Clemson Collaborations in Service-Learning

Creating transformational experiences for students, faculty and community

Breaking Boundaries 2013-2014
Academia has long been criticized as an “ivory tower” – a place where academic and disciplinary silos abound – silos that have little relevance to the real problems people and communities across the globe are facing every day. While that criticism could be justified in some respects, there are faculty at institutions across the nation who have begun to change the way they teach – faculty who are crossing boundaries and engaging their students with community through interdisciplinary service-learning and community-based research activities. This group of faculty is asking some important questions:

- How can I help my students understand the relevance of my academic discipline and of what they are learning in the real world?
- How can I connect my students with students from other academic disciplines to solve community problems?
- How can I expand the classroom and the academic dialogue to include the voices of the greater community?
- How can I help my students make a positive difference in the world NOW -- while they are in the process of learning?

In order to answer these questions, these faculty members are breaking the traditional academic boundaries, moving their classroom into the greater community, and transforming the educational experience for students into one of real-world relevance.

Clemson Collaborations in Service-Learning highlights the work of some of these faculty at Clemson, the Clemson Service Alliance Faculty Fellows for 2013-2014. We hope you enjoy reading about some of their work and its impact on the student experience.

“And this is one of the major questions of our lives: how we keep boundaries, what permission we have to cross boundaries, and how we do so.”

A.B. Yehoshua
The CUshop Service Learning project focused on integrating a diverse group of students from marketing, graphic communication, architecture, packaging science, food science, culinary and art to develop and analyze the effectiveness of various packaging designs. Students worked together with three companies to assist their design departments on material selection, artwork effectiveness, claims and messaging responses on consumer behavior.

A highlight of one of the studies conducted was determining the effectiveness of colored caps on a food product within a bottle. The total cost to manage colored caps for our client was over $1M, thus it was critical to understand the effect color versus white bottle caps. The experiment determined that the colored caps increased attention by 40% and reduced the time to find the products by 50%. The end result legitimized the high investment for colored closures.

Another study worked with a local company to determine the effectiveness of a second label on a glass beverage package. The additional label had an expense of over $50K and required specialized equipment to place on the package. The study determined that the additional label did not increase consumer attention, sales or time to find the product. Thus, the study was able provide quantitative information to validate the removal of the label and saving the company over $50K annually.

In conclusion, students, faculty and staff worked together to develop implementable solutions for local companies that had an impact on the bottom line – breaking the preconceived boundaries that exist between industry and academia. The experiences were tremendous for all involved – resume boosters, value experience working with companies and educational processes and methods that can be utilized for future student/client interactions.

For more information, please go to http://www.clemson.edu/public/servicealliance/faculty_fellows_program/webcast_biometric_data_to_improve_packaging_design_2_19_14.html to listen to the webcast.
Over the last four years, Clemson's a.LINE. Studio has had the pleasure of working with the Town of Pendleton on a series of projects supported by the National Endowment for the Arts. The relationship started with a Your Town grant, which gave students from Landscape Architecture the opportunity to conduct an intensive two-day charrette bringing nationally recognized experts together with the community to define a community vision and begin to map a path toward attaining it. Our success with that project paved the way for the Town to continue the work through an Our Town and subsequent Arts Engagement in American Communities (AEAC) grant this past year.

Our mission for the project was to recognize the role that arts professionals have in our society and culture through meaningful interaction between members of the community and professional artists. Together with community groups from the Town of Pendleton, and volunteers from the University's Service Alliance, we created a temporary art installation meant to: encourage community participation; demonstrate the vision for the Pendleton Town Square master plan; and, illustrate how the design of public spaces can influence community. Our students stepped out from the studio to take their creativity to the streets and used their design skills to open a conversation with the community. Visitors were encouraged to write comments on several “black board” kiosks. There was wonderful response from many visitors. Their honest feedback will help guide the Town as it moves forward with plans for rejuvenation of the square.

For more information, go to http://www.clemson.edu/public/servicealliance/faculty_fellows_program/webcast_sustaining_community_partnerships_03_11_14.html.
Building Communities Through Architecture

Professor David Pastre, Senior Lecturer, Architecture
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The Clemson Architecture Center in Charleston (CAC.C) has been breaking boundaries for over 25 years. The center in Charleston is part of the school of architecture’s “Fluid campus” which also has centers in Genova, and Barcelona. The “Fluid Campus,” which includes Lee Hall at our main campus, refers to our geographically distributed learning opportunities, the integration of these opportunities within our degree-earning graduate and undergraduate curricula, and the fluidity of communication and work between the centers. Each center offers unique courses, experiences, and study opportunities that take full advantage of the distinct cultures of the three remarkable cities.

In Charleston, the mission of the CAC.C is to bridge academia and practice by teaching in a hybrid environment—a cross between academic and professional modes of work. The CAC.C studios are offered in two tracks, urban design and fabrication, and are both devoted to service learning by working on actual issues and projects in Charleston and the Low Country. Students work collaboratively, often in teams led by professors, with local architects, engineers, city officials, and community members on all projects.

I lead the design/build projects in Charleston and this past year we worked closely with the community on two exciting projects. In the fall semester I worked with five students on the design and construction of a new park for the West Ashley community of Charleston. The students designed a site strategy for the Magnolia Park and Community Garden and also built a pavilion/storage structure to support the community garden. With the help of several community design charrettes and meetings with our clients, the Charleston Parks Conservancy and the City of Charleston, we were able to successfully design and install the 400 square foot structure within four months and for under $11,000. This spring was the community garden’s first
season and they have already leased all 60 private raised beds to members of the community, and have made several donations to the local food bank from the produce yielded from the shared community beds.

This spring we partnered with the College of Charleston on a Farm to School initiative funded by a grant from Boeing. The farm to school initiative was started to ensure the health of children, farms, the environment, the economy and communities across the nation. The idea is that schools invest in local communities with their food dollars, local foods span the food tray, and healthy habits take root. The result will be that children will have access to nutritious foods, while local farmers and communities benefit. Through our research, we found that one major hurdle to this initiative was how do farmers get their crops from the fields to the lunchroom, and that's where we came in. We developed a prototype kitchen we call a “Crop Stop”, which gives farmers a place to prepare, process, and package their produce in an economically viable way.

With seven students we rehabilitated a derelict mobile home chassis from the ground up and created a 600 square foot farm kitchen that is located in rural Johns Island. The reason for the kitchen being built on a mobile home chassis is so that if a community invests in a “Crop Stop”, they can rest assured that if the chosen location is not ideal, it could be relocated with relative ease to another location. The plan is for this prototype to be set up as a cooperative shared resource within agricultural communities everywhere. We are nearing completion of this project on Johns Island, and expect it to be up and running this fall. The concept alone has created quite a buzz around the agricultural community in South Carolina, and grants are being written to roll out eight more across the state over the next two years. This fall semester we are going to continue our research on this farm kitchen concept with our hopeful outcome being a leaner, more efficient “Crop Stop 2.0”.

Our continuing objective at the CAC.C is for architecture and architects to expand their impact in society through design that addresses issues of social justice and community sustainability. My hope is that our Clemson students will gain the perspective that community engagement and appropriate design solutions can become a catalyst for positive change.

For more information go to the webcast highlighting some of the work at CAC.C at http://www.clemson.edu/public/servicealliance/faculty_fellows_program/webcast_student_engagement_in_community_3_7_14.html
South Carolina has one of the highest rates of death from domestic violence nationwide. This issue became personal for many of us on campus when a staff member was killed by her husband in 2012. To break the silence around this issue, our challenge in “Introduction to Women’s Studies” was to design a service learning unit to educate students and our campus community about this social issue.

In a class of sixty-five, one-fourth the of students chose to participate and four teams worked throughout September and October, training to volunteer at the local shelter; organizing a fund-raiser; bringing The Clothesline Project to campus; and organizing multiple awareness events culminating in a vigil. All groups interacted with our main speaker and met with the family of our colleague. The class was updated regularly on the work of the teams and attended many of the events.

All participants reported knowing more about the subject-matter after participating than they would have from class alone and all reported being more passionate about the topic. Also, as expected, some participated because domestic violence had entered their own lives in one way or another. By the end of the service-learning unit, at a follow-up breakfast, some of them shared powerful personal stories and it was clear that they had built up a level of community, trust, and caring that went well beyond the boundaries of the traditional classroom.

Where the outcome was unexpected was in the larger group who did not participate directly. A much higher than expected percentage of these students chose to research some aspect of domestic violence for their final paper. In one case, where a student admitted taking the course just for General Education credit (and not expecting to enjoy it), changed the focus of her major to study family and violence issues among high school students. In effect, the passion of the smaller group energized the larger classroom atmosphere as well and enriched everyone’s learning experience. This peer-to-peer learning and enthusiasm made the experience a memorable and valuable one.

To hear more from a student who participated in the service-learning project, go to http://www.clemson.edu/public/servicealliance/faculty_fellows_program/web_cast_womens_leadership_1_16_14.html.
Across Boundaries: Service-Learning in New Contexts

Dr. Cassie Quigley, Assistant Professor, Teacher Education, Science Education
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This winter, I led a study abroad to Puntarenas, Costa Rica
where in the students participated in a form
of service learning known as crowd-sourcing
data. Crowd source is the practice of ob-
taining needed services, ideas, or content by
soliciting contributions from a large group of
people, and especially from an online com-

munity, rather than from traditional employ-
ees or suppliers.

Crowd sourcing has been used for years
including the Oxford English Dictionary and
genealogy research. More recently, it has
been used in science in citizen science proj-

ects. Scientists need a lot of data in order
to have valid results but often in the case of
environmental science work, there are not
enough scientists in locations around the
world. Some examples include the Christ-
mas Day Bird Count or the Vanishing Firefly
Project. In my class, students contributed to
two crowd-sourcing experiments. One was
related to water quality and the other was
trash in the ocean. Both experiments used
minimal equipment and required Internet to
enter the data. Using mobile apps and test
kits, students recorded the presence of cer-
tain toxins and record the data on websites
to provide better data to scientists. In this
way, service- learning projects such as crowd
sourcing data is a way for students to partici-
pate in both international experiences as well
as contributing to knowledge for bettering
our environment.

To learn more about the project, go to
http://www.clemson.edu/public/servicealli-
ance/faculty_fellows_program/webcast_col-
laborating_through_technology_and_
crowd-sourcing_2-7-14.html to hear the
webcast.
In the design studio service learning interventions have been framed through the lens on interdisciplinary design+build projects. Over the past several years my teaching partner, Dan Harding associate professor Architecture, and myself have strived to adjust the perception of design build studio projects. And, at the same time raise the standard, quality of work, and design intensity while exceeding learning objectives and curricular goals. Too often in design build projects a community and the academy engage in partnerships to reach independent primary goals. The result of this type of scenario is more often than not a temporal relationship of convenience with each party receiving the benefit of an immediate need or certain scripted outcome. The partnership dissolves without follow-up or reflection and the intervention becomes a line item of accomplishment for the university partners.

In Service Learning in Design and Planning, Agnotti, Doble, and Horrigan write, “Service learning shifts the site of learning from the classroom or studio to the community but involves much more than a change in venue.” And they argue that, “ situating academic activities in the community requires the development of committed academic-community partnerships, open communication, shared goals, reciprocity, and continuing reflection. Service learning can integrate a community’s needs to address a problem with the academic need to provide critical learning experiences. However, it must also create a new relationship between academic and community partners in which the contributions of both partners are understood and valued.”

A primary studio and pedagogical goal within the interdisciplinary studio is to instill the value of trust as the foundation between community and academic partners. When trust is present, mutual, and open together communities and the academic entities are capable of leveraging action and consensus. We have found that the design+build studio is an effect forum for teaching entrepreneurship, critical thinking, and compassion while at the same time expressing the value of design through stewardship.

For more information, go to http://www.clemson.edu/public/servicealliance/faculty_fellows_program/webcast_sustaining_community_partnerships_03_11_14.html and listen to the webcast.
How often have you heard that students were captivated by a Statistics Class? Undergraduates in a Fall semester 2014 class of Math 3010 adopted The Parenting Place of Pickens County as their Service-Learning client. Parenting Place receives grants to provide education and services to parents who may have been accused of child abuse and neglect and, in some cases, lost custody of their children. Parenting Place is required to collect data showing the impact of their programs.

Parenting Place had collected data but needed assistance in analysis—a common problem for non-profit organizations, and to develop better measurement instruments, data entry and analysis tools. Several of the students were so captivated by the project and the issue of child abuse prevention that they asked that a Creative Inquiry be formed so that they could continue this work with and for the client. This will be a several semester project, again “Breaking the Boundaries” of a typical Service-Learning project in a Statistics course.

Students often complain that they do not see the connection between Statistics and real-world situations. Through this Service-Learning/Critical Thinking course, some of those connections have been clarified, and both students and the client organization have benefited.

Want to hear from students about their experience in the class? Go to http://www.clemson.edu/public/servicealliance/faculty_fellows_program/webcast_using_statistics_to_teach_3-31-14.html to listen to the webcast on the class.

Students “Captivated” by Service Learning Project

Professor Laura Shick, Lecturer, Mathematical Sciences
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52% of the faculty teaching at least one service-learning course in 2013-14 were non-tenure track faculty
Public history, an emphasis area within the general history major, offers students many ways to break boundaries—they are constantly engaged in interdisciplinary work that falls outside the “walls” of the academic community. Service-learning projects comprise a part of each course within the emphasis area, and students move from a one-day project in the Introduction to the Study of History Museum class to increasingly more varied, intensive, and multi-week projects that introduce them to moviemaking, website development, architectural research, and management. These projects complement the academic portion of the class by enabling the students to apply the theory of museology and preservation to their work on historic sites, neighborhoods, and in history museums.

For example, students in the Introduction class have worked at Walnut Grove’s “Festifall” teaching colonial games to children. In this way, they get to experience a day in the life of a museum educator as they start to understand that there are many ways to educate the public. In our “History and Uses of Tourism” class, not only do students learn about the historical development of tourism in America, but they also develop documentary videos for local historic sites. They also write research papers to accompany these documentaries. Our hope is that students come away from the class understanding that good documentaries start with solid historical research. These documentaries become part of the Palmetto History Project website: http://www.palmettohistoryproject.org. In our digital history class, students often work to develop websites for museums or on other various digital humanities projects, and in our capstone course, students work with museum managers to develop branding concepts, museum exhibitions, volunteer management plans, and collections management policies as they learn about the best practices in museums across the country.

When they graduate, our public history students have developed their managerial, curatorial, teaching, and promotional skills through our classes—all of this in addition to honing their communication, analytical, and historical skills in their traditional history classes. They are truly breaking disciplinary barriers in a way that takes their work outside the academic community and into the public.

For more on the use of service-learning in the courses in public history, go to http://www.clemson.edu/public/servicealliance/faculty_fellows_program/webcast_incorporating_sl_into_humanities_3_4_14.html and listen to the webcast.
Applied Engineering Service Learning – Design and Build of Manufacturing Equipment for Elementary Classrooms

Dr. Joshua D. Summers, Professor of Mechanical Engineering and CoES IDEaS Professor

All mechanical engineering undergraduate students throughout the US are required to have a capstone experience of some kind. Often, this is a team centered project based experience of one or two semesters. Clemson University’s Department of Mechanical Engineering has intentionally decided to present industry sponsored projects to the student teams. In this manner, students are able to work with professionals from industry as customers on projects that have real value to the company. In preparation for this, essentially exit exam of capstone course, students are introduced to the design process in a precursory course. It is in this course that students are taught design methods and tools while being guided through a semester long project. It was found that a major skill set that the students were lacking when entering the capstone course was the ability to navigate the “messiness” of design with changing and conflicting customer requirements. Therefore, this has been addressed in the pre-capstone design course by including projects that are sponsored by external customers. Beyond the need for external customers, students have expressed an interest in having opportunities to have direct impact on society in meaningful and not profit centered ways. Therefore, the initial design course has been restructured to include service learning design projects where student teams work through the semester to provide educational equipment to elementary classrooms.

In the Fall 2013 semester, eight teams of students worked on designing and building manufacturing equipment for Midway Elementary in Anderson, SC. This school is a science and engineering magnet school. As part of their program, students are introduced to the design process. In order to extend the engineering reach to capture the second component of engineering (generating ideas = design; building those ideas = manufacturing), Clemson University offered to construct manufacturing equipment for the elementary students to be able to use in support of their design projects. Each team of Clemson students defined their own manufacturing process, but worked with the classroom teachers...
and the fifth grade students. Through this interchange, the Clemson students were challenged with both eliciting requirements and educating the Midway teachers and students about the manufacturing process, the materials, and the components that can be produced. Through the semester, the Clemson students presented their work to both their peers in weekly design reviews and to the customers through tutorials, videos, presentations, and other updates.

At the end of the semester, a daylong event was scheduled to bring the elementary students to campus for tours of manufacturing labs and to have the manufacturing equipment handed over from the Clemson design teams. This event, the Clemson Engineering Design Expo (CEDE), was enthusiastically attended by both graduate and undergraduate students in addition to the student design teams. The design students recognized the value of this experience with the following concluding thoughts:

“ME 4010 was an interesting class. Honestly, most of my learning occurred outside the classroom when working with my teammates.”

“Each decision that is made in terms of the design needs to be justified by the requirements that have been set forth.”

“This semester’s project was excellent preparation for 4020 as it required building a prototype, understanding various customer needs, and writing a final report in addition to other documentation for the customer.”

“As a final recommendation, I would say please continue to give these hands-on projects in which a final product build is required, and let it always go to a school or a charity. Creating something for such a precious and inspiring audience is very motivational and gives the teams pride in their work and discipline.”

For more information, go to [http://www.clemson.edu/public/servicealliance/faculty_fellows_program/webcast_windtunnels_and_manufacturing_2_27_14.html](http://www.clemson.edu/public/servicealliance/faculty_fellows_program/webcast_windtunnels_and_manufacturing_2_27_14.html)