UNDERGRADUATE RESEARCH GOES ABROAD

ALSO IN THIS ISSUE

Benefits of Research Fellowships for Undergraduates with Disabilities

Incorporating Undergraduate Research into Teacher Education

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Cover Photo: SF3 student directed research group members prepare for forest mensuration transect with members of the local community forest management group and a forest technician. Tang Valley, Bumthang, Bhutan. (Photo credit: The School for Field Studies)
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In this issue of CURQ on the Web

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In March, the Institute of International Education (IIE) presented its annual Andrew Heiskell Awards for Innovation in International Education to 13 campuses. The awards honor outstanding initiatives in international higher education among IIE’s 1,200 members. One of the institutions honored for its efforts to “internationalize its campus” was the University of Wisconsin-Eau Claire for its International Fellows Program. In order to attract students who were not participating in international educational opportunities, this program was created to support faculty-student teams that wanted to “conduct research, explore scholarly questions, or pursue creative projects in international settings.” These faculty and students often continued their research after returning to the home campus, where they shared their international perspectives and overseas experiences. Seven of the thirteen institutions recognized with an Andrew Heiskell Award this year are located in the U.S. and six of these seven, I am very proud to say, are members of the Council on Undergraduate Research (CUR).

One of CUR’s Strategic Pillars aims to foster the internationalization of undergraduate research, scholarship, and creative activities to broaden the reach of this high-impact learning pedagogy. CUR’s 35 years of leading and nurturing the undergraduate research enterprise have successfully resulted in its spread throughout our nation. In addition, CUR has served as an organizational model globally, launched numerous international partnerships, and encouraged other groups of institutions to take up the cause worldwide, including BCUR in Britain and ACUR in Australia. We are proud to be at the forefront of the undergraduate-research movement and actively involved in the efforts under way to increase its globalization. Many of our member institutions have been utilizing research as a means to enhance their students’ undergraduate education for quite some time. One such institution is another member of the Wisconsin University System, located in River Falls, Wisconsin. William Campbell and Lissa Schneider-Rebozo document this history in their contribution to this issue titled “Fifty Years of Undergraduate Research in Europe.”

The UW-River Falls Study-Abroad-Europe program was started by faculty member Robert B. Bailey III, as an outcome of his own experiences abroad as a college student from an underrepresented group. He wanted to provide similar life-changing opportunities to all students and not just the academically elite. His desire to make the program inclusive particularly benefitted lower-income and/or first-generation college students. He accurately foresaw many years ago “the relationship between undergraduate research conducted abroad, workforce skills development, and subsequent economic opportunities” (Campbell and Schneider-Rebozo). Like CUR, many universities and colleges recognize the fact that “conducting undergraduate research while abroad intensifies the experience and amplifies the effect,” while also providing a greater cultural awareness (Campbell and Schneider-Rebozo). This is why CUR is also advocating for broadening participation proactively with its Strategic Pillar on Diversity and Inclusion, and why CUR emphasized the theme “Undergraduate Research For All” at our highly successful biennial CUR Conference in June in our nation’s capital.

Although the professional and personal development of students who engage in undergraduate research experiences are extremely valuable to each participant, another featured article in this issue of the CUR Quarterly, whose theme is “UR Goes Abroad,” helps to highlight how community service-oriented research can add another dimension to the individualized transformational experience. The article from Wheaton College, “Fostering Students’ Commitment to Service Through International Field Research,” showcases how “concrete social, economic, and environmental changes” can occur in the communities and environments in which students are conducting their research.

The mission of The School for Field Studies (SFS) Program at Wheaton provides transformative learning and life experiences while addressing “socio-environmental issues in partnership with local stakeholders and actors in host countries.” Descriptors of this program are a mouth full, including: “place-based, field-based, problem-based, community-centered, and interdisciplinary.” The effectiveness of this model is tied to “the longevity of the program, a community-based research agenda, and a reliance on local knowledge.” As with all reality-based research endeavors, the authenticity of the problem to be solved captures the interest of, and helps mo-
tivate the faculty and student participants. Realizing that their research is practical and applicable nurtures a life-long connection and compassion for others that isn’t normally an integral part of an undergraduate education, but that certainly is becoming an essential component considering the rising global unrest in the world today.

I unfortunately did not have an experience abroad as an undergraduate, but I have had the opportunity as a faculty member to accompany University of Portland students overseas for intensive six-week summer programs in London twice, and once in Salzburg, Austria. During my second visit to London, I had sufficient background to design a research component for my “Evolution and Humans” course that provided the impetus for students to get out of their comfort zones and interact with non-American students. This not only allowed the students to learn about how others view the concepts of Darwinian evolution, but also to begin to appreciate cultural diversity and how it impacts educational experiences and sets the foundation for life-long belief and value systems. The synergistic benefits of combining undergraduate research with study abroad are not only going to allow students to become all that they can be, but also will help them to better understand how they are a part of humanity, have a stake in world events and, hopefully, might contribute peaceful resolutions to complicated and life-threatening global problems.

Amelia J. Ahern-Rindell
CUR President
Associate Professor of Biology
University of Portland

A Practical, Hands-on Guide for Mentoring Undergraduates in the Arts & Humanities

Designed for faculty members and administrators hoping to develop opportunities for undergraduate research, scholarship, and creative work in the arts and humanities, the book contributes new ideas for meaningful student participation in the scholarship of these disciplines. Written by faculty members with long experience working with undergraduates, the book’s eleven chapters offer models of successful practice in a wide range of disciplines and cross-disciplinary programs.

To order this and other CUR publications visit: www.cur.org/publications.html
From CUR’s Executive Officer

Can a CUR and the global undergraduate research community help close a “wicked gap” in international experiences? I grew up southwest of Boston, in an area bristling with innovative higher education institutions and technology start-ups, yet retaining strong traditions in food, culture, and speech. One of the Boston area’s most endearing speech habits is “wicked” or “wicked good,” a set of behaviors and analytic approaches must be fostered. Global issues such as climate change, infectious disease, war, human migrations and dislocations, etc., are all “wicked” problems. And these problems require teams of well-prepared professionals ready to engage in complex, culturally sensitive dialogues and ambiguous global realities. What better pathway to grow these professionals than through international undergraduate research experiences?

Several emerging international initiatives are seeking to broaden opportunities for undergraduate-research exchanges. Two examples are EuroScholars and the Rheinisch-Westfälische Technische Hochschule (RWTH) Aachen undergraduate-research exchange program. Cross-national collaborations between individual universities are now increasingly common, fueled primarily by existing faculty-to-faculty research collaborations. To scale up these endeavors, however, and to expand them to less well-resourced individuals and countries, will require new pathways, as well as resources. A consistent thread through many of the articles in this themed issue is a focus on the nexus among service learning, undergraduate research, and international experiences, thus forging a larger “coalition of the willing” to support community-based international undergraduate research. Another common strategy is to have extensive student ownership and direction of international undergraduate research, which provides energetic leadership, can leverage more resources, and also builds a future alumni donor base.

Where do we go from here? I think we are still at the stage of connecting experiences and convening discussions, using partnerships among entities such as CUR, BCUR, ACUR, and other emerging international leadership groups to explore potential solutions. For as Jeffrey Conklin put it, “You don’t understand the (wicked) problem until you have developed a solution.”

References

Elizabeth Ambos
Executive Officer
From the CURQ Issue Editor

Undergraduate Research Goes Abroad

When asked about the most transformative experiences they have in college, students often cite either undergraduate research or study abroad as the ones that had the greatest impact on their growth. Undergraduate research allows students to deepen their learning, refine their interests, and gain skills that prepare them for their next steps post-graduation. Study abroad fosters a sense of identity and enables students to begin to see themselves as citizens of a world that includes more diversity and greater connections than they had previously imagined. Considering that both types of activities foster significant student development, combining them seems like a pedagogically natural next step to enhance student learning.

We explore various aspects of the pairing of these two high-impact practices in the Winter 2014 CUR Quarterly. Both the printed and online issues of the Quarterly include articles and vignettes that describe approaches to combining research and international study opportunities that we hope will provide proven practical models, new approaches, and inspiration to readers seeking ways to enhance their undergraduate research practice with strategies allowing students to research abroad.

The many article proposals we received described three major models for international undergraduate research: (1) faculty-led study-abroad programs in specific disciplinary (or interdisciplinary) topics; (2) individual student-faculty research partnerships at international sites, with each partnership operating as a separate research project; and (3) student research groups hosted and directed at an international site, with students coming from a variety of institutions. The articles and vignettes we chose to include span disciplines and geography—from mathematics in Peru to geology in the British Isles—and include examples of the three models for accomplishing undergraduate research abroad.

Bill Campbell and Elizabeth Schneider-Rebozo from University of Wisconsin-River Falls describe their campus model for a long-standing program (an impressive 50 years) that has allowed students to complete faculty-mentored research projects across Europe. Students and mentors plan and develop their own topics, participate in preparatory language training and study, and work with site-based mentors to ensure continuity at the study site. The program is designed to enable students receiving financial aid to participate, and its leaders have accumulated many stories from participants whose semester researching abroad impacted their education or career path in profound ways.

Robin Sears, from The School for Field Studies (SFS), and Laura S. Meitzner Yoder, from Wheaton College, describe how their model of engaging undergraduates in field-based research led by local experts and addressing community-defined priorities allows students to make the connection between research and service to the local community. The SFS is an educational nonprofit that has operated for more than 30 years, serving undergraduates from a variety of institutions. Community-based research is also a theme of the vignette, which involves students in coordinating roles for an ongoing program in the Dominican Republic and Nicaragua, presented by David Aday with students Kristin Giordano, Cathy Merritt, and Rebecca Silverstein.

Danielle Leek describes Grand Valley State’s faculty-led program in communication research in which students learn to develop ethnographies of speaking with different cultural communities in London. Students learn to navigate the process of collecting and analyzing data, while interacting with diverse communities that share language but maintain cultural distinctiveness. Two vignettes, offered by Kimberly Reiter from Stetson University and Ryan Brown from Georgia College, also highlight faculty-led programs in specific disciplines. Reiter, a historian, takes her students to the UK, where they develop historical research based on selecting an artifact and following its cultural and geographical connections. Brown’s mathematics students travel to Peru to study pre-Columbian mathematics; this short piece includes a harrowing (but ultimately successful) trek to view the winter solstice sunrise at Machu Picchu. Millikin University faculty members Paris Barnes and Anne Rammelsberg pair undergraduate science students with graduate students and faculty at a partnering university in Taiwan for summer research.

The CURQ On the Web features some great additional content, including two articles and four vignettes. Karen Havholm and associates at the University of Wisconsin-Eau Claire describe the results of a program that invites teams of faculty and student researchers from Eau Claire to compete for funding to do research abroad. With a focus on students with financial need and on research with a service-learning component, the program has supported 46 projects in 28
countries and involved 38 faculty and 149 students since its inception. The program’s assessment data are an inspiration to all of us to continue to make these experiences possible for more students.

C. Renee Sparks and Aaron Johnson from Northwest Missouri State University present a faculty-led study abroad experience in geosciences that includes undergraduate research in the syllabus and was developed partly through a series of undergraduate research experiences. The extended vignettes offer additional variety in approaches to international undergraduate research, including: community-based research in Belize (by Mary Ann Studer at Defiance College); a funded Research Experiences for Undergraduates field research site in Brazil, described by James Cotter and associates at University of Minnesota Morris; and Brandon Inabinet’s “Rhetorics of Pluralism” research in the European Union with students from Furman University. Finally, Sarah Glasco, from Elon University, offers some practical advice for preparing students for research projects abroad, based on her experience in France.

This edition of the CUR Quarterly will give you a glimpse into students’ experiences in research from Brazil to London, from Machu Picchu to 21st century France, Taiwan, and many places in between. We hope that you will be inspired to develop new ways to create research opportunities in unfamiliar places for your own students, allowing them to tackle authentic scholarly questions in diverse cultural settings, and to see themselves as confident contributors to a more connected global society.

Janice DeCosmo
University of Washington
CURQ Issue Editor

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June 23-25, 2015
University of Oklahoma
Norman, OK

Deadlines:

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- Early bird registration: Friday, April 24, 2015
- Final registration: Friday, June 5, 2015

For more information visit: www.cur.org/conferences_and_events/urpd_conference_2015/

CUR Calendar

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Be sure to check www.cur.org for the most up-to-date news and the Event Calendar.
Focus

Fifty Years of Undergraduate Research in Europe

The University of Wisconsin-River Falls Semester Abroad-Europe (SA-E) has been sending undergraduates to do research overseas for more than fifty years. The program was created in 1963 by a professor of sociology, Robert B. Bailey III. Bailey, who received his bachelor’s degree from Talladega College, had benefited from a Fulbright fellowship in 1951-2. He was so impressed with his year in England that he went on to do graduate work at two universities in Germany, completing his PhD at the University of Utrecht, the Netherlands. He returned to the United States to take an appointment at UW-River Falls in 1957.

Studying overseas had been a transformative experience for Bailey, who often commented on what it was like for him as a southern black man to move between cultures in Europe and a pre-civil-rights era United States (Bailey 1991; Soares 2001). On taking his position at UW-River Falls, he became convinced of the value of providing study-abroad experiences for all underrepresented groups, and he designed a program that would fit the specific circumstances at our institution, a regional campus that continues to draw first-generation college students from the St Croix River Valley.

Study abroad was not a new idea in 1963; Ivy League schools and other small private colleges had been sending students abroad for many years. But most of those programs drew sophisticated and relatively wealthy students who had traveled before and had studied the languages of their host countries. Most students on our campus had never studied a foreign language, and many had never traveled outside of Wisconsin. Most came from families with limited incomes for whom college expenses were a significant burden. Furthermore, the typical junior-year-abroad program sent students to foreign universities, where the American students would form their own cliques and seldom experience the cultures of their host countries in any depth. They would study liberal arts topics that helped round out their educations, but the studies seldom contributed significantly to their academic programs.

So Bailey created a new model to fit his students, one geared toward increasing, rather than limiting, participation in study abroad. SA-E follows the same model today, with very few changes (Bailey 1991), although the program was originally called Quarter Abroad, due to the academic-quarter system then in effect. The university now is thinking about creating a similar program in Asia. For program details, consult the program’s website (http://www.uwrf.edu/SemesterAbroadEurope/).

How the Program Works

A cornerstone of the program’s success is its emphasis on a thorough and extended orientation for participants during the entire semester prior to their fall departure. The program begins with mandatory weekly meetings on campus during spring semester. Students learn about cultural differences between the U.S. and European countries, as well as how to manage healthcare and safety issues, and the logistics of transportation, housing, and food while traveling abroad. They also spend this orientation period preparing their research proposals. Since participants major in a wide variety of academic programs—the traditional liberal arts, humanities, and pre-professional programs; teacher education; business and economics; and the STEM disciplines, including
agricultural, animal, and earth sciences—no single international college or university could accommodate their interests. Therefore, during that spring semester, students design individualized research projects to fit their academic and career interests, working with UWRF mentoring professors in their major fields.

Undergraduates in the program must make whatever arrangements will be required to complete their research prior to traveling overseas. This includes finding work sites and sponsoring organizations, businesses, or individuals; arranging for housing, transportation, and meals; and creating a work plan. By the end of the spring semester, students have taken a research idea from initial concept to developed proposal; prepared a timeline, budget, objectives, and procedures; and made arrangements for all of the logistics of their travel. Research proposals must be approved by their faculty research advisers and the staff of the SA-E program.

The UW-River Falls model obviates traditional barriers to study abroad participation and success. Facility with languages other than English has been perceived as necessary in most other program models. At UW-River Falls, students who do not speak the language of the country where they plan to conduct their research are advised to design projects they can complete at work sites where English is commonly spoken, for example in laboratories in Scandinavia or the Netherlands. Many of our students report that they return from SA-E with a newfound determination to learn another language, and proceed to do so after completing the program. Cost is also an issue for UW-River Falls students, many of whom come from low- or moderate-income families. Most students find that the semester-abroad program costs approximately the same as a semester in River Falls, except for travel costs. The SA-E program yields 12 to 15 credits, so financial aid is an option for qualified students who need support for their tuition and living expenses whether they are at home or in Europe for the fall semester.

During the summer prior to their departure, students refine their research plans, nail down their arrangements for travel and accommodations, and work their summer jobs to accumulate the necessary funds for the fall term abroad. A mid-summer meeting (face to face or via Skype) allows the group leader to monitor students’ levels of preparation. In late August the participants fly to Paris as a group for a week of orientation, shepherded by the program’s group leader and an assistant—usually the faculty or staff person who will serve as the next SA-E group leader. They stay in a hostel (with a view of the Eiffel tower, the perfect background for selfies to email home), visit tourist sites, and learn to navigate in a country foreign to them. The group leader assigns orientation exercises: For example, a student will be told to travel alone to an assigned destination and to report back to the group on the more surprising aspects of the experience.

After their week in Paris, students disperse to research sites throughout Europe. The group leader travels from site to site to check on students’ progress, ease difficulties, and counsel the homesick. At each location, the leader spends one or two days visiting work sites, meeting sponsors, and walking with the students, who are encouraged to become “temporary Europeans” and show the program leader what they have learned about the history, culture, and traditions of their chosen location. All participants must maintain weekly email contact with the group leader, usually on
In early November the group reconvenes for three days in a low-cost family resort on the Italian Riviera—accessible from throughout Europe and relatively inexpensive to reach with student Eurail passes. Then, after 10 weeks of individualized, intensive research experiences, the students travel on their own for a month. Some go skiing, some continue their research, some are joined by family or friends. All are urged to begin writing their research reports, and most do. In mid-December, they meet in Paris and fly home.

In order to earn 12 credits, students must write two 20-page, multi-disciplinary papers addressing a range of socio-cultural and historical contexts for their European research; in addition, they each write substantial 40 to 50 page term papers that report on their specific research objectives, methods, and outcomes. The two shorter papers, which earn three credits each and fulfill two general education requirements, are due in February; the research paper, worth six credits, is due on the first Friday after the March spring break. Some students arrange for an additional three-credit independent study project, either related to or independent of their major project.

Students’ research projects have been as varied as their interests. Here is a sample of titles and work sites:

- “The Planning and Development of the Kop Van Zuid” (1984, Rotterdam)
- “Django Reinhardt and Gypsy Jazz” (1987, Paris)
- “Machismo: Cultural Differences in Male Heterosexual Advances within Italy” (1989, Italy)
- “Animal to Art Felting in Scotland” (1992, Scotland)
- “Quality Assurance Standards in a French Cheese Factory” (1995, France)
- “Development and History of pravda.ru” (1998, Moscow)
- “Le Système Éducatif Français” (1999, France)
The quality of the research papers also varies. Some are sterling, some are pedestrian; others have led to academic careers; some have helped students build skills in research, thinking, and writing that they have used in non-academic careers. More than a few students have learned that the paths they had charted for themselves were not well-suited to their talents and interests. In short, the SA-E research projects are similar to undergraduate research projects everywhere, except for where they take place.

SA-E Results

During its fifty years of operation, the program has sent 1,038 students to Europe. Groups typically have 15 to 20 students, although we have sent groups as small as eight and as large as 39. All students have returned from Europe relatively unscathed; although three or four came home early due to illness or other emergencies, the overwhelming majority were able to see their projects through to the end, overcoming in the process a variety of personal and/or scholarly difficulties relating to travel, housing, illness, data collection, research sites, relationships, and so on.

Past group leaders tell stories of students who overcame more significant challenges. For instance, a student from the UW-River Falls equine program had arranged to study horse-training techniques at a riding academy in Ireland, but on arrival she discovered her host and hostess embroiled in a vicious marital dispute. All participants are encouraged to have a “Plan B” ready just in case, and this student was able to implement hers, re-orienting her project to the traditions and techniques of fox-hunting in England. In the end, she had a rewarding and successful experience in England, and she learned as much about adaptability and problem-solving as she did about fox-hunting.

A few years ago, three students sharing an apartment in Barcelona came home from dinner on their second night in the city to discover the door kicked in and cameras, computers, etc., missing. They had apparently just missed the burglar and were extremely shaken. They called the group leader, who immediately flew to Barcelona and spent three days with them. The landlord installed a much stronger door and lock, and neighbors were very helpful. The three students showed resilience by deciding to stay, and all successfully completed their projects.

Perhaps the most common challenge involves overcoming the everyday experience of culture shock. One recent student commented: “I wish I could have been more immediately motivated and ambitious to move about and sightsee on my own; at first, I spent too much time reading in my hotel. It was hard for me to push myself out of my comfort zone. I know now what I can do and I have the confidence to do it.”

Successes far outweigh the challenges. For instance, a student in one of the program’s first cohorts did her research in England, but traveled in Germany, Scandinavia, and Switzerland during her final weeks. She wrote of the experience:

“The program was life-altering in many ways. It made me infinitely curious about the world, about languages, and it awakened in me a spirit of adventure that led me back to Europe with a one-way ticket after graduation. [It] explains my interest and then career in foreign languages (German). As I traveled through Europe, I was taken aback by the multilingualism of its people as I met them in trains and youth hostels. Of course, I spoke only English. I promised myself at that point that I would learn a second language to the point of fluency. That it was German was determined by what I call historical accident, that is, Germany was the place I found work upon graduation. I set about achieving my language goal, and four years later, came home to attend graduate school at the University of Wisconsin.”

Today, she is a professor of German at the University of New Hampshire. The research project was important to her “... in the sense that it involved sustained study of a topic, an experiential component, and a written thesis that approached graduate work in its complexity and length.” She encourages her own students to study abroad, and designed and directs a five-week summer experience required of all German majors. Its participants take language and culture classes, and complete a small research project that they present to the group during the final week of the program. She commented: “They return to us so much more sophisticated and confident that I think it is reasonable to aim for study abroad for all students.”

A participant in SA-E during the 90’s affirms that it was a life-changing experience and illustrates that the student population at UW-River Falls had not changed appreciably from the program’s inception in 1963:

“I had never been on a plane before, and only out of
Wisconsin on a bus trip with my high school band. I’d only been to museums on grade school field trips, and rarely been to Minneapolis [The city closest to River Falls, all of 30 miles away]. The trip opened up the world to me in countless ways. The semester of planning prior to the trip taught me valuable travel skills that I take with me today. I learned to immerse myself in the local culture, being respectful and open to different ways of life. I did the majority of the trip solo, staying in youth hostels and had only one pre-arranged, brief two-day stay with a family friend. I learned self-reliance, confidence, and the ability to persevere through difficult and sometimes lonely situations.”

Even today, a number of UW-River Falls students have rarely, if ever, traveled by air, and it is not uncommon to meet students who have spent their lives in the St. Croix River Valley area where the university is located. For the undergraduate above, as for so many of the SA-E participants, the opportunity to travel and pursue independent research provided the best of both worlds. As one said:

“The research … led me to so many different locations—large, small, rural, urban. I did a survey of the different research projects [addressing] forest decline (at one point referred to as acid rain), visiting universities throughout eastern and western Germany. I met with professors and students, visited their research sites, toured their facilities to observe the data being collected and the equipment used, discussed the hypotheses being tested, and the results/findings.”

By her account, it is the combined effect of both these high-impact practices, study abroad and undergraduate research, that prepared her for the workforce after her graduation. Thus, she reports that although she worked in the tree-nursery industry for a short time, “I’ve since worked in a number of fields—from the medical profession to finance to higher education. The experience of traveling to many places, interviewing a range of professionals, and collecting information and knowledge helped to build the skills required to perform work duties throughout my diverse employment history.

Indeed, many past SA-E participants tell similar stories: The travel was immediately significant, while the research projects built skills that turned out to be crucial later in their lives. One program graduate commented:

“Study Abroad-Europe has had a major impact on my life. After traveling around Europe for a semester I have become a more outgoing person and have become more open to trying new things, including food and experiences. Meeting people from all over the world has helped me to find ways to talk with people and to better appreciate the differences in all of us. I am currently working in the IT field, which is what I did my research on. SA-E helped me prepare in better understanding the history and direction of IT. I continue to keep updated on how various aspects of IT affect those that use it. … After doing the research for my project as well as writing the paper, I became better at researching and writing. I frequently communicate through written media and have written a few proposals and analyses on topics related to my job. I also try to ensure that my decisions are data driven, and I use data to help others make informed decisions.”

Another student learned that some topics are difficult to research, and perhaps even dangerous. And yet even fraught research topics lead to global perspectives and cultural understandings that can last a lifetime:

“Semester Abroad was the most valuable experience of my college career. I went to Europe in my second year, which meant I was a bit younger than the other participants. I had limited experience of the world outside of the Midwest. Traveling put my life at home into a much larger perspective. Issues I had encountered at home became smaller because of this new perspective. … The topic of my research paper was the conflict in Northern Ireland. I was a political science major. This was at a time when there were still attacks occurring. People were not receptive to open conversation about their experiences related to the conflict. It also was probably dangerous. It was an interesting topic to think about from a classroom in Wisconsin, but another thing to walk around Belfast streets taking photos of barricaded police stations and political graffiti with people watching me and wondering what I was doing. In retrospect I should have chosen a less emotionally charged and dangerous subject.”

Today, the program accepts only juniors and seniors, with rare exceptions. Still, the most challenged research projects can produce surprisingly positive, if occasionally tangential, outcomes. The participant quoted above went on to say:

“In Europe, I met a fellow who was a computer scientist. This was 1995 and the Internet was new. He was able to do some very interesting things with computers that I hadn’t been aware of before. I was fascinated by this fellow, and I ended up choosing a second major of computer science shortly after this trip in part because of meeting him.”

Another recent participant told us that her intensive study of an Italian volcano led her, on her return to the United States, to alter her undergraduate program, and intensify her preparations for graduate school. Yet several others reported that they found undergraduate life difficult after returning. One said:

“In some regards I felt like I became a worse student when I returned to the USA; transitioning back into normal life, normal classroom behaviors, expectations, and skills—that was very challenging. … On the other hand I was ready to
graduate and do things that counted toward something that people were going to use, and that influenced or affected meaningful decisions. That meant much more to me than doing assignments that just one professor reads. It’s not all about grades. It’s about finding your passion.”

Other researchers in SA-E commented on their improved academic skills. Said a student from the 2011 cohort: “My research and writing skills improved dramatically, and due to my preparations during my travels, I was able to complete a 54-page paper. I learned how to dig and find those obscure texts, and craft and argue my positions efficiently and effectively. These skills have proved indispensable to my academic career.”

Administrative Details

The Semester Abroad-Europe program was created by Professor Robert Bailey based on his passion for study abroad, and he continued to direct it for thirty years. It has been maintained by a succession of faculty and staff who have shared Bailey’s passion. Gradually, the university created an administrative structure that sustains the program. Participating students pay tuition for 12 to 15 credits. Those funds are captured by the program and support administrative costs: replacement instructors and travel costs for the group leader and assistant, some clerical assistance, and marketing costs. Students pay for their own travel, personal expenses, housing, and food—just as they would if they were on campus. The total cost of Fall semester participation in SA-E runs between $10,000 to $13,000, depending on the type of European housing the student chooses (hostels are the most affordable, and the most popular); the extent and location of travel; the research project’s location (big cities and Scandinavian locations are generally more expensive than rural sites and countries in southern Europe); eating and drinking choices; and so on. By comparison, for Wisconsin residents who choose to live on the UW-River Falls campus, the fall 2014 total cost of attendance (COA) is $9572; for Wisconsin residents who choose to live off campus, the total semester COA is $10,147. Minnesota residents, who comprise approximately 45 percent of our undergraduate enrollments, pay slightly more in all categories for their total cost of attendance. The net result: Most students find that participating in SA-E costs little more than living on campus for a semester. And since they are still full-time students at UW-River Falls, financial aid applies to the SA-E costs.

Conclusions

What conclusions can we draw from this fifty-year history and the small sample of participants we interviewed? As readers of the CUR Quarterly know, undergraduate research provides an extremely powerful active learning experience. Conducting undergraduate research while abroad intensifies
the experience and amplifies the effect. Student after student reports that SA-E was a life-changing experience.

In addition, we have learned that:

- Traveling in Europe on their own is transformative for many students.
- Planning the research project, gathering data on-site, and presenting their work upon return helps students develop competencies in critical thinking, organization and time management, and public speaking. Participants also report increased confidence in their decision-making abilities and a productive persistence that allows them to continue their work in the face of adversity.
- The content of the research project is less important than its execution. Students seldom have made the topics of their projects their life’s work, although many have found their eventual vocations through their SA-E experience.
- Students who participated early in their college careers learned less from their research experiences than juniors and seniors who were farther along in their academic programs—although the sophomores we interviewed emphasized that they gained enormously from the experience.
- Stuff happens. Travel or housing plans go awry, research sites become unavailable, research plans are too ambitious, or people get sick. But learning to handle the unplanned or unanticipated is one of the primary benefits of doing research abroad.
- Most study-abroad programs are expensive for students and the colleges or universities that offer them. But the SA-E program demonstrates that it is possible to build an affordable and sustainable program based on the passion of a few faculty and staff when that passion is bolstered by an administration that is committed to providing significant learning experiences for its students.

Robert B. Bailey III designed the SA-E program to be inclusive. He perceived and understood the relationship between undergraduate research conducted abroad, workforce-skills development, and subsequent economic opportunities. Thus, he stressed that “this opportunity [SA-E] must not be linked only to the elite, but must be made available to all students” (Bailey 1991). He wanted to maximize participation in European study abroad by addressing perceived language and economic barriers, and in so doing, he gave UW-River Falls undergraduates the dual benefit of hands-on research experiences and greater cultural awareness. The program continues to do an exemplary job of opening opportunities for its participants, many of whom are first-generation and/or lower-income college students.

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**Acknowledgements**

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**Bill Campbell**

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Bill Campbell served the University of Wisconsin-River Falls as director of grants and research for 20 years before retiring in 2010. He previously taught philosophy and directed academic assistance and honors programs at several institutions, as well as initiating and managing undergraduate research programs at two universities. He is the author of The Power to Learn: Helping Yourself to College Success (Wadsworth 1991; 1996) and the co-editor of New Paradigms for College Teaching (with Karl Smith; Interaction Books 1996). Campbell presents regularly at conferences and institutes and facilitates proposal-writing workshops. He has written hundreds of grant proposals, has reviewed proposals for the U.S. Department of Education, and has evaluated dozens of grant-funded projects and higher-education programs. He has served CUR as a councilor, treasurer, and president, has served as a facilitator at several CUR institutes, and has reviewed CUR programs.

Lissa Schneider-Rebozo is the director for undergraduate research, scholarly, and creative activity and associate professor of English at the University of Wisconsin-River Falls. She is the author of Conrad’s Narratives of Difference (Routledge Press 2004; 2014), and has published numerous articles on the works of Joseph Conrad, Louise Erdrich, Alfred Hitchcock, and Djuna Barnes. In addition, she has co-authored a recent article on undergraduate research and economic development. She is a staunch advocate of both undergraduate research and global learning/study abroad, and has taught courses for UW-River Falls in Europe and in China through the UW-River Falls International Travelling Classroom and Experience China programs. She is currently editing a volume of critical essays to be titled Conrad and Nature.
In 2012, faculty from the School of Communications at Grand Valley State University developed an undergraduate research program designed to promote learning-by-doing through study abroad. I now serve as the director of the program, which sends students to London, England, for six weeks each summer for training in data gathering and interpretation. I am both the course instructor and a research mentor for the students who accept the challenge of traveling abroad to conduct ethnographies of speech patterns used in various settings within one of the world’s biggest and busiest cities. The students gain valuable insights into the complex relationship between culture and communication while practicing skills for conducting effective and ethical research.

Grand Valley State University is a large regional, public university in West Michigan. With a focus on liberal education, the university serves more than 21,000 undergraduates in 86 degree programs. Most students are in-state residents (91.9 percent), and many cite proximity to home as a key consideration in enrolling. Many students also hold full or part-time jobs while taking classes, and almost 40 percent of Grand Valley students are the first in their families to go to college. These features of the student population pose challenges for students’ retention and time-to-graduation and contribute to the university’s desire to emphasize and expand high-impact practices that engage and inspire undergraduates academically. Undergraduate research opportunities are one example of a high-impact practice.

In the School of Communications at Grand Valley, students complete a series of courses in communication theory, statistics, and research methods before completing a primary course-based research project. This approach follows the advice of scholars such as Jenny Olin Shanahan (2011), who highlights the importance of scaffolding research in a curriculum in order to integrate a student’s academic knowledge and to prepare students for the research experience. Students from the eight undergraduate majors in the School of Communications share these course requirements and, as a result, the diversity of perspectives in the classroom contributes to creative thinking about research. Students from advertising and public relations, broadcasting, communication studies, film and video production, health communication, journalism, photography, and theatre join in conversation about approaches to studying the complexity of human communication.

Faculty members teaching the research course are asked to give students advanced training in a methodology used in their own specialty and to mentor students through application of that method to a communication context of the student’s choice. I offered to teach a section of the course focused on the ethnography of speaking. In this approach, anthropologists, linguists, and communication scholars, following the work of Dell Hymes (1962), employ ethnographic techniques in order to “observe patterns of communication, and the symbols and meanings, and premises, and rules applied to speaking within specific groups of people” (Fitch 2001, 57). By identifying speech communities, their ways of speaking, and their native terms for talk, students who conduct ethnographies of speaking are able to explore the complexity of language use (both verbal and nonverbal, words and images) as they emerge in cultural practice. Students come to understand how the communicative resources used by individuals in a society reflect relationships, economic status, political practice, and other social structures. Researching communication through ethnographies of speaking can advance students’ understanding of the discipline, and also increase their cultural awareness, sensitivity, and understanding.

Yet despite the benefits, I have found that guiding students to complete ethnographies on-campus is quite challenging. While students enjoyed reading ethnographic reports and were enthusiastic about research, it was difficult to achieve much deep learning about communication and culture because the students are part of a relatively homogenous population, and they lack easy access and time during the semester to explore another speech community. Students often defaulted to ethnographies of themselves and their families.
or their student organizations, which devolved into shallow self-reflection rather than nuanced interpretation. Further, if I lacked prior knowledge of the community of interest, my feedback was less developed than students deserved.

Designing Research Opportunities Through Study Abroad

Thus, School of Communications’ faculty supported a bold proposal to pilot the research-practice course as a short-term study-abroad experience in London. I chose the city for a number of reasons, including my own knowledge of and interest in British culture and history. Moreover, students would have access to a strong foundation of past research because European scholars, who also have a rich tradition in the ethnography of communication, have explored a variety of speech practices in British society.

Communication faculty collaborated to develop multiple program goals and student-learning objectives. In general, we sought to give students a robust and worthwhile faculty-mentored research opportunity. Specifically, we wanted students to conduct an ethnography of speaking in order to advance an argument about how groups of Londoners’ “particular ways of seeing and experiencing the world” were reflected in “particular ways of speaking” (Fitch 2001).

Two overarching program goals were chosen to guide the design of the program. First, we wanted students to be able to effectively describe, apply, and conduct an ethnography of speaking in order to advance their own knowledge and understanding of the relationship between communication and culture. Second, we wanted students to practice the steps involved in conducting a research project and therefore gain more mastery and understanding of how to use past research to drive new inquiries, to conceptualize a research question, and to design a study in order to organize, collect, and interpret data in an ethical, timely, and scholarly way. Conducting ethnographies of speaking would move students beyond baseline knowledge toward competence and mastery of culture-specific communication and research practice. Moreover, study abroad would amplify students’ recognition of communication as a global and universal practice that itself manifests in diverse and rich ways calling for a tolerance of ambiguity, lifelong curiosity, and cultural sensitivity. As Bernhard T. Streitwieser writes, undergraduate research can provide “a powerful vehicle for more deeply exploring what global citizenship means through immersing students in the intensive study of an issue of personal interest in another culture” (2009, 401). Conducting rigorous, theoretically grounded research in London would allow our undergraduates to overcome the common misperception that because the two countries share a similar language tradition, students from the U.S. who study in England cannot really learn much about culture (Edwards 2000).

To accomplish their research, students would also need to build their knowledge of British culture and society. Communication theory posits that culture is produced through the symbolic function of storytelling, myths, and rituals in a society. Therefore, I developed a course that blends treatment of the theoretical perspective with historical and contemporary accounts of British myths and rituals. Students come to understand, for example, how stories about King Richard “the Lionheart” have inspired images of lions in royal correspondence and publications. Similarly, students explore the history of the “union jack” British flag, and the meaning of the term “jack” for most Britons in the 1600’s.

Collectively, students take a six-credit, two-course program that begins with in-person and online instruction at the start of the 12-week summer term and concludes with six weeks of research in London. All credits count toward graduation requirements in the School of Communications’ degree programs. Students are required to apply for the program through Grand Valley’s international programs office (the Padnos International Center) and are selected based on their successful completion of prerequisite courses and interest in British culture. Program participants pay the same tuition rate for study-abroad credits as they would for taking the same credits on-campus. In addition, participants pay a program fee that covers the cost of travel, housing, and meals. Tuition and fees are both managed by the university’s accounting system, and this allows students to pay over time and to apply financial aid and scholarships to the costs.

Program Outcomes

Previous study-abroad literature explains the importance of effective pre-departure work to prepare students to make the most of short-term research opportunities (e.g., Orr 2009). Thus, I hold multiple in-person and online class meetings to prepare students for their research. Collectively, we engage in an overview of British history, society, and culture, paying special attention to the City of London. This preparation is purposely wide-ranging and interactive. For example, we read short stories about London’s famous figures, view BBC segments on key historic events such as the London fire of 1666, and review academic papers on contemporary British society. We examine sample ethnographies conducted in the United States and in the United Kingdom. Students are also assigned to explore online collections in the British Library in order to produce brief informative presentations about connections between British communication and culture.

This cultural introduction is paired with instruction on the process for conducting ethnographies of speaking. In addi-
tion to training in the methodology, we review and discuss strategies for designing manageable research projects, and the expectations for the students’ final projects. Finally, students submit project proposals for review. Students are expected to draw on their previous coursework, personal interest, and training in methodology to pose a research question or questions, justify their research design, defend the ethics of their proposal, and explain the potential value of their research. After their research proposals are approved, and prior to departure, students receive a course calendar that includes other small assignments designed to help them become established with their targeted “speech community” in London. The calendar also includes “research project targets” to help them manage time while we are abroad.

This pre-departure work is crucial to helping students “hit-the-ground-running” when we arrive. It also works to stimulate their interest in British culture and gives them confidence in the research process. Still, students do face challenges while conducting ethnographic research in another country. Some of these issues are expected in any undergraduate research experience. For instance, students grapple with how to organize their field notes and struggle with the desire to “know what I’m going to say” before actually completing their research. Other challenges come from studying abroad and negotiating a new culture. In one of my favorite anecdotes, a group of students was noticeably upset at arriving late to a class session, unprepared with a research update. They had been delayed at lunch (for over an hour) because the waiter had not brought a check to the table, and the students were too nervous to ask for it. They were surprised to learn that bringing the check prior to its request would have been considered rude.

Another research delay occurred when a group of students tried to print copies of surveys they hoped to hand out to visitors at the Victoria & Albert Museum. They did not discover that the English use A4 paper (longer and thinner than the American 8 1/2 x 11) until they scaled the museum steps; they had on hand more than 500 unusable surveys because they failed to look at the printed copies until they arrived. Multiple survey questions were cut off because of the narrower paper size. Such logistical issues are the most common obstacles students cited in discussing their research experiences. As one student noted in a program follow-up, “doing research definitely means having patience and being flexible.” Yet managing logistics is a key feature of successful research in any location. Still, it seems that students developed cultural knowledge through these typical challenges. As another student reported, “There are so many things that you would never expect to be different here, but they are.”

Students also struggle in varying degrees with issues such as homesickness, fears of navigating public transportation, concerns about being “too touristy,” and anxiety about the overall value of their research projects. Together, students brainstorm strategies for addressing these issues and are encouraged to collaborate in order to accomplish their research goals. Students reflect individually on their research experience through guided journal entries and one-on-one meetings with me to stay on track.

One student, who proposed the project title “Pub Talk,” for example, identified 18th and 19th century British coffee houses as a site of important political debate. Drawing on this historical precedent, the student sought to examine the topics of conversation at a variety of different pubs (the modern coffee house) in London. The student was excited about the topic, but struggled when we arrived in London. He felt awkward about sitting alone at a pub and nervous about talking with strangers. After realizing that a classmate was having similar challenges with a different project (studying football fans), the students teamed up to provide support for the field components of each research project. In the final work, the pub-talk student had engaged in silent observation, participant observation, and direct interviews with patrons at pubs in four different London neighborhoods, concluding that characteristics such as the time of day, physical features of the bar, and identity of the patron guided the topic of pub conversations.

Table 1 provides a sample of proposal titles and the general subject matter associated with the collection of research top-

<table>
<thead>
<tr>
<th>Title</th>
<th>Topic</th>
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<tbody>
<tr>
<td>Coochie-Coo! How to Talk to a Royal Baby</td>
<td>An analysis of ways of speaking about the birth of Prince George</td>
</tr>
<tr>
<td>London’s Urban Commuters—by Foot, Bus, Bike, and Train</td>
<td>An exploration of expressions used to navigate the streets of London</td>
</tr>
<tr>
<td>Managing Tourists: A Review of Speech Strategies Used by Londoners</td>
<td>A discussion of how locals use modes of expression to control the behavior of tourists</td>
</tr>
<tr>
<td>When Brits Flirt: How Modern British Culture Shapes Flirting</td>
<td>Observations of male/female and same-sex interactions in British clubs</td>
</tr>
<tr>
<td>Politeness on the Underground</td>
<td>A taxonomy of politeness strategies used on the Tube</td>
</tr>
<tr>
<td>Performance Techniques of British Street Performers</td>
<td>A reflection on how the history of British theatre impacts the interaction between street performers and audiences</td>
</tr>
<tr>
<td>Royal Parks for Royal Subjects: Communicating in Hyde Park</td>
<td>Observations of adult/child interactions in Hyde Park</td>
</tr>
<tr>
<td>Symbolic Efforts of British Football Fans</td>
<td>A review of how football fans show their support for a favorite team</td>
</tr>
<tr>
<td>London’s Immigrant Community in the Service Industry</td>
<td>An analysis of how immigrants who work as wait staff use language to negotiate their job experience</td>
</tr>
<tr>
<td>Pub Talk</td>
<td>Observations on the subjects of talk in British pubs</td>
</tr>
</tbody>
</table>
ics covered by students in the program in 2013 and 2014. After returning from London, students are required to submit their research results and meet to share their results in an on-campus presentation. Students are invited to present their work in a style and form consistent with practices in their degree major. Some submit traditional papers. Others produce documentary-style audio and video collections of their findings and interpretation. One student reported findings through an original script for a one-act play.

Program Assessment

Multiple measures were used to assess the achievement of program goals and students’ learning objectives. Direct measures included the research proposal, journal entries, and final project submission. Student work was assessed using a modified version of the Association of American Colleges & Universities’ (AAC&U) “Intercultural Knowledge and Competence” Rubric. Adding research skills to the rubric produced a series of criteria used to assess students’ learning about the relationship between British society and communication practices. While the AAC&U rubric employs a five-point scale, our decision to require that participants successfully complete prerequisites led to a three-point scale focused on higher levels of competence and mastery. A summary of the rubric is presented in Table 2.

I partnered with a colleague in the School of Communications to review and assess each project. Averages of our ratings of student work across all measures are provided in Table 3. These averages provide at least a minimal baseline for understanding students’ learning in the program. Two years of programming result in a small sample for analysis (N=24). Yet the research experience appears successful on a number of dimensions, especially for helping students develop their level of openness to and understanding of the connection between communication and culture. That students seem less skilled in time management and articulating connections to past research may be explained by the content of pre-departure coursework and the unexpected effect of what happens when students are empowered to explore through research.

<table>
<thead>
<tr>
<th>Table 2: Assessment Rubric for Research in Communication &amp; Culture</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Curiosity</strong></td>
</tr>
<tr>
<td>Curiosity</td>
</tr>
<tr>
<td>Student asks complex questions about other cultures and uses research to explore multiple perspectives.</td>
</tr>
<tr>
<td>Student asks deeper questions about other cultures and seeks out answers to these questions.</td>
</tr>
<tr>
<td>Student asks simple or surface questions about other cultures.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Data collection</th>
<th>Application of method</th>
<th>Knowledge of world views</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complexity of units of analysis observed and recorded by connecting collection sample to culture.</td>
<td>Shows complex ability to interpret verbal and non-verbal elements of speech in terms of British culture.</td>
<td>Demonstrates sophisticated understanding of the complexity of elements important to members of British culture in relation to its history, values, politics, communication styles, economy, rituals, beliefs, and practices.</td>
</tr>
<tr>
<td>Observes and records a full range of units of analysis.</td>
<td>Attempts to identify and interpret relevant verbal and non-verbal elements of speech in terms of British culture.</td>
<td>Demonstrates adequate understanding of the complexity of elements important to members of another culture in relation to its history, values, politics, communication styles, economy, rituals, beliefs, and practices.</td>
</tr>
<tr>
<td>Appropriately observes and records some examples of units of analysis.</td>
<td>Is able to identify some elements of speech in terms of British culture.</td>
<td>Demonstrates partial understanding of the complexity of elements important to members of another culture in relation to its history, values, politics, communication styles, economy, rituals, beliefs and practices.</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Cultural self-awareness</th>
<th>Openness</th>
<th>Time management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Articulates insights into own cultural rules and biases (e.g., seeking complexity; aware of how her/his experiences have shaped these rules, and how to recognize and respond to cultural biases, resulting in a shift in self-description).</td>
<td>Initiated and developed interactions with culturally different others. Suspended judgment in valuing her/his interactions to engage in the research process.</td>
<td>Completed the research process without panic or impatience, effectively managed time from start to finish.</td>
</tr>
<tr>
<td>Recognizes new perspectives about own cultural rules and biases (e.g., not looking for sameness; comfortable with the complexities that new perspectives offer).</td>
<td>Began to initiate and develop interactions with culturally different others. Suspended some judgment in valuing her/his interactions with others during research.</td>
<td>Completed the research process with a struggle in one or more areas of timing.</td>
</tr>
<tr>
<td>Identifies own cultural rules and biases (e.g., with a strong preference for those rules shared with own cultural group and seeks the same in others).</td>
<td>Expressed openness to most, if not all, interactions. Had difficulty suspending judgment but is aware of it, expressed a willingness to change.</td>
<td>Completed the research process but struggled to manage time in a way that permitted research to build from start to finish.</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Knowledge of the research cycle</th>
<th>1 - Milestone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posed thoughtful questions for future research that are deeply connected to current research.</td>
<td>Completed the research process with a struggle in one or more areas of timing.</td>
</tr>
<tr>
<td>Offered areas of future interest but may not indicate a relationship between these interests and the current study.</td>
<td>Is able to identify some elements of speech in terms of British culture.</td>
</tr>
</tbody>
</table>
During study-abroad.

Following the completion of their coursework, students answered a series of questions about the research program. Lilli Engle (2009) cautions against the use of self-reports focused on “satisfaction” with overseas programs to assess student experiences abroad. Instead, Engle argues persuasively that a thoughtfully designed “end-of-program qualitative assessment questionnaire” can provide a “reliable indicator of a program’s mission and priorities” by highlighting the aspects of intercultural competence important to the program and its mission. Asking questions about how students managed their time and the literature-review requirements for their projects led to student insights and also contributed to students’ reflective experience. This indirect measure revealed that students did indeed feel more open to cultural experiences as a result of the program. As one student explained, “I had to force myself to get out and interact with people, and learn how to use public transportation, in order to get my work done. Once I realized that I could do it, I stopped being afraid and wanted a chance to see everything!”

At the same time, reviewing past research was less exciting once students returned to the U.S. A participant explained, “I hadn’t thought about it until now, but I was mad that I had to work on my project when we got back. I didn’t want to spend hours writing about journal articles. I wanted to tell people about all the things I learned on my own.”

Balancing Research with Study-Abroad Goals: Lessons Learned

I learned a number of lessons from this research experience that can be helpful for faculty and programs considering similar opportunities for their students.

Lesson 1: Take Advantage of Faculty Expertise. Currently, relatively few U.S. undergraduates engage in research abroad. When they do, students are often working with instructors and program directors from institutions abroad, students have little training in the methodological approaches employed, and students fail to draw connections between their research and broader academic or career goals (Houlihan 2007; Streitwieser 2009). By designing a program that makes use of my own knowledge of the students’ past coursework, British culture, and ethnographic approaches to the study of communication, I am able to serve as both teacher and research mentor. Leading study-abroad research also requires a tremendous commitment of time and energy from the faculty member or members involved with the program. Focusing the program on my areas of interest and expertise makes the effort worthwhile and contributes to my sincere enjoyment of the experience.

Lesson 2: Stay Focused on Program Goals. In the developmental stage, it was tempting to aspire to have students achieve all of the learning outcomes associated with undergraduate research and study-abroad programming. I had to keep in mind that the purpose of the program was to improve our curriculum’s research opportunities, not accomplish complete intercultural competence for all students. Therefore, the rubric designed to assess student learning and the focus of the study-abroad content was culture-specific. Yet, as hoped, the ethnographic experience inspired students to believe in their capacity to explore and engage other cultures and increased their desire to do so in the future. On the follow-up questionnaire, students universally expressed a sense that as a result of the program, they will more actively seek out opportunities, consider a job abroad, talk more with others from culturally diverse backgrounds, and so on. Still, assessment showed that students fared better in the cultural-knowledge compo-

Table 3. Average Ratings of Student Research by Faculty

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Average Rating*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curiosity</td>
<td>2.3</td>
</tr>
<tr>
<td>Connections</td>
<td>2.1</td>
</tr>
<tr>
<td>Knowledge of method</td>
<td>2.3</td>
</tr>
<tr>
<td>Data collection</td>
<td>2.4</td>
</tr>
<tr>
<td>Application of method</td>
<td>2.3</td>
</tr>
<tr>
<td>Knowledge of world views</td>
<td>2.7</td>
</tr>
<tr>
<td>Cultural self-awareness</td>
<td>2.8</td>
</tr>
<tr>
<td>Openness</td>
<td>2.9</td>
</tr>
<tr>
<td>Time management</td>
<td>2.0</td>
</tr>
<tr>
<td>Knowledge of the research cycle</td>
<td>2.1</td>
</tr>
</tbody>
</table>

*On a three-point scale.
Students (Alexandra Elliot, Katie Mundinger, Daniel Treat, Jessica Utter) practice broadcasting skills in the BBC studio.

cendent of the experience than they did on dimensions related to expressing the results of their research. This is a common challenge for undergraduates, especially those from arts and humanities traditions in which traditional expectations of research are less well integrated into their academic life.

Lesson 3: Maintain Reasonable Expectations for Student Work
One of my personal challenges during the study-abroad program is expecting students to be as excited and motivated as I am about their research projects. I might feel as though a student has identified an engaging line of inquiry and then feel frustrated when that student’s visit to St. Paul’s Cathedral (or other tourist attraction) trumps spending extra time on research. On the other hand, I may believe that a student hasn’t gone far enough to identify something unique and worthy of study. But it is important not to expect or compare undergraduate research to the work we expect from faculty or graduate students.

To date, all of the students involved were in London for the first time (and many were abroad for the first time) during the program. Similarly, most participants had no research experience outside of classroom activities. Throughout our time in London, I work to see the city and the research process through the eyes of a novice. I share with students reflections from my own research journal, remembering how, for instance, I first learned that “trousers” was a more appropriate word than “pants” when speaking with British colleagues. While hardly a substantial finding at that time, I wrote in my journal about the possibilities for an entire study based only on differences between the ways Americans and Britons talk about clothes. When I feel critical of a student’s accomplishment, I stop to remind myself that “first-time independent research should be a formative and critical learning experience for students. While most undergraduate research may, indeed, not be original, this fact does not mean that it cannot have distinctive value” (Streitwieser 2009, 407). This is especially true for undergraduates conducting their first research project abroad.

Conclusion

Research and study abroad are high-impact practices that engage undergraduates and inspire their interest in learning. Bringing research opportunities and study abroad together opens up new possibilities, especially when a student’s home campus is too limited a site for interrogation of topics such as communication and culture. In this case, ethnographies of speech patterns in different venues and communities in London, conducted by American students, highlight the ways that navigating research in another country can encourage learning about the research process and inspire appreciation for cultural diversity. Faculty interested in this type of program should take care to select sites that connect with their own interests and scholarly pursuits in order to help facilitate the learning process.

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Fostering Students’ Commitment to Service Through International Field Research

“I plan to change the world, thanks for the jump start.”

The quote is from a student at the end of a semester’s study of environmental issues abroad with The School for Field Studies (SFS). As suggested by the comment, international study can provide very powerful learning and personal growth experiences for undergraduate students.

Students at U.S. colleges and universities today are seeking to study abroad in record numbers: 295,000 undergraduates studied overseas in the 2011/12 academic year (IIE 2013), and this year the Institute for International Education (IIE) launched the Generation Study Abroad initiative with the goal of doubling this figure in five years. Students pursue these opportunities for a variety of educational and personal reasons, but only a small proportion of those studying abroad go there to gain science-related field research experience. Here we present a model of an international study program that puts community service through research at its core. We suggest that service-oriented research in an international setting can provide an especially transformative experience for undergraduates. The research experience provided by The School for Field Studies (SFS) that we describe is rooted in principles and practices of place-based learning and in active and engaging teaching. It is driven by the dual goals of providing a transformational experience for students, as well as concrete social, economic, and environmental changes in the local communities and environments where students work. We will define and describe what we believe are the key aspects of the SFS program’s mission and operations that underlie meaningful international undergraduate research, and we report students’ responses to the experience. We believe the important program elements can be used in diverse teaching and learning environments where students work. We will define and describe what we believe are the key aspects of the SFS program’s mission and operations that underlie meaningful international undergraduate research, and we report students’ responses to the experience. We believe the important program elements can be used in diverse teaching and learning environments, and hope we can inspire others to engage students in similar experiences.

One student described personal goals for enrolling in an SFS program in a way that sums up the program’s mission well:

“My goal going into the program was to go on a study-abroad experience that would better prepare me for my life after college. I wanted an experience that was unique and that had the focus of learning and serving.

Science ethicist Jeffrey Kovac (2007) suggests the moral ideal for scientists today is to dedicate at least some of their effort to working for the social good. He asserts, “As they work in use-inspired basic research or applied research, scientists should put service to humanity and the amelioration of the serious problems of today’s world above self-realization whenever and wherever possible as they plan and develop their careers” (168).

We concur. In a recent paper, author Sears suggested that “today’s college student is motivated to engage in learning by a desire to serve communities and to solve problems” (Sears 2013). She suggested that the notion of the “caring relationship” between the server and the served (cf Noddings 2002) is an important motivation for students to engage in a curricular experience, including research. Furthermore, going abroad to serve a community-based research agenda can provide undergraduate students with a highly meaningful learning experience (O’Byrne and Vogelgesang 2003; Lichtenstein et al. 2011). An early research experience for undergraduates in STEM (science, technology, engineering, and mathematics) fields can have a strong impact on their learning, help clarify their career interests, and affect other future endeavors (Russell, Hancock, and McCullough 2007). Having this experience in an international setting can be especially transformative.
Community-centered International Field Research

The School for Field Studies (SFS) is a nonprofit educational institution whose dual mission is to provide transformative learning and life experiences to undergraduates through international study and research, and to address socio-environmental issues in partnership with local stakeholders and actors in host countries. SFS has offered programming around the world since 1980, and currently operates fixed programs in nine countries focused on people and the environment. The program’s model and curriculum is place-based, field-based, problem-based, community-centered, and interdisciplinary. The credit-bearing semester or summer programs are operated on fixed campuses abroad and with resident faculty and staff. Students gain experience in environmental problem-solving by studying and addressing real problems defined by local stakeholders through coursework and field research (Farrell and Ollervides 2005).

Three key operational elements of the SFS model are program longevity, a curriculum driven by a community-based research agenda, and a reliance on local knowledge. Regarding longevity, most of the SFS programs have been operating in the same location for over twenty years. Each field station is fixed with a resident faculty and staff. SFS encourages longevity for faculty by providing sabbaticals and funds for professional development. The faculty address the problems people face in their environments, and faculty both observe and participate in change over time, through their research and service. This long relationship with local stakeholders and actors allows for deep and meaningful relationships, and engenders the trust and confidence between the institution and the community that is essential to the second key factor, a research agenda.

At the core of the curriculum for each program, and what provides a bridge among the program staff and students and the local communities and other actors, is the five-year research plan. In collaboration with local partners, SFS identifies, structures, and prioritizes natural and social-science research and community-extension projects according to needs defined by the community and other stakeholders through public meetings, participatory assessments, and conversations between researchers and residents. The resulting plan sets out a use-inspired agenda for applied scientific research that serves two purposes: the quest for fundamental understanding of the world, and consideration of the use of the knowledge generated (Stokes 1997; Clark 2007; Kovac 2007). The collaborative process and the resulting research priorities then define the curriculum of the program. This kind of process can be formalized through action research, as in Mexico, where a secondary school worked with a community to design an environmental-education curriculum (Ruiz-Mallen et al. 2010). The SFS plan is reviewed and revised on an iterative basis every five years in response to the evolving priorities, needs, and opportunities in the research region. Table 1 presents the research direction and key components for three SFS programs, and provides examples of students’ research projects.

The third key aspect of the program’s structure is reliance on local knowledge. SFS faculty and staff are primarily host-country nationals. The faculty team, consisting of a director and three lecturers, most with doctorates, offer students their inherent understanding of the socio-cultural context in which they teach. The faculty members provide a link for students to the research locale that is quite different from what can be conveyed by visiting foreign faculty members from students’ home institutions. Each member of the faculty is in charge of a course and a component of the research agenda. The three disciplinary courses offered across all SFS programs are in ecology, resource management, and socio-economics, and all are tailored to local issues and case studies. Each lecturer defines a set of key research questions and corresponding projects that are tied to the five-year research plan, which students then pursue. The projects are usually carried out over several semesters, thus progress is incremental with each new student group adding data and new analysis and ideas.

Undergraduate students from all disciplines and any college or university are eligible to participate in SFS programs, but the majority come from the natural sciences and resource
management (42 percent of the enrollment) and from environmental studies and environmental science (34 percent). No prior field research experience is required or assumed, but a lab course in biology or ecology is required. (Admissions details can be found at the SFS website www.fieldstudies.org, or at a campus study abroad office.) During the three-month semester program, in residence at the SFS field centers, students prepare for the research experience through two months of simultaneous coursework in the three courses, learning foundational concepts and details about the local issues. Through classroom and field exercises, students progressively develop skills and competencies in the process of scientific inquiry, field research design and methods, and science communication. The field exercises are designed to expose students to the data collection and analytical methods that will be used in the research projects that semester.

The final month of the program is dedicated to the Directed Research (DR) course, in which students join the research “lab” of one of the three resident faculty members. While the faculty-led research team designs the research and collects data together, each student defines a narrow question within the larger group project and produces an individual research paper (see Table 1) and oral presentation. The DR students also deliver research results and recommendations at a public symposium at the end of the semester.

Research publication is a desired output of the SFS research program, and students are commonly co-authors with faculty; 30 of 113 papers published on SFS research since 2010 have had student co-authors. Local impact from the research is perhaps demonstrated through the community presentations by students. Attendees of the public research symposium at each center range from local residents, study participants, and natural-resource authorities to government officers, and the audience often numbers from fifty to one hundred. The student research presentations are delivered in the local language (sometimes translated) and invariably lead to dialogue among the symposium attendees, the SFS faculty, and students. This dialogue adds a critical dimension to the research program. Another research output is the writ-

Table 1. The Focus of the Five-year Research Plans at Three SFS Centers, Including Examples of Students’ Research Papers

<table>
<thead>
<tr>
<th>SFS Center for Marine Resource Studies, Turks and Caicos Islands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Direction: How can the government and South Caicos community best manage the marine environment and resources to balance biodiversity conservation and economic sustainability?</td>
</tr>
<tr>
<td>Research Themes:</td>
</tr>
<tr>
<td>1. Assess marine environments and species</td>
</tr>
<tr>
<td>2. Assess drivers of change in the marine ecosystems</td>
</tr>
<tr>
<td>3. Monitor and manage marine resources</td>
</tr>
<tr>
<td>Student Research Paper Titles</td>
</tr>
<tr>
<td>■ A Study of Movement Patterns of Juvenile Lemon Sharks, Negaprion brevirostris, Within the Caicos Bank</td>
</tr>
<tr>
<td>■ Observer Effect on Behaviour of South Caicos Spotted Eagle Rays, Aetobatus narinari</td>
</tr>
<tr>
<td>■ Assessment of Nassau Grouper Dock Landings and Current Management Practices in South Caicos</td>
</tr>
<tr>
<td>■ Perspectives of an Island People: Using Photovoice to Examine Environmental Awareness and Cultural Importance in the Residents of South Caicos Island</td>
</tr>
<tr>
<td>■ Relationship Between Herbivore Richness and Algal Cover in Coral Reef Communities Inside and Outside a Marine Protected Area in South Caicos, Turks and Caicos Islands</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SFS Center for Sustainable Development Studies, Costa Rica</th>
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</thead>
<tbody>
<tr>
<td>Research Direction: How can Costa Rica respond to local and global challenges while securing the functionality of its natural and human systems?</td>
</tr>
<tr>
<td>Research Themes:</td>
</tr>
<tr>
<td>1. Conservation and economic development</td>
</tr>
<tr>
<td>2. Ecosystem function and connectivity</td>
</tr>
<tr>
<td>Student Research Paper Titles</td>
</tr>
<tr>
<td>■ Using Functional Diversity to Evaluate Agroforestry as a Strategy for Biodiversity Conservation</td>
</tr>
<tr>
<td>■ Vocalization Occurrence of the Banded Wren Between Two Traffic Road Conditions</td>
</tr>
<tr>
<td>■ Sex Differences in Competitive Behavior for Nectar Resources Using Artificial Feeder in Seven Monteverde Hummingbird Species</td>
</tr>
<tr>
<td>■ Sources and Extent of Ecotourism Emissions in Monteverde, Costa Rica: A Warning for Future Development</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>SFS Center for Wildlife Management Studies, Kenya</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Direction: How can changes in land use and resource availability in the Amboseli ecosystem be managed in such a way as to foster the well-being of local communities whilst safeguarding and promoting biodiversity conservation?</td>
</tr>
<tr>
<td>Research Themes:</td>
</tr>
<tr>
<td>1. Environmental dimensions and dynamics</td>
</tr>
<tr>
<td>2. Human-nature interface</td>
</tr>
<tr>
<td>3. Governance for environmental sustainability</td>
</tr>
<tr>
<td>Student Research Paper Titles</td>
</tr>
<tr>
<td>■ An Assessment of Human Encroachment Impacts on Water Resources of the Kimana-Kikarankot River, Amboseli Ecosystem</td>
</tr>
<tr>
<td>■ Water Conflicts Among Small-scale Cultivators Along the Kimana-Kikarankot River in the Amboseli Region of Kenya</td>
</tr>
<tr>
<td>■ The Effects of Human Activities on Habitat Quality for Maasai Giraffes (Giraffa camelopardalis tippelskirchi) in Osupuko and Olepolos Wildlife Sanctuaries</td>
</tr>
<tr>
<td>■ Local Perceptions of Climate Change in the Kimana and Kuku Group Ranches of the Amboseli Ecosystem, Kenya</td>
</tr>
<tr>
<td>■ A Cultural Shift: Embracing Modernization in the Maasai and Its Impact on Their Connection with the Land</td>
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</table>
ten technical reports delivered to key stakeholders and actors by the program faculty.

**A Transformative International Research Experience**

In an effort to identify why the SFS programs attract students and how they affect learning, we assessed student attitudes toward research and their goals for engaging with the SFS program by analyzing students’ responses to key items on the standard program evaluation. The data discussed are from 520 program evaluations submitted by students, drawn from a random sample of students who participated in SFS semester-long programs in five countries from 2010 to 2013. Students filled out an anonymous, confidential evaluation form online at the end of the program prior to departure for home. The average number of responses per program was 28 students out of an average enrollment of 31. Our analysis focuses on the following items in the evaluation instrument:

1. Briefly describe your primary goals for participating in the program.
2. Do you feel that your goals were met?
3. Why did you choose to participate in an SFS program over other options?
4. What is it about the SFS field-based approach that most enhanced your ability to engage in scientific inquiry in environmental studies and provide input in resolving local issues or local problems?
5. Would it have been possible to obtain this capability in a traditional on-campus setting in the U.S.?
6. What elements of the Directed Research course were particularly well done, and what suggestions (if any) would you make to the professor to improve the course?

Responses to items 1, 2 and 3 (considered the first set) were coded together, since the responses showed overlap, and up to three goals were identified by each respondent. The 520 student respondents identified a total of 1,058 goals. The second set of responses, to questions 4, 5, and 6, provide insight into the quality of the student experience, indicating what resonated with or motivated them. These responses were evaluated qualitatively.

The goal most often cited by students enrolling in an SFS program was the desire to study the topic of the program (57 percent of respondents cited this goal, 295 citations out of a total of 520 respondents; see Table 2). This goal was followed by the desire to gain research experience (35 percent of respondents), or specifically to engage in field study (31 percent). Most students cited more than one goal, for example, “learn about field research”, “see awesome animals, learn about African culture, make friends.” Several students (8 percent of respondents) explicitly indicated that they hoped the research would help them to enter a career in the field being studied or would help them to define their career path. Our data are consistent with what Russell et al. (2007) found, that undergraduate research experience helped students to clarify their career interests. The opportunity to travel—to learn about a new place, culture, or country—and to “experience the world” made up about one-quarter of all goals cited (233 citations out of the 1,058 total).

Very few students explicitly cited as a goal wanting to contribute to solutions (4 percent of respondents) or service (1 percent) as reasons for their enrollment with SFS. While service does not seem to have been a prime motivation for students, it seems that through the course of the research, in seeing community-based research modeled and being part of it, and hearing and seeing why it matters, students did gain this appreciation. Engagement with or providing information to the community was mentioned by 13 percent of respondents to Question 4 asking what about the SFS model helped students engage. Several responses explicitly expressed the sentiment that the program provided “a great way to give help to the community through science” and “the fact that our report is going to the local government to help them is incredible.”

It is clear that the research experience is a highlight, even the core of the program, for many students. Forty percent of responses to Question 6 on the quality of the Directed Research course indicated some strong positive outcome for the student, while the rest of the respondents commented only on the course itself and/or the professor. Key positive response words or phrases to Question 6 included comments that the research experience was “amazing,” “challenging,” “great way to give help to the community through science,” and “the fact that our report is going to the local government to help them is incredible.”

**Table 2. Student Goals for Enrolling in an SFS Program**

<table>
<thead>
<tr>
<th>Goal</th>
<th>Percentage of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topical interest</td>
<td>57</td>
</tr>
<tr>
<td>Research</td>
<td>35</td>
</tr>
<tr>
<td>Field study</td>
<td>31</td>
</tr>
<tr>
<td>Travel</td>
<td>25</td>
</tr>
<tr>
<td>Self growth/challenge</td>
<td>17</td>
</tr>
<tr>
<td>Language and culture</td>
<td>16</td>
</tr>
<tr>
<td>Career decisions</td>
<td>8</td>
</tr>
<tr>
<td>Friendship</td>
<td>6</td>
</tr>
<tr>
<td>Solutions or service</td>
<td>5</td>
</tr>
<tr>
<td>World experience</td>
<td>4</td>
</tr>
</tbody>
</table>

*520 respondents cited a total of 1,058 goals for enrolling.
“great,” and “core to the program.” Many cited the DR course as valuable to learning about the research process. No program is immune to criticism, and the most-cited challenges regarding the DR course related to inadequate research tools, including statistical training and field equipment, and a shortage of time for data analysis and writing.

**Key Impacts for Undergraduates**

Based on the students’ responses in the program evaluations and other experience with SFS academic programs, we present what we believe are the four core aspects that make this international education and research experience particularly meaningful for undergraduates. These aspects also provide the foundation for effective engagement with local stakeholders leading to positive change.

**Creation of a Learning Community.** The two main constituents of the SFS program are the students, who are foreign visitors and temporary actors on the scene, and the local stakeholders, who comprise residents, users of natural resources, and environmental authorities, among others. The resident, full-time faculty and staff provide the bridge between these two constituent groups. The faculty members provide familiarity with the local context, but they also must engage students deeply in a learning experience, bringing together their contextual and cultural knowledge with pedagogical approaches that introduce students to the local issues and guide them in building relationships. Together, the students, staff, and faculty make up an academic learning community, and the local constituents provide an expansion to a broader learning community.

Through hosting field visits, giving guest lectures, and participating in setting the research agenda and in research activities, the local stakeholders and actors help to define the learning context, and also learn from SFS. If we have one hope for faculty who lead international field study trips for their campuses, it is that they engage local counterparts in teaching and mentoring their students (cf.Crabtree 2013). The significance of this learning community is important to students, whose comments frequently note how much they value extracurricular time spent with faculty and local leaders in the field as they address local challenges together. One student put it this way:

> In some instances we got to have a conversation with local individuals who knew about local problems, and this cultural experience put us into context of the local issue. Also living in the area for three months made me feel more connected to the community … and allowed me to connect local issues to larger underlying struggles that Costa Rica has.

Students indicated that getting out of their comfort zone was a goal for attending the program (8 percent of respondents); many also cited personal growth as a goal (8 percent), to challenge themselves. Having a structured learning community provides students a foundation on which they can anchor their own explorations.

**Place-based Learning.** Underlying the learning community is the place-based curriculum, which is anchored in local priorities. Studying and living in the context of the study topics, making the locale the learning laboratory, contextualizes learning in a way that motivates students’ engagement (Israel 2012). Connecting students with the subject and topic of study, guided by a faculty that can convey deep understanding and passion about the locale, is the SFS goal. In a discussion of a shift in teaching from “sage to guide,” Morrison (2013) describes this approach:

> If teachers, either as sages or guides, demonstrate genuine and infectious enthusiasm and passion about the discipline … it is, again, not so much the sages or guides that influence the students but the discipline itself about which they are so passionate and in which they invite their students to become deeply engaged. [Turning] to Palmer (2007) for insight: “Passion for the subject propels [the] subject, not the teacher, into the center of the learning cir-
Student comments reflect this kind of connection with the subject matter. As one student put it:

Actually seeing a problem first hand allows you to see all of the complexities involved in trying to create a solution for said problem. By seeing these complexities, it makes it much clearer as to why there is never only just one right solution and in a way gives liberties to be creative and think outside of the box when trying to solve a problem.

Of course, such an approach to research and learning can and does occur anywhere, not only overseas (e.g., Senechal 2008). While students recognize that they can have similar experiences at home, many note that the international experience, outside of their normal setting, is particularly effective in inspiring their engagement with the curriculum. Said one student, for example:

There’s no way I could have learned and really understood the issues covered in this program. For example: fishers fishing in the MPAs [marine protected areas] and overfishing, even if they know it is bad. I’ve learned a little bit about this at my home institution, but I never understood why fishers still do that until I came here. This program gave me a fresh perspective on things.

Connecting with Community. In line with Gruenewald’s notion of “a critical pedagogy of place” (Gruenewald 2008), an inspining curriculum and pedagogy connects students with a specific place, the socio-environmental issues of that place, and the people who live there and who are affected by, and who affect, those issues. When courses and field research integrate local relationships and practices into the curriculum, which, in turn, provides meaning to the learning activities and learning relationships, students respond. As expeditionary learning educator Alison Rheingold (2012) suggests: “When academic content is purposefully infused with social relationships and community practices, learning matters to students in substantially different ways than what more commonly occurs in a standards-based system” (7). This is the kind of “caring relationship” that motivates students to apply themselves to the academic and research work (Israel 2012).

For example, at SFS the non-academic program activities, such as picking coffee berries at a farm alongside day laborers or spending a weekend with a local family whose home is located adjacent to the town landfill, provide students the opportunity for personal connection to local people and local issues. This may provide additional meaning in their study and research as they investigate the ecosystem services of shade coffee systems or assess stream quality near the landfill. Their community engagement gives students a legitimate role both in the community and in the research process.

At the same time, while students learn that their contribution can provide information and involve processes that are useful to communities, we are careful to disabuse them of the notion that they are there to “save” anything, whether children, the community, the elephants, or the Serengeti. Many undergraduates arrive at the SFS East Africa program, for example, championing the elephant and the lion, but when they complete a participatory learning and action field exercise in the Environmental Policy course that includes analyzing community members’ perspectives on wildlife, their perspective shifts from saving the elephants to seeing the elephant as an “agent of destruction.” They have measured tree damage by elephant browse and have interviewed farmers who have suffered crop damage and sometimes worse by elephants raiding their fields. Students are enabled by this experience to see the multiple realities in a place (cf. Chambers 1997).

Meaningful Research. Through field excursions in the areas where we operate, it becomes quite clear to students that SFS undergraduate research matters. When they visit Poas National Park in Costa Rica, they learn that the trail surface and visitor infrastructure were improved after SFS students conducted visitor surveys. In a class exercise at a coffee farm, students learn that SFS research in the early 1990s aided in the establishment of local coffee cooperatives (Aguirre 2002). In Kenya, the research on the quantity and quality of stream water has been used by a local civil-society organization to obtain European Union financing for watershed protection and public health services. The animal counts and habitat assessments on community lands conducted by students over the years have provided data and strategy options for the establishment and maintenance of community-run wildlife sanctuaries that generate tourism dollars (Okello 2005b, 2005a).

Students come to recognize the value of their work not only to themselves as learners, but also in providing a service to the local communities and ecosystems. They learn that their research deliverables have an “authentic audience,” whose faces and names they know. In the words of one student, “We were taking data from the local communities, so it made our work have much more importance and it put a face to who we were doing the research for.” They see that their research will become part of the public space, not only as research reports, publications, and community presentations, but also in the landscape and society. This awareness, we believe, drives students’ commitment to excellence in their research work. Students’ comments frequently highlight the differ-
The long-term relationships between SFS and local stakeholders depend on connecting with community. Good relationships allow for an iterative process of dialogue with communities about research priorities, use of research results, and action. These good relations help the programs get through the occasional tensions between research and action. For example, in the late 1990s, a community in Turks and Caicos identified declining lobster catches as a pressing issue affecting local livelihoods. Consultations with SFS researchers led to a five-year research plan that posed questions about key fisheries populations, as well as about local fishing practices and fisheries markets. SFS researchers reported data over several years that verified a decline in size of key species, and recommendations were jointly developed for minimal catch size. Those were adopted by natural-resource authorities.

SFS faculty and the local authorities in the Turks and Caicos also developed a kit that detects residue of bleach on lobsters, which fishers sometimes use to rout lobsters out from their hiding places, and which is illegal (Wilson et al. 2008). The kit became a tool for authorities to use to monitor illegal fishing practices for lobster. While the fishers were at first quite unhappy with increased surveillance, and they blamed SFS, they soon realized that lobster fishery, and their income, could improve with better practices. That trust was regained is evidenced by the fact that today the lobster fishers are wearing computer gauges to record their every dive, and those data are analyzed by SFS faculty and students with the goal of improving safety in the sector, livelihoods of the fishers, and sustainability of the fishery.

**Conclusion**

We have identified certain aspects of the SFS field-based, international study programs that motivate students’ engagement in the curriculum and research. Local community engagement in the research process is built into the curricular design of the program. Intentionally fostering the learning community in an international research experience, under the guidance of faculty and staff members who are familiar with the local context, provides a structured, yet socially expansive, context for meaningful undergraduate research. The place-based education model helps to foster a caring relationship between students and the community and their interaction with the environment. The community-based research agenda provides meaning and authenticity to students’ research experience, allowing the faculty to set the bar high for students’ performance by letting students know that they must communicate their research outputs in public presentations.

These program factors correspond well to the high-impact educational practices promoted by the American Association of Colleges & Universities’ LEAP program (Kuh 2008), which supports student retention and engagement in learning. Directly engaging in locally relevant research that is directly applicable in the human and natural communities that students learn to know through field experience infuses students’ education and career aspirations with a service orientation, which they can transfer to the new contexts they will encounter beyond graduation.

The programs’ elements and approach, and the learning and community-action outcomes we have described are, of course, not unique to SFS. Our goal here has been to highlight a program structure and curricular model that we find results in deep student engagement in a learning process and in real changes in the socio-environmental milieu in which study abroad programs operate. Essential to the student experience is the development of a caring relationship with what students first encounter as “the other,” but that soon becomes the context for learning and the consumption of their research results. This model of long-term, place-based education and research also results in relationships between the programs and the communities that bolster the longevity and sustainability of these the academic programs.

**References**


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Student as Producer: Research-engaged Teaching Frames
University-wide Curriculum Development

Student as Producer, has been the organizing principle for teaching and learning at the University of Lincoln, England, since 2010. The model is based on the concept of research-engaged teaching that promotes research and research-like activities across the entire undergraduate curriculum at the institution.

Student as Producer, however, is about more than teaching and learning. It also seeks to raise fundamental questions about the nature and purpose of higher education (Brew 2006; Neary and Winn 2009). These questions are pertinent at a time when higher education in the United Kingdom and around the world is being reduced to the financial imperatives of “academic capitalism” (Slaughter and Rhoades 2004; McGettigan 2013) based on the notion of the student as consumer (Boden and Epstein 2006) and the pedagogy of debt (Williams 2006). These market-driven policies have been interpreted as part of a reactionary campaign to “unmake” the public university’s democratizing influence on political society (Newfield 2011). Student as Producer seeks to re-engineer the relationship between teaching and research to consolidate and restate the public values of academic life, emphasizing the role of students as collaborators with academics in the production and representation of knowledge and meaning.

Planning for Student as Producer has been ongoing at Lincoln since 2007. It involves working with academics, students, and professional and support staff in a collaborative and consultative fashion, generating processes and protocols, as well as supportive and developmental frameworks, through which research-engaged teaching can be delivered across the university. This process has resulted in a number of changes in infrastructure through which Student as Producer has been institutionalized. These include the creation of bureaucratic processes to facilitate research-engaged teaching; an institutional program for teacher support, education, and training; a digital-education strategy that involves students as digital developers; the design of classrooms and other learning environments to support research-engaged teaching; and systematic engagement with students on assuring and enhancing teaching quality. And all of this is grounded in an intellectual debate about the meaning and purpose of higher education.

The process has been overseen by a project-management group that includes students and other representatives from across the university, chaired by a deputy vice-chancellor and reporting to university committees at the college and the university levels. As director of the project for incorporating the model into curricular development, I chaired the substantive university Committees for Teaching and Learning and the Committee on the Student Experience. My other key tasks have included running workshops for academics and for professional support staff at Lincoln on the practices and principles embodied in viewing students as producers of research; working closely with student representatives and the Students’ Union to maintain close involvement with the student body; and delivering keynote presentations on Student as Producer to other university conferences on teaching and learning in the U.K. and internationally.

Creating Infrastructure Processes

One of the main ways in which Student as Producer has been embedded at Lincoln is through the processes and protocols for quality assurance and enhancement established by the Quality Assurance Agency (QAA), a government-funded body to ensure teaching quality in higher education, which were redrafted at Lincoln to include the principles and practices of Student as Producer. On applying to establish or continue a particular academic program, academics are asked to consider how the principles underlying Student as Producer can be incorporated into the program. These include the extent of research-engaged teaching and learning in the curriculum; student involvement in the design and delivery of the program; an awareness of the significance of learning space in their teaching practice; how technologies for teaching are used to enhance staff-student research collaboration; and the ways in which the program prepares students for the world of work and to make a positive contribution to society.

Academic staff are asked to report on these aspects in their annual reports, commenting on developments from previous years and future plans. External examiners are asked to comment on the principles of Student as Producer in their end-of-year reports. A recent evaluation of these reporting procedures shows that the undergraduate curriculum at Lincoln is full of research-engaged curricular activities across all disciplines (Neary et al. 2014). In 2012, following an in-
Continuing professional development has been provided to staff involved with teaching and learning. Initially, colleagues involved in the project attended staff meetings to explain the basic principles of the approach and ran staff workshops to raise awareness. These processes of education and training have now been consolidated at the institutional level through a requirement that all staff involved in teaching have a teaching qualification or accreditation from the Higher Education Academy (HEA). The HEA is a government-sponsored organization to promote teaching excellence in higher education. The university provides teaching-education programs for teaching staff at appropriate levels of experience and status through a Post Graduate Certificate in Higher Education, and it has been accredited to award its own HEA fellowships offering programs of mentoring and support. The university established a teaching academy as an informal network of support for teaching staff outside of the formal university networks, to further encourage academic staff and students to experiment with innovative pedagogic practices, including research-engaged teaching and learning (http://teachingacademy.blogs.lincoln.ac.uk/).

Designing Learning Landscapes

Viewing students as producers of research and knowledge is not only about curriculum design, but also includes an awareness of the importance of space in learning and teaching environments. In 2008-2010 Lincoln led a funded national research project called Learning Landscapes in Higher Education (Neary et al 2010). The research looked at effective design of learning spaces, with a particular focus on spaces that promoted research-engaged teaching and learning (Neary and Saunders 2011). Lessons learned from this research have been used to inform the design and development of teaching and learning spaces at Lincoln (Neary and Williams 2013). These lessons include recognizing the importance of research-based decision-making; understanding the need to provide support for staff to use new spaces; involving students in the design of teaching spaces as clients and collaborators; evaluating teaching spaces in ways that are academically credible—for example, not simply looking at occupancy rates but also reflecting about the nature of the pedagogical activity that is taking place; creating formal and informal management structures that promote experimentation in classroom design; working to develop supportive relationships across professional groups; and generating a debate about learning landscapes based on academic values linked to the meaning and purpose of higher education (Neary et al. 2010).

A Learning Landscapes Working Group that I chaired, including staff and students from across the university, focused on ways to consider how students can be producers of knowledge in particular spaces used for teaching and learning. The group has set up workshops with academics and students to generate innovative thinking for classroom design. All of this is sustained by an ongoing cycle of reviews of existing facilities used for teaching and learning. Student as Producer principles have been used to inform the design of the new research and teaching facilities for life science, chemistry, and pharmacy at Lincoln. The design of the new facility, to be known as the Sir Joseph Banks Laboratories, integrates research, teaching, and social space into a single connected learning landscape. Undergraduates, postgraduates, and staff share formal and informal spaces distributed throughout the facility (http://learninglandscapes.blogs.lincoln.ac.uk/projects/joseph-banks-laboratories/).

Technology: Hacking the University

The university has utilized the skills of students as computer developers to produce useful technologies for research and teaching at Lincoln, making links between the concept of “hacking” and students as producers of knowledge (JISC 2012). The impact of this work has been enhanced through the implementation of the university’s strategy for digital education, 2011-2016, which incorporates lessons learned during the implementation of the plan for developing curricula that focus on students as producers of knowledge. Key areas planned for the new digital strategy involve setting up an interdisciplinary master’s program that focuses on students as producers of knowledge. This work is being consolidated at a strategic level through a steering committee reporting to the university’s Education Committee, now chaired by the deputy vice-chancellor for teaching quality and the student experience. In the meantime, the university’s computer services department has continued to employ students as developers and as support staff for students and academics, with very positive results.

Student as Producer underpins all aspects of student engagement at the university. The overall strategy for engaging students requires that students play an active part in the enhancement of quality by working together with staff,
recognizing that students are experts on their own experience (http://www.lincoln.ac.uk/home/media/universityoflincoln/globalmedia/documents/SES.pdf). The university has created a Student Engagement Team with strong links to the Students’ Union. This team has allowed for the development of systematic schemes to embed this model of student engagement, including a comprehensive student representation system; the creation and support, including training, of a group of students advising on academic quality; student-led committees, student members on university committees, and students on panels making staff appointments. The university has successfully experimented with new structures for committee meetings, based on a workshop model developed by staff and students at Lincoln to promote and support student involvement (Bishop et al. 2012).

Intellectual Links Among Teaching, Learning, Research

Viewing students as producers of knowledge challenges and invites academics to become involved in debates about the complexity of links among teaching, learning, and research in higher education. These debates are contextualized around the meaning and purpose of higher education or “the idea of the university” (Neary and Saunders 2011). Student as Producer is based on the understanding that research and teaching have become disengaged in ways that are detrimental to academic and student life (Boyer 1990; Boyer Commission 1998). The model is not simply about teaching and learning, but also asks fundamental questions about the nature and purpose of higher education, thus promoting “the idea of the university” as a radical pedagogic project. The approach is derived from a critique of “academic capitalism” (Slaughter and Rhoades 2004) and is an act of resistance to the concept of the student as consumer (Boden and Epstein 2008) and the pedagogy of debt, which teaches students that human values are best expressed in monetary terms (Williams 2006).

Student as Producer is grounded in a radical perspective on the history of higher education. To promote the re-engineering of the relationship between teaching and research, Student as Producer returns to the history of the modern university, with reference to Wilhelm von Humboldt’s University of Berlin in 1810, the student protests of 1968, and the Occupy movement that began in 2011 out of concerns about social and economic inequality and led to a number of radical pedagogical projects.

Humboldt’s plan was to establish “the idea of the university” as a progressive political, liberal humanist project, providing the basis for civilizing the population as part of the process of building the emerging nation-state. This would be done by connecting teaching and research in a program to promote the expansive creation of new knowledge, breaking from the dogmatic medieval university, so that the European university embodied the highest level of consciousness of liberal society (Elton 2008).

Seeing students as producers of knowledge was inspired by student protests in Paris, France, and around the world in May 1968. At that time students were protesting the lack of democratic accountability in elitist institutions of higher education. These protests were linked to opposition to colonial and imperialist wars in Algeria and Vietnam (Ross 2002). The events surrounding May 1968 were a powerful example of student engagement in which students were at the heart of a major political event, with significant consequences for the future of higher education. This included the democratizing of university life and impacted curriculum development, for example, the idea that students are capable of carrying out research through their own independent projects (Pratt 1997). An important aspect of 1968 was the disengagement by students of the elite practice of the production of knowledge, with “research becoming something that anyone can do” (Ross 2002).

The Occupy movement developed a number of radical pedagogical projects with a focus on higher education. For example, in England this included Tent City University at St. Paul’s Cathedral in London, People’s Political Economy in Oxford, and the Social Science Centre in Lincoln (Stanistreet 2012). Student as Producer asserts that much can be learned by academics from students involved with these projects concerning how to frame higher education in ways that deal with current global emergencies—for example, climate change and the collapse of market-based economic systems (McNally 2011; Orr 2010).

The radical nature of Student as Producer is further underlined by its affinity with the writings of Walter Benjamin, notably “Author as Producer” (1934), in which Benjamin asked, “How do radical intellectuals act in a moment of crisis?” Following the ideas of Brecht and the Russian Constructivists, Benjamin argued that progressive social revolution depends upon the transformation of the social relations of capitalist production. He argued that ways should be found in the production of social life for those who are normally regarded as objects of history to see themselves as subjects of history—as teachers, writers, and performers—thus enabling them to recognize themselves in a social world of their own design.
Not all academics at Lincoln concur with this political philosophy. Many have sought to implement the concept of Student as Producer by reinterpreting it through their own disciplinary customs and traditions, both at the level of their own teaching practice and at an organizational level by customizing it to fit the culture of their particular school, department, and college. Yet what connects all of this practice and theory is the attempt to infuse an approach to teaching and learning with the dynamic sense of enquiry and experiment that applies to research activity—recognizing that research, by its very nature, is an inherently subversive activity (Neary 2012).

This intellectual work has been substantiated by academics at Lincoln who have further developed the theoretical underpinnings of the model (Neary 2008; Neary and Winn 2009; Neary 2012a; 2012b; 2012c; Neary and Amsler 2012; Neary and Hagyard 2011; Neary 2013; Neary et al. 2014). This work emphasizes the dysfunctional relationship between teaching and research that lies at the core of higher education, and how this dysfunctionality might be re-engineered to create a form of higher education based on a more democratic relationship between students and their universities. Work is now beginning by academics and students outside of Lincoln using the perspective as a substantive intervention in the debates about higher education (Ellis 2012).

Case-study: Students as Producers of History

The model of students as researchers and producers of historical knowledge has been written into the history degree at Lincoln. This pedagogical approach is exemplified by a large first-year history module in which almost a hundred students, working in small groups of between four and five students, create digital historical objects using primary sources. After one training session on the basics of using Xerte, an online development tool, the students were able to develop projects relating to the subjects being taught that exceeded their tutors’ expectations. The tutors report that the students were able to engage with sources in ways that would not have been imaginable when writing an essay. The students have now taken this activity to another level, creating online support tools for students who will be enrolled in this module in future, for example, producing referencing guides so that students are now teaching each other research and writing skills.

The development of this module was facilitated by a grant from the Higher Education Academy Student as Partners Fund, technical support from the university’s coordinators of learning development, and the encouragement of senior staff in the history department who wanted to align the history curriculum more closely with the perspective of Student as Producer. There are plans to extend this method of working in three distinct ways: first, by using it as the pedagogic framework for other modules, including at the masters level; second, by delivering the materials through other digitalized formats, including documentary film; and, finally, by engaging more directly in the over-arching ideology and politics of the approach in terms of how students producing new knowledge affects the relationship between students and tutors, developing a conceptual framework for students to think reflectively about themselves as historians and as people. (see http://makingdigitalhistory.co.uk/)

Evaluation

Student as Producer has recently been evaluated using a theory of change research methodology (Hart et al. 2009). The evaluation took the form of participatory action research with evaluators interviewing 150 students and 20 academics, as well as senior managers and professional and support staff. The key research question was what has been the impact of Student as Producer at Lincoln. The evaluation included analysis of relevant documents and reports (Neary et al. 2014). The evaluation found that Student as Producer met its main targets as set out as the basis for a Higher Education Academy funding award in 2010-2013. It is embedded across the University of Lincoln, and it has established a framework that other institutions of higher education can use to establish research-engaged teaching, while also supporting and developing an international network to promote research-engaged teaching.

Student as Producer has been successful in meeting a further set of internal targets established at the beginning of the project funded by the grant from the Higher Education Academy. These targets include redrafting the documents used to assess quality assurance and enhancement, providing genuine research opportunities for students, and creating a culture that accepts the importance of undergraduate research and the role of undergraduates in producing research at the university inside and outside of the curriculum. The educational outcomes from research-engaged teaching require further investigation, and should come increasingly into focus as the project matures across the university.

One of the strongest features of the project is the impact it has had externally. The QAA commendation noted earlier is a recognition of its sector-leading nature and the significance of its work beyond Lincoln. The HEA has recognized the role that the role has played in promoting student engagement across the higher-education sector. Student as Producer has been adopted and adapted by providers of higher education in the U.K. and internationally. In the U.K. this includes the University of Hertfordshire, where it is used as a mod-
el for curriculum development in the business school, and internationally at Vanderbilt University in the U.S. where it provides the framework for a project (http://cft.vanderbilt.edu/2013/09/students-as-producers-an-introduction/), as well as at the University of British Columbia in Canada where the educational philosophy that underpins the project continues to emerge in a number of flexible-learning-based projects across the institution (http://flexible.learning.ubc.ca/showcase/ubc-course-offerings-feature-students-as-producers-of-content/). Staff involved with Student as Producer participate in the steering groups of the British Conference for Undergraduate Research (bcur.org.uk) and the Australian Conference for Undergraduate Research (acur.org.au). Student as Producer was cited as an example of significant future trends in higher education in the United States by the influential New Media Consortium report on higher education (NMC 2014).

All of this is underpinned by what staff and students say (Neary et al. 2014). The recent evaluation has revealed that students recognize the value of research-engaged teaching for their learning, their earning potential, and their ability to meet life’s challenges. There is evidence that they are coming to Lincoln because of the opportunities to engage in research and research-like activities, and that they would like to have more opportunities than are currently available to engage in research. There is some cynicism from students about claims made about the approach at Lincoln, as well as some disappointment about their experience of research in the curriculum, but students overwhelmingly are very positive about their opportunities to be involved with programs based on research-engaged teaching and learning.

The response by academic staff has been equally positive. Staff members appreciate the way in which allowing students to participate in research enables them to share the “intellectual buzz” they get from their research with students in a practical and creative way. Many academics at Lincoln were already involved with forms of research-engaged teaching, but they appreciate the intellectual and pedagogical framework that Student as Producer provides, supporting them in the further development of their work in this area. Academics interviewed reported that not all of their fellow faculty at Lincoln are committed to student research, but they were uncertain as to why this is the case. There is some disappointment among academics and senior managers that not more has been achieved across the institution, and some negativity about the way in which its implementation across the university has been undertaken through bureaucratic processes rather than more inspirational change-management techniques and more case-study examples.

Other critical comments were that the project was “too academic” or that academic staff “were doing this already” or that the publicity material was “not student-friendly.” The response to staff who were struggling to understand the concept was to support them in finding ways to engage with the intellectual ideas that underpin the approach through discussion and by encouraging them to read the growing number of related academic publications. If staff felt they were already doing research-engaged teaching, they were encouraged to find ways to extend the principles into other aspects of their teaching practice, for example, thinking about how students can be involved in the design and delivery of their teaching programs. Student as Producer became more “student friendly” through the university’s campaign for students to become engaged not only as producers of the curriculum, but also as producers of other aspects of university life, including assisting with improving teaching quality and staff recruitment.

Understandably, after a project of this longevity, there is some concern that it has lost some of its original dynamism and needs to recover its original momentum, although there is no sign of institutional fatigue about the concept either at Lincoln or across the sector (Neary et al. 2014).

Challenges

There is no doubt that Student as Producer has been successful in promoting research-engaged teaching and has been influential in debates about the nature of higher education. The challenges are, as the evaluation has revealed, how to maintain its intellectual energy and practical applications in ways that correspond to the needs and capacities of students, academics and other university staff, while avoiding the trap of being perceived as yet another top-down management initiative. This can be achieved by ensuring that academics and professional and support staff at all levels feel they have ownership of the program and have some stake in its design and delivery. It is vital that Student as Producer be susceptible to the critical intelligence of students and that students are involved with developments in the curriculum as collaborators, rather than simply as consumers of knowledge. It is important that the language through which proponents communicate their message challenges the managerial discourse that underpins the consumerist culture of “academic capitalism,” and that it provides the possibility of a real alternative for higher education based on academic rather than business values.

The intellectual dynamism can be further maintained by refreshing and revitalizing the conceptual framework through academic publications so that Student as Producer can assert its core purposes in ways that are academically credible. This
means maintaining strong external links by working with other providers of higher education and key stakeholders, helping them to find ways of making use of student research opportunities that suit their own institutional priorities. And finally, intellectual vitality can be maintained by recognizing that projects of the scale and ambition of Student as Producer are never completely finished, but must constantly find ways to challenge the political and economic conditions out which they have emerged. The expectation is that Student as Producer will be able to sustain the practical application of this radical intellectual framework in ways that further challenge the current mainstream orthodoxies of higher education.

References


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Incorporating Undergraduate Research into Teacher Education: Preparing Thoughtful Teachers Through Inquiry-Based Learning

Students majoring in education are notably underrepresented in undergraduate research programs. Considering the outstanding benefits of undergraduate research for students, it is important for teacher-education programs to find ways to incorporate undergraduate research into the curriculum to prepare future educators to most effectively teach the next generation of students. Having recently conducted a CUR workshop on incorporating undergraduate research into fine arts and teacher education, we see tremendous untapped potential for education professors to engage their students in undergraduate research, a transformative pedagogy for teaching and learning that has swept across the country and beyond. Here we provide an overview and a summary of the history and likely developments for the future of undergraduate research in education.

Undergraduate research has been shown to be a high-impact practice that benefits undergraduate students (Kuh 2008; Osborn and Karukstis 2009). Students who have opportunities to engage in undergraduate research have significantly better learning outcomes than similar students without those opportunities. Scholarly research develops students’ skills in critical thinking and problem-solving, ignites their intellectual curiosity, and cultivates excitement about their disciplines. Undergraduate research also encourages leadership and collaboration, promotes logical analysis, and enhances students’ written and oral communication skills (Ishiyama 2002).

In the field of teacher education, when majors engage in undergraduate research, these pre-service teachers refine their teaching skills, develop an appreciation for research, broaden their knowledge of the discipline, and enhance their understanding of the relationship between educational theory and practice (Lassonde 2008; Levy, Thomas, Drago, Rex 2013; Slobodzian and Pancsofar 2014). Considering these benefits, undergraduate research provides pre-service teachers with the skills they need to become thoughtful, purposeful professional educators prepared to teach in the 21st century and become leaders in their schools and communities.

The authors of recent literature on undergraduate research in education have (a) shared examples of successful research experiences within a course or education-related field (Allyn 2013; Culp and Urtel 2013; Lassonde 2008; Strand 2006); (b) proposed how to apply models of research to teacher-preparation programs (Slobodzian and Pancsofar 2014); and (c) addressed the numerous benefits of action research for pre-service teachers. While it is clear from the literature that it is important and beneficial for teacher-preparation programs to engage their students in research, it is not yet standard practice for all students to participate in what is considered undergraduate research during their teacher-education programs. As educators in teacher-preparation programs, we promote the importance of providing K-12 students with inquiry-based, meaningful, constructivist learning experiences. However, there seem to be several barriers to engaging undergraduate students in these engaging, transformative pedagogical practices.

Faculty and Student Barriers

Faculty and students across the country have suggested several barriers to undergraduate research in teacher education. Faculty members often cite a lack of time as a reason they are unlikely to mentor undergraduate researchers. Besides teaching several courses, education faculty also frequently facilitate pre-practicum experiences, supervise student teachers, provide professional development to regional schools, and engage in educational outreach within the community. In addition, various education initiatives, including implementing the Common Core State Standards, working with new teacher-performance assessments, and participating in accreditation committees and in professional organizations and associations also require faculty time and resources. Since many educational research studies have human participants, faculty must also find the time to apply for the campus institutional review board’s approval prior to their students beginning an undergraduate research project.

Faculty members also suggest that mentoring an undergraduate researcher may take away time from their own research and scholarship. Furthermore, the curricula for many education programs are carefully aligned with accreditation standards for teacher preparation as well as with other national-level curriculum standards, such as those of the National Council of Teachers of English, the International Reading Association, and the National Science Teachers Association. Consequently, the curricula in undergraduate teacher-education programs seem to have little room for research experiences.
When discussing barriers that students face in undertaking undergraduate research in education, faculty members often think research experiences will be overwhelming to their students, who already have a heavy course load, engage in pre-practicum experiences, complete methods courses, and do student teaching. Education students similarly cite their demanding course load and pre-practicum/practicum experiences as making them hesitant to seek out research experiences. Students add that many of them spend much of their free time working and/or volunteering with children in their communities to bolster their teaching experience so as to help them find a teaching job in the future.

Across the nation, few teacher-education students apply for institutions’ undergraduate research grants or present at undergraduate research symposia and conferences. However, during their pre-service academic training, education students do regularly participate in scholarly experiences such as case studies of students they encounter in student teaching, the development and implementation of curriculum units, and action research. Education students frequently present their findings and experiences to their peers in their teacher-preparation courses but rarely disseminate their findings about teaching and learning to the broader university community and beyond.

**Undergraduate Research in Teacher Education: Solutions and Examples**

**Solutions.** As we have become increasingly familiar with the barriers to undergraduate research in teacher-preparation programs, we have focused our efforts on providing students and faculty with some solutions that may make research experiences more feasible. Faculty members who are mentoring undergraduate researchers in education stress the importance of disciplinary models and definitions of research that include the scholarly practices of educators within the field (e.g., qualitative studies examining pedagogical practices in the classroom). In addition, there is a need to redefine the inquiry-based, scholarly experiences already present in education courses and curricula as undergraduate research.

Since there are contrasting conceptualizations of what inquiry-based learning and research look like in different educational fields, it is beneficial for scholars in education to share their conceptions and methodologies with their teacher-preparation colleagues (Levy, Thomas, Drago, and Rex 2013). A variety of undergraduate research models exist that can be integrated into teacher-preparation programs in order to promote systematic inquiry into teaching and learning and thus inform pre-service teachers’ instructional practices and develop their content knowledge. These models of undergraduate research—which already often occur in teacher-education programs—include action research, analysis of archival research, classroom observations informed by a literature review, case studies of particular K-12 students, and curriculum-unit and lesson design (Shanahan 2012). In addition, research can focus on examining innovative pedagogy, teaching tools, and interventions. These research models can be incorporated within coursework, used during a grant-funded summer research program, or used in an honors thesis or capstone project.

**Examples.** Bridgewater State University, where author Manak teaches, is a comprehensive liberal arts university in southeastern Massachusetts founded by Horace Mann as one of the country’s first “normal” schools focusing on teacher education. Bridgewater State has a vibrant undergraduate research program that provides a range of funding opportunities to support student research, and it offers many opportunities for students to present and publish their research or creative work. In the past few years, an increasing number of teacher-education students and faculty have engaged in a variety of research experiences.

For instance, at Bridgewater State, students in the Introduction to Elementary Education course engage in undergraduate research as they conduct their required 40 hours of classroom observation. Students in this course are required to observe three different grade levels (from grade 1 through 6) at a public elementary school for a total of 40 hours. Prior to beginning their observations, students decide on topics that they are interested in studying during their hours of observation. Then they conduct a review of recent research on their topics and develop research questions informed by their literature reviews. Students’ projects often connect their second, content-area major with their elementary education major.

During the second week of class, students come to class with articles on their topics, share their draft research questions, and then the professor and students engage in a collaborative discussion to refine the questions and decide what data they will need to collect to answer those questions during the classroom observation. As part of their overall work conducting participant observations and interviewing teachers, parents, and administrators, students are guided to develop a few interview questions that specifically address their research topics. During the semester, students write an abstract of their research, regularly discuss their data collection, and are guided by their professor in a thematic analysis of their
data. Near the end of the semester, students design a research poster that includes an abstract, introduction, methodology, findings or themes emerging from their data, conclusions, and acknowledgements. Students present their research at the institution’s undergraduate research symposium, and several students have applied to present their findings at the National Conference on Undergraduate Research (NCUR). Students who have been accepted have conducted research on a variety of topics, including “Smart or Not So Smart Boards? A Look at Interactive Whiteboards in the Classroom” (Nicole Akin); “Sheltered English Immersion: Você não fala inglês? No problem” (Kristin Arnold); and “Incorporating Social Studies into the Elementary School Curriculum” (Allison Little).

Several pre-service teachers also have received grants to conduct summer research projects, especially students preparing to teach elementary and special education and students interested in communication and speech disorders. Some have gone on to present this research beyond the campus community. Such research has included archival research projects reanalyzing data previously collected in a qualitative, naturalistic study and innovative pedagogical research. Student Adriann Flint presented her archival research project and honors thesis entitled “The Social Construction of Literary Understanding in a Third-Grade Classroom during Interactive Read-Alouds” at NCUR. Student Janelle Roberts presented her summer research project and honors thesis on culturally inclusive pedagogy, “Exploring the American Revolution from Multiple Perspectives through Critical Literacy Discussions in a Fifth-Grade Classroom,” at the Massachusetts Reading Association, NCUR, and CUR’s Posters on the Hill in Washington, DC.

Student Samantha Modica’s research project, “Falling Off a Cliff: Transitioning From Special Education to Adult Life,” focused on developing an online directory to serve families of teens with severe special needs as they transitioned from high-school special-education programs into the broader community. Modica presented her research at an international conference on intellectual and developmental disabilities. Jenna DeChristopher’s research in the field of communication and speech disorders, “Fluency in Bilingual Preschool Children,” examined the speech fluency of bilingual children through conducting interviews with them. These examples provide a glimpse into the meaningful, transformative research projects that our undergraduate students have conducted in the field of education.

Next Steps

If we are serious about engaging education students in undergraduate research, we will need many more CUR institutes and customized workshops focused on education research and teacher preparation. Encouraging education faculty members who have a firm grasp on the solutions outlined above to present at state, regional, and national education conferences will also help. There is also a significant need for teacher-preparation professors and their colleagues who mentor undergraduate researchers to publish information on best practices in undergraduate research in teacher education, as well as to promote the awareness of successful disciplinary models of undergraduate research in education. In one current example, CUR has what is titled the Affinity Group for Education Research and Teacher Preparation, led by Ruth Palmer (The College of New Jersey) and Dennis Munk (Carthage College). The group is intended to facilitate communication and collaboration among CUR members from all divisions who are interested in promoting undergraduate research in teacher-preparation programs and related disciplines.

If we as faculty intentionally implement inquiry-based learning through undergraduate research, we will deepen the teacher-education experience by promoting critical thinking, problem solving, disciplinary excitement, and leadership in the field of education. When reflecting on their undergraduate research experiences, education students often say that it has provided them with a more comprehensive understanding of the field of education and that it has influenced their future teaching career. For example, explained Molly Bennett, who engaged in undergraduate research at Bridgewater State during her first year of college, “Having the opportunity to conduct undergraduate research in the field of education my very first semester of college was an unforgettable experience. … Undergraduate research has given me nothing but amazing insight into all parts of education and opened doors to more extensive undergraduate research in the future. I am so grateful to have had this experience so early in my college career.” Bennett added that because of undergraduate research, she felt she has “a better understanding of the ‘big picture’ of education. … It has given me the chance to see new and innovative aspects of education, allowing me to decide what I believe to be most successful in educating a diverse student body. These firsthand experiences influence what I plan and do not plan to incorporate in my future classroom.”

Kristen Arnold, who also conducted a study as a first-year student that integrated her education and Spanish majors, said that for the rest of her college career “I plan on doing more undergraduate research, with a school which has Sheltered English Immersion classrooms for Spanish-speaking students. Having the opportunity to conduct undergraduate re-
search early on in my college career helped me to narrow my interests and confirm my plans with my second major.”

Finally, Janelle Roberts, who had the opportunity to conduct undergraduate research in both elementary education and in special education during her sophomore and senior years, stated, “I have been able to conduct two very different research projects in the field of education. Both have provided me with great hands-on, learning experiences. Having the opportunity to conduct research at the undergraduate level has allowed me to challenge myself and have an in-depth vision of the teacher I want to be in the future. I see the opportunity of being a teacher and a researcher as a way to develop myself professionally and provide better learning experiences for my students. The research that I have conducted will continue in my classroom.”

It is certainly clear that conducting undergraduate research in education intellectually engaged these students, fostered a deeper understanding and passion for their field, and enriched their overall college experience.

References


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Gregory Young founded University College at Montana State University where he was vice provost for undergraduate education for eight years. He also was the founding director of the Undergraduate Scholars Program and supervised the implementation of a new core curriculum that was one of the first at a public university to require undergraduate research or creative activity. Young also served as assistant dean of the College of Arts & Architecture at Montana State and helped start the Arts & Humanities Division of the Council on Undergraduate Research. Currently director of the MSU School of Music and principal clarinetist with the Intermountain Opera Orchestras, he received a bachelor’s degree in music education from the University of Western Ontario and master’s and doctoral degrees in music from the University of Michigan. Young has published several articles with undergraduates as co-authors and has given invited talks in Italy, Spain, and the United States on correlations between music and architecture. He is a former treasurer and chair of the National Conference on Undergraduate Research and a councilor for the Council on Undergraduate Research.
Benefits of Research Fellowships for Undergraduates with Disabilities

The purpose of this article is to contribute to the understanding of how undergraduate students with disabilities experience and benefit from mentored research opportunities in the STEM (science, technology, engineering, and mathematics) disciplines. To accomplish this goal, the article focuses on the following questions: (a) How do students with disabilities experience undergraduate research opportunities? And (b) How do these opportunities influence students’ sense of themselves, their participation, retention, academic success in STEM and transition to graduate school? Analysis revealed that although students who participated in undergraduate research fellowships (URFs) experienced some disability-related challenges, they were fully engaged in research processes, by and large remained on track to complete their degrees, were more likely to enter graduate school and jobs in STEM fields than non-participants in the program, and enjoyed personal and social benefits.

The national shortfall in college graduates in STEM fields is well documented (National Research Council 2007). Graduating more students in these fields requires systemic efforts to effectively support and provide experiences for students as they move through critical transitions on their way to STEM careers (Science and Technology Action Plan 2008). Undergraduate research has been established as important in the career development of students in the STEM disciplines (Gibson and Bruno 2012; Junge et al. 2010; Russell et al. 2007; Russell 2006; Seymour et al. 2004; Wood and Gentile 2003; Mervis 2001).

For many students, participation in research at the undergraduate level represents their first opportunity to apply what they have learned in formal coursework and to integrate the sometimes seemingly disparate aspects of their academic curricula—thus providing a capstone experience of considerable value. Undergraduate research can be paramount in students’ decisions to attend graduate school (Eagan et al. 2011; Barlow and Villarejo 2004; Bauer and Bennett 2003; Gonzalez 2001; Russell et al. Kardash 2000; Sabatini 1997). Undergraduate research programs provide students with an idea of what a career in scientific research entails (Lopatto 2006; Kinkead 2003) and enhance students’ identity as scientists (Hurtado et al. 2009). Students who participate in research while they are undergraduates are significantly more likely to persist to degree completion in their STEM discipline than other students (Chang et al. 2011; Carlone and Johnson 2007).

Undergraduate research is an inherently social-learning context by virtue of the fact that students are mentored by faculty members and work with others in laboratory and field settings. Fenichel and Schweingruber (2010) point out that “learning is enhanced through engagement with others, experimentation, and interaction with artifacts” (99), and mentorship appears to be critical to student success (Wills, Krueger, and Kendrick 2013; Thiry and Laursen 2011). A growing body of evidence demonstrates that mentored undergraduate research opportunities are critical in expanding and diversifying STEM fields (Eagan, Hurtado, Chang, Garcia, Herrera, and Gariby 2013; Jones, Barlow, and Villarejo, 2010; Strayhorn 2010). The majority of this research, however, focuses on students from racial and ethnic-minority backgrounds, as well as women; there continues to be limited research that addresses the participation of students with disabilities.

Persons with disabilities are a smaller proportion of the STEM labor force than they are of the labor force in general (National Science Foundation 2004). Students with disabilities are less likely than other students to pursue postsecondary education, especially in the STEM fields, for a number of reasons. These students are often not encouraged to take the necessary high school classes either because of limited knowledge of what is required in postsecondary education (Burgstahler 1994) or because of low expectations (Dymond et al. 2008). Students with disabilities are at greater risk of finding themselves in a science curriculum that lacks depth and challenge (Dymond et al. 2008), and students in self-contained, special-education settings often receive “little or no science instruction” (Bodzin, Waller, Santoro, and Kale 2007, 273).

Nevertheless, findings are beginning to emerge that show benefits for students with disabilities who participate in undergraduate research (Langley-Turnbaugh et al. 2007). Further, findings specific to students with disabilities show that these individuals often gain knowledge about effective accommodation strategies through internships or other mentored professional opportunities (Burgstahler and Bellman 2009). Students with disabilities are more likely to ask for assistance and accommodations if their student-faculty relationships are strong and if faculty members are perceived as being supportive (Orr and Hammig 2009). Students with disabilities have also been found to perceive their student-faculty interactions more favorably than students without disabilities—even when students with disabilities perceive their campus as less than supportive (Hedrick, Dizen, Collins, Evans, and Grayson 2010).

While these emerging findings are promising, research on participation by students’ with disabilities in undergraduate research remains limited, as is our understanding of its impact on these students.
The purpose of this article is to contribute to the understanding of how students with disabilities experience and benefit from these mentored opportunities. To accomplish this, we focused on the following questions:

- How do students with disabilities experience undergraduate research opportunities?
- How do these opportunities influence students’ sense of themselves, their participation, retention, academic success in STEM fields, and transition to graduate school?

**Methods**

The University of Southern Maine (USM) enrolls a student population of 10,000, and has assumed a strong and growing role in science and technology education, both on campus with its approach to degree programs and in the community through outreach to K-12 students and their teachers. USM has hosted the Eastern Alliance in Science, Technology, Engineering and Mathematics (EAST) for the past 10 years. Funded by the National Science Foundation’s Research in Disabilities Education Program, EAST is one of ten alliances across the country with the mission of increasing the numbers of students with disabilities who enter STEM majors and advance to graduate school or STEM careers. An important component of the EAST Alliance is its undergraduate research experiences, which provide students with hands-on, real-world experience in STEM research with faculty. These research experiences are called Undergraduate Research Fellowships (URFs) to highlight the financial and professional-development aspects of the program.

Students primarily learn about URFs through presentations in their classes, at workshops, conferences, and through faculty members. Students are likely to be invited to assist in faculty research or to have been working with faculty using work-study funds, prior to applying for an URF. Students submit an application that includes a personal statement, project description, work plan, budget form, letter of recommendation from the research supervisor, and a copy of a current college transcript. Applications are reviewed by a panel of higher education faculty, and students are selected based on the match between the student’s proposal and a faculty member’s research agenda and academic criteria (a GPA of at least 2.5 is required). If chosen for a fellowship, students are paid $3,000 for an eight-week summer experience (or the equivalent time during the academic year) with the option of an additional $500 for equipment and supplies. Faculty advisors are paid $1,000 for supervising summer fellows, although they often donate their stipends back to the project. Once an URF is awarded, the student and his or her faculty mentor determine the structure for their work. Students present their research at Thinking Matters, the annual undergraduate research conference at USM, as well as at national conferences when opportunities arise.

**Data-Collection Tools**

Data for this investigation came from three convergent data sources: surveys that were administered before and after students’ completion of a research fellowship, academic records collected annually throughout students’ enrollment at USM, and interviews with a subsample of students who received research fellowships.

*Survey instruments.* Pre-fellowship and post-fellowship surveys were developed collaboratively by EAST staff and project evaluators in order to capture a range of variables related to the undergraduate research opportunities, student outcomes, and demographics. The results provided feedback on the program. The survey-development process included peer review and pilot testing. The surveys (http://east.cct.edc.org/instr.html) were designed to collect students’ assessments of the undergraduate research fellowship as well as summative information about the impact of the fellowship on students’ mastery of key research skills and on their interest and confidence in pursuing STEM courses and careers. The pre-survey contained 19 items and the post-survey included 29. The final questionnaires were delivered annually and monitored online via Survey Monkey by program evaluation staff at the Education Development Center, Inc. (EDC) in New York City between fall 2008 and spring 2013. Students who completed multiple research fellowships completed separate pre- and post-surveys for each fellowship. Forty-two students completed both a pre-fellowship and a post-fellowship survey.

*Academic records.* Another data source is a longitudinal database used to track EAST participants’ demographic background and academic progress and performance. Data include enrollment patterns, grade-point-average, participation in EAST activities, and date of graduation.

*Interviews.* In-depth interviews were conducted with a subsample of 22 students who participated in EAST over multiple years. In the interviews we asked questions to elicit information about respondents’ pursuit of STEM and postsecondary education, their involvement in research fellowships (including any impact of their involvement and suggestions for improving the fellowships), and other STEM-related activities in which they participated.

**Results**

Between 2008 and 2012, a total of 42 students with disabilities participated in research fellowships at USM. Two-thirds of these students (68 percent) were male, and a third (33 percent) were female (percentages add up to more than 100 per-
Students’ Experiences

Fellowship students reported both personal gains in skills, knowledge, and accomplishments and “relational” benefits such as interpersonal connections with faculty, fellow students, and others in their field of study.

Personal Gains. Students were motivated by a variety of factors to participate in a URF. The most-often-reported reasons for applying for an URF were primarily related to students’ personal gain. More than two-thirds of the students indicated that they hoped to increase their knowledge about STEM fields (95 percent), to gain experience with conducting research (86 percent), to inform their future education and/or career decisions (75 percent), to take advantage of the funding provided (75 percent), and/or to include the fellowship on their resumes (74 percent).

When asked, 100 percent of EAST students indicated that they found the undergraduate research fellowships very valuable in terms of their preparation for college, graduate
school, and/or careers, rating the URFs an average of 3.70 on a four-point scale (1=not valuable, 4=very valuable). Nearly all students (98 percent) also indicated that they would recommend a research fellowship to a friend, saying things such as, “[I] wish everyone could experience an URF,” and “I would recommend this to any of my engineering major friends.”

Personal gains included skills learned and refined. One student said, “This has been a great experience to be able to work in my degree and further refine my skills in a practical environment.” The most frequent set of skills that students reported developing were research skills and techniques (27 percent). Other students mentioned learning how to write reports (15 percent). Ten percent said that they learned about the research process in general. Other students enjoyed having the opportunity to experience research (20 percent) and to deepen their understanding of STEM topics (15 percent). One student wrote: “I learned a lot about the research process in general during this fellowship. The experience helped me to believe that it is possible for me to pursue research in my career.” Another student suggested that the URF provided a unique benefit: “I gained a lot of experience that my fellow classmates did not.”

Twelve percent of students found that they gained personal insight, confidence, and a greater sense of their own “potential” through their URF. One student expressed an understanding that was both specific to his or her disability as well as empowering, “It was a life-changing experience that helped me address my disability and understand that while I don’t function in the same way as others, I am just as capable of accomplishing great things.” Another newly confident student wrote, “I can go into [research] without my disability blocking it.”

Relational Benefits. Relational benefits are the interpersonal connections URF participants developed with faculty, fellow students, and others in their field of study. While a relatively low number of students specifically reported benefits such as interactions with peers, faculty, and other researchers in the field (7 percent) or improving interpersonal skills (5 percent) on the surveys, students emphasized the importance of relational benefits in other ways. Sixty percent of the respondents said they applied in order to work with a specific professor. Further, students rated their mentor highly (mean = 3.17 on a 4-point scale). One student wrote, “The most important benefit of working with EAST was the inspiration that I found in my mentor.”

In addition to the importance of their mentor, students talked about the fact that their URF helped them expand their personal and professional networks. One student said, “It is a great opportunity to put classroom skills to practical use and work collaboratively with other people, [who are] at different places in their pursuit of a degree or with professors outside of a classroom environment.” These developing social and professional networks often led participants to opportunities to present themselves as researchers and members of a team. Close to two-thirds of the students (64 percent) reported that their fellowships provided them with an opportunity to present or co-present findings from their research at a conference or in a publication. Twenty percent of the students have presented their research results at the Thinking Matters conference, while 10 percent of the students have presented their work at national conferences in their discipline (e.g., at meetings of the Society of Toxicology and Soil Science Society of America). One student wrote, “I upped my game this time by presenting my findings at two national conferences. This experience was amazing, and I was able to make many connections with others in the field and with possible grad schools.” Another student said, “I was proud to contribute to advances in the functionality of the GAMI software project I worked on.” In fact, one student pointed to the connection between the personal gains and the relational benefits of a research fellowship, saying “[I gained] confidence in my ability to design and complete a research project that contributes to my field.”

Challenges

While the students with disabilities who participated in URFS experienced many benefits, they also encountered some challenges. Forty-four percent of the students reported disability-related challenges, including difficulties with staying focused (reported by 11 percent), time management (11 percent), managing emotional states (9 percent), writing (7 percent), organization (4 percent), and working around a physical disability (2 percent). Another 44 percent of the students reported challenges, but did not attribute them to their disability. The challenges reported by this group of students included dealing with complications in research procedures (13 percent), time management (11 percent), scheduling conflicts (4 percent), communication (4 percent), data collection (4 percent), equipment (4 percent), writing (4 percent), organization (4 percent), making sense of the data (2 percent), being unfamiliar with the content area (2 percent), and the payment schedule (2 percent).

It is important to note that some of the disability-related challenges that survey respondents described (e.g., time management, writing) also are frequently reported by students without disabilities, and that some students with disabilities did not attribute these types of challenges to their disability. Whether and how students experienced disability-related challenges appeared to be related to their specific disabilities and the particular demands of the research activities in which they were engaged. In particular, maintaining focus was a challenge for students with attention-deficit disorders when they were engaged in detail-oriented, repetitive work. One student wrote, “I also faced the usual challenges for a person with attention-deficit disorder, in terms of maintain-
ing my focus on detail-oriented work, especially as we were working in an occasionally noisy environment.” The time-management issues that students reported related to the challenge of having to juggle multiple responsibilities such as, as one student said, “Balancing time between working and school, as well as timing between lab work and computer work.”

Managing emotional states was an issue for some of the students with emotional disabilities. Two students mentioned the challenge of managing anxiety, and one student wrote about the challenge of, “Having to get up and go in on what I refer to as my ‘bad mood’ days. This doesn’t mean I am in a bad mood, but my mood is weird. I have a mood disorder, and sometimes it is difficult for me to be around people on my bad mood days.” Writing was an integral component of the research fellowships since all students had to write a report, and 7 percent of the students reported that this was a challenge for them. As one student noted, “Writing the final report was a challenge mostly because I am a slow writer.”

Conclusions

Analysis of data revealed that students who participated in URFs through EAST engaged fully in research processes, by and large were on track for completing their degrees, were more likely to enter graduate school and jobs in STEM fields than non-URF students, and enjoyed benefits that could be described as both personal and relational. These findings align with a growing body of literature on the effects of undergraduate research opportunities on students from a wide range of underrepresented population groups (Bowers and Parameswaran 2013; Gibson and Bruno 2012; Harsh, Maltese, and Tai 2011). The findings converge with other research that underscores the importance of the student-mentor relationship (Strayhorn, 2010; Thiry and Laursen 2011) and the design of hands-on science experiences that emphasize the social and collective work of scientists (Fenichel, and Schweingruber 2010). When mentors guide students, individually and in groups, through the “intellectual and emotional process of pursuing research problems,” (Hernandez, Schultz, Estrada, Woodcock, and Chance 2012, 103) they facilitate “cognitive apprenticeships” (Jones, Barlow, and Villarejo 2010, 86) and usher novices into the community of professionals.

While our findings demonstrate that undergraduate research experiences benefit students with disabilities in ways similar to the benefits provided to students without disabilities, they also illustrate experiences that are unique to students with disabilities. Nearly half of the students who participated in our study reported encountering disability-related challenges during their research fellowship. It is important to note that students encountered these challenges even though they had already received a variety of standard accommodations, such as flexible timing and specialized technology and equipment.

To facilitate the participation of students with disabilities in undergraduate research, it is important that program administrators and faculty mentors be made aware that students may encounter such challenges and that standard accommodations may not be sufficient to meet all students’ needs. Individual students may need support that is tailored to their specific strengths and needs. Students also offered several suggestions for how their experience with the research fellowship could be improved. Recommendations included having more opportunities to meet with other research fellows to interact and share their experiences, being given clear deadlines, and being able to access writing support (e.g., editing, review, and feedback).

The personal and relational benefits described by the URF participants can be collectively understood as “social capital.” Social capital has been defined as accumulated interpersonal commodities such as trust, reciprocal relationships, membership in a community, and other behaviors that allow individuals to act collectively (Bourdieu 1986; Putnam 1995). Conversely, individuals or groups that lack social capital often lack the resources and power to participate in larger communities or dominant cultures.

In the fields of disability services and vocational rehabilitation, social capital has become a concept used to frame initiatives designed to increase the community-based employment and inclusion of individuals with disabilities (Curran 2008; Devine and Parr 2008; Zimmerman 2008). Whitney, Langley-Turnbaugh, Lovewell, and Moeller (2012) documented the importance of a STEM learning community in the development of social capital among students with disabilities. Increasing the social capital of individuals with disabilities may increase the likelihood that they “are ‘of the community, not merely in the community” (Williams 2008, 159). Further, the social capital of individuals with disabilities is enhanced as their contributions to the wider community accrue and are recognized as valuable (Parris and Granger 2008). Overwhelmingly, the EAST URF experiences led participants to realize that they could do research successfully and make contributions to STEM fields. 👈

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Taking a TRIP: International Undergraduate Research Immersion in the Sciences through Millikin University

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Millikin University, in collaboration with Tunghai University in Taichung, Taiwan, offers its students opportunities to contribute to scientific projects in graduate research laboratories through a six-week summer Taiwan Research and Internship Program (TRIP). Students completing this summer research experience earn up to three hours of research credit in biology, chemistry, or physics from Millikin. Students in the TRIP engage in research activities similar to those of a first-year graduate student.

After agreeing to participate, the students complete a survey about their research interests. The Millikin faculty member who will accompany the students on the TRIP, with the help of Tunghai University’s Office of International Education Programs, then arranges for professors at Tunghai to be research mentors for the students. The students choose or develop their research projects with their Tunghai research advisors shortly after arriving in Taiwan. Students work up to 40 hours per week in a laboratory in collaboration with a master’s or PhD candidate. In addition, the Millikin students often attend research-group meetings, departmental seminars, and thesis defenses, and take weekend trips for cultural enrichment.

The Millikin faculty member accompanying the students meets with all of them weekly and requires them to give updates on their research progress. Millikin students are informed before joining the TRIP that they will each be required to write a formal scientific paper and give an oral presentation upon returning to campus. The papers and presentations are completed by the end of the first week of the fall semester. The Taiwan Research and Internship Program is a model for short-term international undergraduate research opportunities and is not limited to Millikin faculty and students. Anyone interested in learning more about participation in or development of a similar program may contact the authors directly.

Undergraduate Research and Community Health in International Settings

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The research and pedagogy of our projects engage students and faculty responsibly and responsively in international community-based participatory research (CBPR).

The projects began as service learning but evolved into two long-term, community partnerships, one in the Dominican Republic and one in Nicaragua, with the goal of improving health and health care. Over nine years more than 100 students have participated in the projects, enrolling in a seminar each semester from the year of their selection (typically during the freshman or sophomore year) until they graduate. They design and conduct research in the community sites over winter, spring, and summer breaks.

Current student members of the projects organize the competitive application process and select new members who continue in the projects until they graduate. During their years on the team, participants learn about foundational theories, past research, and research methods relevant to public health, CBPR, and participatory development. Conceived as grounded theory (cf. Glaser and Strauss, 1970), the research projects begin by instructing students with sensitizing concepts of human and collective agency, the political character of “helping,” and community as a social reality. Students learn and conduct basic ethnography, employ Geographic Information Systems (GIS) techniques, and use methods of social networks analysis to understand community infrastructure and to find ways to partner with the community to advance sustainable solutions to health problems.

Researchers currently are collecting data to document changes in community structural arrangements, including interpersonal networks, network density, and organizing processes. Other current work focuses on research and theory regarding leadership practices, community capacity, and social capital, and the relationship between researchers’ Spanish-language proficiency and data validity and reliability. To date, the work has produced an evolving theory of marginalization and its consequences for health, health care, and community capacity, and also is contributing to research and theory on participatory community development.

Reference

The Early English Landscape: An Interdisciplinary Field Course

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One important perspective on English history that receives short shrift is the holistic understanding of the British landscape as an historical document. The student in the classroom fails to grasp the underlying environmental, economic, and demographic impact that land use had in the course of

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Britain’s long human history. Such an understanding must come with experiential learning in the field. Thus in the travel course developed at Stetson University, students from various disciplines are introduced to a variety of approaches and methodologies for studying the historic landscape. The focus is on multiple decisions, deliberate and traditional, taken in determining what aspects of British historic and natural heritage will be preserved or used, and how the British interpret or explain the nature of those decisions.

To consider these questions, students are responsible for daily entries, written and graphic, in a journal; interviews with other visitors and locals; daily interactive assignments; and an original research paper, to be delivered on site, addressing an historical issue in direct relationship to a site or landscape.

The typical student in the England Field course is a motivated non-history major with little exposure to independent international travel. Participants are generally higher-achieving students who have perhaps taken one general history course. Several trends have been noted among students who have completed the course. Students come to understand research in history as something interactive with current ramifications, in this case seeing continuity and change in the way a living landscape is used over several generations. Moreover, several students have felt more confident in submitting applications for study abroad. Students also gain an appreciation of how the natural environment contributes to human society. Finally, students learn that “the past” is often determined by what societies choose to preserve, and how physical and environmental artifacts are perceived by scholarship and the public.

New World Mathematics: Undergraduate Research in Peru

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Sometimes things work out as planned, and sometimes there are landslides. Recently the mathematics department at Georgia College revised its capstone requirement to feature a senior research experience. We also offered our first study-abroad program in summer 2013, and so it was a natural step to incorporate a robust undergraduate research experience into the new program. New World Mathematics was a one-month study-abroad program that focused on the mathematics of pre-Columbian cultures in Peru. Five sophomores and four seniors participated in the program, and four research projects resulted.

By the time most math majors reach the capstone experience, they have worked through many mathematical problems that have been solved thousands of times; they become accustomed to tidy solutions. Few have wrestled with complex problems whose solutions are not known in advance. Even with a research plan, they are often unsettled by how independently they have to work, especially when projects take unexpected turns. The study-abroad students understood that Peru would offer a very different experience from their familiar campus, but we had an itinerary and expected our excursions to unfold more or less according to the schedule. In the spring semester we met weekly to read and discuss background course material. All students wrote cultural essays, and the seniors submitted research proposals; they articulated their project designs and program expectations.

In Peru the students were greeted with the realization that we were in for an adventure, but they became increasingly independent as they met and overcame challenges both in their research and in navigating the culture. After two weeks the students were confident. We all were excited about visiting Machu Picchu to observe the winter solstice sunrise. Then a landslide blocked the train route. We might have made it to the site later by train, missing the solstice sunrise. That would have been particularly devastating to one student whose research project related to solar alignments at Machu Picchu.

So we had to improvise. After five frightening hours on mountainside roads in a chartered van, and some crying, we were dropped off at dusk at a train station three kilometers from Machu Picchu. We walked along the tracks for two hours. Though it was dark, the moon was full, and we all took turns carrying each other’s luggage. Exhausted, we finally made it to our little hostel and arose very early to catch the sunrise. Reflecting on it later, students noted that teamwork, flexibility, and perseverance were indispensable. In the end, the students found that conducting research is not so different from beating through the jungle at night.
Transforming a College: The Story of a Little-Known College's Strategic Climb to National Distinction
By George Keller with a new foreword by Leo M. Lambert
Reviewed by William W. Ankrum, Bradley University, wankrum@fsmail Bradley.edu

George Keller’s case study of Elon University, written to be read within a short flight's duration (from “New York to Chicago,” remarked Keller to Elon’s president, Leo M. Lambert when Keller began working on the 2004 edition of Transforming a College), presents a clear and practical analysis of Elon University’s transformation from a regionally known institution into a nationally recognized star. Keller’s analysis, both historical and transcendent, reads like a novel, with characters and protagonists, bound together by narrative and grounded in specific themes. That said, the attractiveness of Keller’s approach does not detract from the focus of his project—to provide a detailed, but thoughtfully abridged account of how one humble college managed to become a well-known and highly regarded university in a rapidly changing economy and a diversified, if not fragmented, academic environment.

Leo M. Lambert’s new foreword, included in the recently updated edition of Transforming a College, provides a general breakdown of the guiding initiatives that Keller describes as pointing to Elon’s success. To many readers, Lambert’s list at first glance will seem unoriginal, if not obvious, such as, “Elon has kept its focus on students and their learning.” However, Lambert and Keller delineate how something as obvious as student-focused learning can be elusive at many institutions and how this was given new meaning at Elon through a bottom-to-top approach to student-focused learning—a systemic approach that underlay all university initiatives.

As Lambert explains, processes of hiring new faculty, constructing new buildings, involving students’ parents, creating an experiential curriculum, and surveying student populations are integral to every aspect of Elon’s student-focused learning. In fact, many of the basic tenets Keller and Lambert attribute to Elon’s success appear, in a practical sense, so obvious that they would not be all that inventive if they were undertaken piecemeal. Rather, Elon University’s success is not so much grounded in individual components as it is driven by administrators’ ability to pursue cohesive, universal, and transparent goals through committed planning and incentives provided to the university community and to prospective communities.

Keller affirms that through the decades, by defining the value of Elon through its student population, Elon has been “in the business of human transformation.” Through the emphasis on human transformation, reflected in its faculty and even its architecture, Elon has devised its own culture, its own marketing approach, and its own brand in which nearly every aspect of its organization is open to transformation. In fact, Elon “is distinguished by its ongoing commitment to institutional change … to build itself anew,” reports Lambert (quoted in Elon’s 2008 Presidential Task Force Report). Given that its student population will always be the mirror and impetus for this change, Elon has discovered that its students’ learning environment is the first place to look when things have gone awry.

I believe that Keller would agree that his text affirms Elon University’s ability to maintain a unified culture through adherence to this one essential value: to sustain a student-focused environment, across all platforms. Likewise, it is this value that Lambert cites first on his list of reasons for Elon’s success. Elon has successfully gambled on emphasizing this value as it progressed from being near bankruptcy to becoming a transformed state-of-the-art university with ever increasing rankings in national surveys. Students’ opinion of the Elon experience make it sound almost utopian. And as Keller relates in the early passages of Transforming A College, Elon’s journey to success began by identifying its future architectural blueprints with vacation resorts. “Welcome to Disneyland,” the early faculty wrote, when first learning of Elon’s new beautification initiative.

Keller’s narrative identifies a short list of presidents, administrators, staff, and maintenance crews that together constituted an impressively organized group of innovative, business-minded, and cooperative professionals with a clear vision of the direction they saw for Elon College. In the trying times that many colleges and universities find themselves facing today, Elon University’s trajectory forward and upward is a model that still holds value and currency. In Transforming a College, we learn how potential can be actualized to extraordinary heights through a commitment to institution-wide open communication, trust and commitment, and visionary idealism grounded in pragmatic realism.
General Criteria —
The CUR Quarterly publishes articles relating to all aspects of undergraduate research that are of interest to a broad readership. Articles regarding the effects of the research experience on the development and subsequent endeavors of students, and how to initiate, support, or sustain undergraduate research programs are appropriate for this journal. The CUR Quarterly is not the appropriate venue for publishing results of undergraduate research. Manuscripts that are unrelated to undergraduate research or focus on the success of an individual or institutional undergraduate research program without providing a substantive presentation of goals, strategies, and assessed outcomes related to the program are not suitable for publication. Manuscripts that describe novel programs that can serve as models for other institutions, those containing significant assessment of outcomes, and those articulating research on the efficacy of undergraduate research programs are particularly suitable for publication in the CUR Quarterly.

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• Copy of article (MS Word or compatible format, Times font, 12-point, double-spaced, 1 inch margins, and single-spacing between sentences). 2000-3500 words is the typical length of an article, but longer or shorter articles may be appropriate for certain topics.
• Key words for indexing (up to 10).
• Personal information
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  — Biographical sketch for each author (4-6 sentences).
• Proper Citations. Refer to the Chicago Manual of Style citation guidelines-author-date style (http://www.chicagomanualofstyle.org/tools_citationguide.html).

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Submissions should include:
• Title of the article and full journal citation (inclusive pages).
• A brief description (3-5 lines) of the research and its significance.
• Title and department or program affiliation of the faculty member.
• A brief description of the student co-author(s). Include the year of study in which the student(s) undertook the work, the opportunity through which the work was undertaken, (independent study project, summer project, REU program, senior thesis project, etc.), and the current status of the student (graduate school, employed, still enrolled, etc).
• The source of funding for the work.

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