring the river’s general health.
Clean Water for a Thriving Environment: St. Johns River

The St. Johns River is a safe, reliable water source to a certain degree. On one hand, the river is unique for its ability to cleanse itself from harmful bacteria. On the other hand, the pollution coming primarily from human sources contaminate the water’s surface. Industrial waste and the rain wash from farmlands, highways, and agricultural sources constantly run into the river and spread exponentially. Though we have recently made some progress in disinfecting the river’s surface, certain areas remain highly contaminated and contribute to low species diversity. In learning more about the actual process of the river’s mode of self-cleansing, communities can clean out pollutants more effectively and provide the healthy water source necessary for a prosperous ecosystem.

As a shallow body of water, the river tends to create less tides the further up it travels, where it becomes wider and more shallow. The slowing tides travelling downstream to the north slow down the flow of the river and create algae build-up. Nitrogen and phosphorus contribute the most to algae growth; both chemicals spread from human waste of various sources, some of them including air pollutants from automobiles, air conditioning, and construction sites. Additionally, these chemicals are released into the air from power plants, lightening, and certain plants. Pond water and fertilizer contain substantial amounts of nitrogen and phosphorus; as ponds collect water from nearby farms and fertilizers in the soil, the pond water runs off into the river through pipes and ditches.

Nitrogen and Phosphorus are necessary for the river’s biological diversity, but they also contribute to the river’s main problem of nutrient overload. Nutrient overload builds up algae and depletes water oxygen. Excessive nutrients create an ecological imbalance; the imbalance creates bacteria harmful to delicate species of fresh-water wildlife; this nutrient overload is largely the consequence of industrial and agricultural waste. What’s more, these particular pollution sources introduce harmful elements into the river including mercury, zinc, copper, lead, dioxin, pesticides, and herbicide. All of these chemicals these become even more dangerous when they are imbedded into the sediment at the bottom of the body of water, where they cause long-term damage from the floor to the surface. Bacterial
transport from sediments depends on environmental factors and is largely unpredictable. Harmful elements certainly threaten the river’s ecological health.

Clean water is key to supporting safe environments for vegetation and wildlife. A clean water source not only benefits nature, but also betters the surrounding community by providing a safe living space for residents. Those using the river for recreational activities and food harvesting, for instance, need a large, sharable, and clean space. Indeed, many find places on the river ideal for holding certain business. The St. Johns River could potentially be a source of great economic activity as well as a popular attraction site. Improving the river’s sanitation will spur communal growth and improve overall quality of life.¹

¹ Water testing near the Devil’s Elbow in Palatka in the fall of 2016 confirmed the river’s good health near the bank.

An Invitation
We invite interested teacher-scholars to submit their students’ work to an undergraduate research journal dedicated to reform through research, New Leaf. The online journal is a collection of undergraduate student scholar papers based on shared assignment templates designed to promote and aggregate undergraduate research, in this case, an exploration and assessment of Florida’s water quality. Use New Leaf’s assignment templates, and submit original student research to the journal for publication. Meaningful undergraduate research and writing assignments are pedagogical best practices, which enhance student engagement and success without asking instructors to compromise their own workload or minimize attention to course content. Join us.¹²
Notes

1. For more information on current traditionalists as well as other important pedagogical theories in composition, see James Berlin’s "Contemporary Composition: The Major Pedagogical Theories" College English, 44.8 (1982) and Ross W. Winterowd’s "Discovery- Invention- Creation," The English Department: A Personal and Institutional History (1998).

2. In the 1970s, the pendulum swung toward more process oriented and student centered pedagogy and theory. Important perspectives include Peter Elbow’s "Closing My Eyes As I Speak: An Argument for Ignoring Audience" College English (1987); William Lutz’s "Making Freshman English a Happening" College Composition and Communication (1971); and Joseph Harris’s "The Idea of Community in the Study of Writing" College Composition and Communication (1989).

3. Malcolm Heath’s translation of the rhetorical exercises progymnasmata written by Aphthonius in ancient Greece is an excellent resource. You can find it here: http://www.personal.leeds.ac.uk/~cla6mh/rhetoric/Aphthonius%20Progymnasmata.pdf

4. This is a good resource on tropes: http://rhetorica.net/tropes.htm.

5. Donald Murray’s “Teach Writing as a Process Not Product,” published in The Leaflet (1972) continues to be a great primer on process-oriented pedagogy.


7. One RAD template uses the readability statistics function in Word, which is turned off by default, to inform an essay, "Was I Taught to Write?". Students apply readability statistics to their passively archived courses papers to see whether audience level (complexity) increases over time; the operating assumption is that in an academic environment, complexity should increase. This assignment can be done as both an individual assignment and as an aggregate "class paper" which compels students to synthesize their collective perspective and compile all of their readability data in answer to the question. Here is a guide that explains how to get readability statistics in Microsoft Word: https://support.office.com/en-us/article/Test-your-document-s-readability-85b4969e-e80a-4777-8dd3-f7fc3c8b3fd2.


9. Refer to John C. Bean’s Engaging Ideas (2011) for the theory behind and practical advice on integrating writing into your courses.

10. For one assignment, students are asked to write either an encomium or an invective, which are two of the classical exercises; however, they must write sophisticatedly (e.g. the encomium should praise something most feel is bad, and the invective should criticize something most feel is good). Given that the student is cast in the role of social critic (i.e., college cafeteria food is delicious, Stalin
was a good leader, college tuition is reasonable (sophistic encomiums)), an ethos of critical civic engagement emerges as a dominant mentality.

11. You can find more information about the Council on Undergraduate Research here: https://www.cur.org/.

12. You can find *New Leaf* online at http://www.englishmajorcoop.com/.
Works Cited


