Interdisciplinary Case Studies – Examples of “Research that Reaches Out”

At your table, you have an example sheet that connects an issue/problem with a project that integrates research and service. After reading your example, think through and discuss the following questions with those at your table. (These sheets are for your own benefit; you are not expected to hand them in to anyone, and should feel free to take them with you when you leave.)

1. How does the project connect students specifically with the student learning outcomes of the Expose level, and move beyond it to the Explore and/or Express levels of Research that Reaches Out? What types of assignments could be created? What are the options for the students working on the project to disseminate their work (programmatic outcome 3)?
2. How could the project connect to a faculty member’s teaching with students? To one’s scholarship, with or without students? To one’s advising of student organizations?
3. How could the project be expanded to incorporate other colleagues, departments, academic units, non-academic units, etc.?
4. How could the project be sustained over time?
5. Discuss the extent to which you think this project requires approval from an institutional review board.

Blight
Disciplines: entrepreneurship ● engineering ● media studies ● journalism ● communication
Topics: Macon issues ● homelessness ● blight ● recycling ● design ● efficiency ● environment ● process improvement ● materials design ● community revitalization

Dialogue
Disciplines: art ● theatre ● communication ● music ● public policy ● foreign languages ● Christianity ● international affairs ● philosophy ● political science ● sociology ● criminal justice
Topics: international issues ● creative expression ● building communities ● peacebuilding ● conflict resolution ● Mercer on Mission project development ● human relations

Entrepreneurship and Financial Literacy
Disciplines: business ● economics ● accounting ● history ● finance ● math & statistics
Topics: youth development ● poverty ● banking ● nonprofit development ● entrepreneurship ● minority success ● small business affairs ● economic development ● archival research

Health and Wellness
Disciplines: public health ● psychology ● education ● marketing ● sociology ● math & statistics ● communication
Topics: health & wellness ● nonprofit development ● entrepreneurship ● data analysis (quantitative and qualitative) ● social science research ● public health ● human development ● social entrepreneurship

Humanities in Public Life
Disciplines: history ● technology ● Africana studies ● communication ● Southern studies ● technical communication ● marketing
Topics: tourism ● genealogy ● historic preservation ● Gullah Geechee culture ● digital archives ● African American history ● Georgia history

Human Disease
Disciplines: biochemistry ● biomedical engineering ● chemistry ● biology ● public health
Issue to be addressed: Blight

The project
In Fall 2014, a series of articles appeared in the Macon Telegraph titled “The House Next Door.” This series was a collaboration between Mercer University’s Center for Collaborative Journalism and the Telegraph, describing a major social problem in Macon/Bibb county – residential blight. The articles go on to describe there may be over 4000 blighted properties in Macon/Bibb. The city currently attempts to demolish up to 100 blighted properties each year, but many obstacles exist which make attaining this goal difficult. At this rate, it would take 40 years to remove blighted properties, assuming no new blighted properties are added.

Another article appeared in the Telegraph on August 29th called “New idea arrives on blight removal,” which reported on a collaboration that was formed between three local churches and the Macon Area Habitat for Humanity. This article discussed plans for the Macon Area Habitat to provide an employment opportunity for the homeless to deconstruct blighted properties. “Deconstruct” differs from “teardown” in that all material which can be recycled is removed from the property and is resold through Habitat’s Re-Store commercial sales store.

This article particularly resonated with me in that it was a “win-win-win-win”, and could benefit both my students and the project. The “win-win-win-win” included:

- Blight would be reduced.
- An opportunity for employment would be available for the homeless.
- Less waste would be produced and dumped in our rapidly filling landfills.
- Habitat could generate revenue through reselling recycled materials, revenue which would be used for new low-income housing.

The benefits to both my students and Habitat are that the deconstruction of one house leads to the deconstruction of another house, which generates the need for a process and an opportunity for process improvements. This is an ideal setting and research project for an Industrial Engineer. A primary theme throughout Industrial Engineering is “process improvement”.

Implementation
The project is for a team of Industrial Engineering students to first observe, collect data, and interview workers for the deconstruction of Habitat’s first deconstruction property. From this study, and hopefully the study and data collection of multiple houses, the students and Habitat team will document the process, obtain cost and time information, and design process improvements. The goal of the process improvements would be to design faster, cheaper and safer ways to deconstruct houses. The deliverable of the project would be a report which includes the detailed data, a recommended process, suggested process improvements, and possibly a comparison with a “teardown” approach.
Issue to be addressed: Dialogue

The Rio de Janeiro favelas have experienced much civil unrest in recent years, as income equality grows and some favela neighborhoods undergo gentrification.

Two team-taught courses of students will be traveling to Rio to help facilitate cross-cultural dialogue using the arts and expression. The students will work with favela residents and police on supporting innovative conflict resolution and peacebuilding projects focused on preventing, managing, and resolving violent conflict and promoting post-conflict peacebuilding.

In one project, long-term favela residents, newer favela residents, and local police are all part of an “original, participatory musical theatre,” designed by the students to draw residents of their community into important conversations that affects them. Each performance engages audience members by seeking their input during topical comedy sketches or by inviting them to “testify” before their neighbors about something in the community and how to get involved.

Issue to be addressed: Entrepreneurship and Financial Literacy

Youth living in areas with a high concentration of poverty often have low financial literacy – understanding how to manage money, invest in one’s future, utilize banks, build a good credit history, etc.

A “Banking on Our Future” program is interested in moving into the local community in order to help youth in low-wealth areas to gain the knowledge and skills for financial literacy.

A set of college students will be working with the program to teach the classes in schools and community centers. They are also helping to gather data on the effectiveness of the program.

For the youth who complete the program, an opportunity exists to enroll in a follow-up course on small business development & entrepreneurship. A group of college students is working to explore the characteristics of successful minority entrepreneurs of the past, especially by using the archives to understand how highly successful businesspeople found ways to uplift their communities in the process of building their businesses. The students’ research is incorporated into the curriculum of the entrepreneurship course.

Issue to be addressed: Health and Wellness

The project

A large urban housing authority is interested in increasing health and wellness in its residential population. There are over 30 different programs (government agencies, NGOs, church groups) currently in operation in the area, and they are interested in coordinating services among the agencies.

The authority has collaborated with public health researchers and they have determined that they need to establish a baseline measure of the current “culture of wellness” in order to accurately measure the effectiveness of future programs.

Curricular anchor

Students enrolled in a public health course were partnered with “patient navigators” who live in the target community. The patient navigators are able to set up interviews and focus groups for data gathering
opportunities among the residents, and the students can then work to gather the data, asking residents about rates of disease, opinions on health and wellness, and knowledge of resources. At the end of the semester, students lead the community members in a “Datapalooza,” sharing some of the rough data acquired (qualitative and quantitative) and working with the community members on determining trends. A rough draft of the data reports were created after the Datapalooza, and those were shared with residents and agencies. By disseminating data back to the community partners, they are able to have requisite data to support their future grant proposals for health-related programming.

**Issue to be addressed: Humanities in Public Life**

**The project: The History of African Americans in Coastal Georgia**

This project grew out of the faculty member’s own archival research and publication on St. Simon’s Island that expanded into collective public history project.

While the 50-year anniversary of the Civil Rights Act has been celebrated recently, the history of the lives of African Americans before that era is in danger of being lost. One locale where that is true is St. Simons Island. Built in the 1920’s, the Harrington School served the educational needs of three African American communities on the island of St Simons. The school functioned not only as the main source of education for black students, but as a center of community life. After desegregation, the building was abandoned, falling into disrepair. With expanded real estate development on the island, the school was in jeopardy of being destroyed and the land used for a subdivision. However, the school and twelve acres surrounding the school were saved by community advocates—the St. Simons African American Heritage Coalition and the Friends of the Harrington School—and Glynn County.

During linked courses on the History of African Americans in Coastal Georgia, students recorded the oral histories on the island in conjunction with the St. Simons Island African American Heritage Coalition. Students conducted interviews at the historic First African Baptist Church, a church founded by slaves on St. Simons in the 1850’s. In the second course, students transcribed their interviews, created digital storyscripts and digital stories based on the interviews. These historical accounts have become part of the Coalition’s permanent archive and the archives of the Coastal Georgia Historical Society and will be available to families, visitors, and researchers in the future. In addition, students presented their work to the community at the site of the school, and invited not only community members, but also interviewees. The St. Simons Island African American Heritage Coalition is interested in working with future classes on mapping the African American cemeteries on the island using GIS.

**Issue to be addressed: Human disease**

Using science, engineering, and technology to diagnose human disease

Pneumonia is the second leading cause of death among children globally, accounting for approximately 1 million deaths per year. There is an urgent need for new and better ways to prevent, diagnose and treat childhood pneumonia. The Bill & Melinda Gates Foundation has issued a Grand Challenge for more research in this area.

Finding a diagnostic biomarker for bacterial pneumonia would be ideal, such that tests can be used by frontline health care workers in developing countries. Early diagnosis is necessary, along with determining if the cause of pneumonia is bacterial, non-bacterial, or of non-infectious origin.

An interdisciplinary research team has been created, where faculty and students are working to create a protein-based, low-cost metabolite biosensor that can be used in the field to diagnose bacterial pneumonia. They are working to improve upon current biomarkers, and are developing non-invasive diagnostic methods that rely upon exhaled breath condensate rather than blood tests.