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CUR Focus

CAURS: A Successful Model for a Student-Run Regional Symposium

Introduction

As opportunities for undergraduate research continue to expand nationwide, institutions are eager to provide key supplementary activities that enrich the students' research experience, and presenting one's research in a professional environment is certainly one of these experiences. Hunter, Laursen, and Seymour's (2007) research into how undergraduate research affects student development reported that formally presenting research increased students' confidence and developed their sense of being a scientist and of belonging to the scientific community. In addition, students felt that discussing their work in the symposium environment helped them to develop transferable skills that "would prove useful in graduate school, future work contexts, and other areas of life" (Hunter et al. 2007).

Ensuring that student symposia maximize developmental opportunities and are available to a large number of students can be challenging. Symposia that are restricted to a particular department, school, or institution are certainly valuable, but they do not always provide the wider networking opportunities that occur at larger professional conferences. However, many national events include travel costs and registration fees that are too costly for many students.

The Chicago Area Undergraduate Research Symposium (CAURS) offers a unique, student-run model for a regional symposium that features an undergraduate organizing com-

mittee, a rotating host institution, and minimal financial or administrative commitments from participating schools, all of which provide a rich opportunity not only for a diverse population of students to present their work professionally, but also for student organizers to develop significant leadership skills.

CAURS History

CAURS was founded in 2005 by Chandler Robinson, then an undergraduate at Northwestern University, to provide undergraduate researchers in Chicago with an opportunity to learn about the research of their peers, network with faculty, interact with industry representatives, and receive both wisdom and inspiration from invited speakers.

Establishing the symposium was not an easy feat. The founding student organizing team was turned down several times before it was finally successful in convincing the provosts of four large research universities in Chicago (Figure 1) to contribute money to the event. Numerous professors and administrators were initially skeptical about a student-led, multi-university symposium. Specifically, there were concerns about securing the necessary funding and ensuring the efficient organization of the event. However, the founding CAURS team was able to raise more than \$35,000 for the inaugural event in just two months. In addition to the contributions from the four universities, large sponsorships were secured from Abbott Labs and Baxter International Inc., as well as the Howard Hughes Medical Institute (HHMI). More than 70 students presented their research at the inaugural event, some of whom traveled from as far away as Puerto Rico due to the support of HHMI.

While planning for the inaugural event, the student team addressed the initial concerns of the universities' faculty and administrators by strategically planning for sustainable management and funding; details on these solutions, which remain in place today, follow.

Figure 1: CAURS Sponsoring Institutions

- DePaul University
- Illinois Institute of Technology
- Loyola University Chicago*
- Northwestern University*
- University of Chicago*
- University of Illinois at Chicago*

*Founding Sponsor Institutions

CAURS Today: Event Details

CAURS has grown to become one of the largest student-run undergraduate research conferences in the country. In 2011, the symposium drew nearly 300 presenters from more than a dozen institutions, including private and public four-year institutions—both primarily undergraduate institutions and research-intensive universities—as well as two-year colleges. Students represented all academic disciplines, from physical chemistry to cultural studies. Held either on the campus of a CAURS sponsoring institution or at a public venue in Chicago, such as the Museum of Science and Industry, the symposium consists of multiple poster sessions featuring all student participants, as well as oral presentations from a number of students selected to give ten-minute talks.

The symposium provides a professional setting in which students can practice their presentation skills, and feedback from past presenters seems to affirm the benefits that Hunter, Laursen, and Seymour (2007) found in their research. A student from the University of Chicago, for example, reported that “the most beneficial part of CAURS was being able to connect with other specialists and learning about the other areas of interest in my field.” A sophomore from Loyola University Chicago made a similar point, stating that presenting at CAURS had made him “a more knowledgeable presenter” because he had the opportunity to speak with people outside of his field and realized that “when attempting to teach others about your research topic, you learn where the gaps in your knowledge are if you cannot put it in layman’s terms.”

Figure 2: Corporate Sponsors of CAURS

- Abbott Labs
- Baxter International Inc
- Howard Hughes Medical Institute
- Sg2
- Air Products
- Robert H. Lurie Cancer Center
(Northwestern University)
- D.E. Shaw Research
- PPG Industries



Student volunteers work diligently the day of the CAURS symposium to ensure a well-organized day of events.

Although several of the larger participating institutions have research symposia of their own, students do not need to be a member of a sponsoring institution to present, so the event provides an invaluable opportunity for students at institutions that may not have the funding or infrastructure in place to provide them with an opportunity to present their work. Students from sponsoring campuses can present for free, while students from other institutions pay a nominal registration fee, \$35 for the 2012 symposium—a highly affordable option for local students. In addition, interacting with faculty and students from other universities and industry representatives allows students to network about potential graduate schools and professional jobs. A Loyola student reported that an “introduction that the symposium provided may allow me to springboard into graduate school.”

All presentations are judged by graduate students and faculty members, so that presenters receive constructive feedback, both during the session and in written form following the event. In addition, a dedicated time for poster viewing and informal lunchtime roundtable discussions with academic and industry representatives—on topics such as underrepresented minorities in science, the graduate/professional school application process, and the drug-discovery process—provides students ample opportunity to discover the work being done by their peers and to meet and network with other students and faculty. The event concludes in the evening with dinner, a keynote address from a distinguished researcher from one of the CAURS member institutions, and an awards ceremony recognizing the achievements of the day’s outstanding presenters.

Organizing CAURS: The Student-Run Inter-School Board

One of the most distinctive facets of CAURS is that the event is planned and run almost entirely by undergraduate students. The CAURS Inter-School Board (ISB) is comprised

entirely of dedicated students from the six CAURS member institutions (Figure 1) who work year-round to organize and arrange every aspect of the symposium. Students work, among other responsibilities, to secure funding, publicize and promote the event to students, recruit judges, find a suitable venue, order catering and supplies, plan schedules, organize poster and oral sessions, and enlist speakers—all to ensure that CAURS runs smoothly and successfully every year.

Each member institution has a number of its students on the board. The ISB is overseen by a director or co-directors, who are at least juniors and have had past experience in CAURS at a committee level or as a presenter. In recent years, a co-director model has emerged, which has proven successful, as it allows for the chairs to better leverage one another's talents and to further divide responsibilities.

The ISB directors recruit new members by reaching out to past student presenters and university faculty. Past presenters often volunteer to join the ISB after attending the event, but in cases in which an institution does not have many students on the board, the event directors will ask faculty members for recommendations of students they would like to see represent their institutions. Board members typically begin their service during their first and second years of college and remain part of the event until graduation. A substantial commitment is required of board members for CAURS to be a success; as a result, the ISB is comprised of a fairly self-selected group of dedicated and hardworking students, and recruiting board members has rarely been a significant issue.

The challenges of a student-run board are somewhat similar to what other college student groups face. A major challenge is retaining knowledge from year to year. Because students become involved for a couple of years and then graduate, CAURS loses some of its institutional knowledge as students move on and are replaced. The staff advisor (described below) is able to bridge knowledge between shifting groups of student leaders, but the details and nuances of running a symposium the size of CAURS can sometimes be forgotten. Learning how to develop and manage a large budget, for example, is a new skill for many students. Raising money from corporate sponsors is also an unfamiliar but necessary activity, increasingly challenging in the current economy. The time commitment required of ISB leaders can be a challenge as well. As is true for many organizations, a small per-

centage of the board members often do the bulk of the work, especially in the early planning stages when the board for a given year is being assembled.

While acknowledging these challenges, an organizational structure that is completely student driven has a number of benefits. Because of the student involvement, the symposium is viewed quite favorably by those granting funding, particularly college administrators. Another benefit of the organizational structure is the energy and creativity students bring to the event. Involved students truly believe in the CAURS mission to promote undergraduate research, and this enthusiasm carries through in their overall effort and the subsequent results. Within the ISB itself, members have valuable opportunities to network with students from other universities, which can break down barriers or pre-conceived notions students may have about other institutions. No matter the ranking or reputation of a school, students are on equal footing with one another on the ISB.

ISB Oversight: Faculty/Staff Advisor

Since its inception in 2005, CAURS has had a central staff advisor from Northwestern University. This is a volunteer role and has gradually grown through the years as CAURS has grown in stature and size. The staff advisor provides a dedicated account within his department, which allows for all funding sources to be tracked and helps in managing the overall budget.

The advisor has multiple functions in assisting the students in all the necessary administrative responsibilities. These include reviewing contracts, obtaining required insurance, and working with vendors to obtain promotional items and equipment needed to run the symposium. The central advisor also serves as a source of support and guidance for students in making decisions about CAURS in all areas of operation, including logistics, budget, site location, and sponsorship. Most of the other sponsoring institutions also have a staff or faculty advisor to provide support to their ISB students. These advisors serve as a source of institutional knowledge for participating students and are often a contact for obtaining funding. Current plans for a new rotating staff/faculty advisory board will ensure continued oversight and guidance for the ISB.

Creating a Sustainable Event: Funding CAURS

A high priority for the ISB members is not only the planning and execution of a successful conference, but also the institutionalizing of CAURS within participating universities and industry to ensure the sustainability of the symposium for the future. CAURS would not be possible without the help of its many university and corporate sponsors. Many universities have a keen interest in promoting undergraduate research, and CAURS directly supports this common goal. It is the students who approach their institutions each year for funding, and the administrations have reported being impressed with the board's professionalism and accomplishments. Currently, each member university contributes \$6,000 annually toward the event.

CAURS also has had financial backing from corporations that are keen on supporting undergraduate research (Figure 2). Corporations are especially interested in supporting programs such as CAURS in order to increase interest in science, technology, engineering, and math careers, which are disciplines strongly represented by CAURS presenters. The ISB reaches out to related corporations by e-mail, phone calls, and personal connections. As discussed below, developing a plan for sustainable and increased funding is an ongoing goal of the student board.

Ensuring Event Success: Marketing CAURS

In addition to ensuring sustainable funding, one of the main jobs of each ISB member is to promote the upcoming symposium and its deadlines to students, faculty, and guests. The main means of event promotion are flyers and recruitment emails. Several months in advance of the symposium, promotional posters and flyers are printed and given to board members, who post them at busy locations on their respective campuses. Emails are sent to university department heads, faculty and staff members, student listservs, and student clubs. The ISB members have also promoted the event through class announcements and with information tables at student-involvement fairs and other local research symposia. In addition, the CAURS website is constantly updated with all of the event details. CAURS also relies on word-of-mouth advertising from both ISB members and student participants from past years to increase attendance.

Figure 3: 2011 Survey Excerpts

When asked to rate the overall experience of the symposium on a scale of 1-5*:

- 46.9% of students and judges responding rated the experience as a 5.
- 42.9% of students and judges responding rated the experience as a 4.

* (1 = poor; 5 = excellent)

Though these methods have been highly successful thus far and attendance has grown each year, the ISB expanded its online presence for the 2012 symposium to further increase attendance by both students and judges.

CAURS Assessment

CAURS is evaluated annually by the ISB through a short, eight-question online survey that is sent to participants and judges in the week following the symposium. The survey asks primarily about the details of the event, and the results are used to implement programmatic changes and enhancements for the following year's symposium to ensure participant satisfaction. When presenters and judges were asked specifically about the ISB and student volunteers, the responses from the 2011 survey were overwhelmingly positive, with the students repeatedly described as "great," "knowledgeable," "helpful," "professional," and "organized" (Figure 3).

Plans for a more comprehensive survey are under way, but there have not yet been any additional assessments of the other possible effects of CAURS, such as the educational or career outcomes for ISB members or the resulting inter-institutional collaborations. However, should they be interested, participating institutions can request a spreadsheet listing information about the student presenters from their institution to use for their own assessments and initiatives.

As the need to assess the quality of undergraduate research experiences and to report on the number of student research participants continues to grow, having a student contact on the ISB who can easily share this information is of considerable practical use to university administrators. Loyola University Chicago, for example, includes CAURS presenters in its annual reporting on the numbers of students participating in research activities. It also sends those students an annual online survey that assesses how a research experi-

ence has affected the students' learning and development. The survey responses are then used in planning new training, workshops, and fellowship opportunities. In addition, the data make it easier to ensure that those students are invited to on-campus research activities that they might not otherwise have been aware of, including workshops, other symposia, and funding opportunities. In one such instance, Loyola increased the number of students participating in its own annual campus undergraduate research symposium by sending personalized invitations to students registered for CAURS. The collaboration has better connected Loyola's large community of undergraduate researchers.

Future Plans

CAURS has been a great success in its seven years of existence, and it is with excitement and anticipation that the board looks toward the future of the symposium. In addition to continuing to provide an outstanding experience for student attendees, the ISB hopes to increase the size of the event and improve the overall experience for students and judges. To that end, the board members outlined a number of areas for changes and improvements, starting with the 2011-2012 academic year. First and foremost, they hope to continue increasing student participation. In addition to utilizing the promotional tactics discussed above, the board members expanded their online presence and launched a new website in November 2011, and they began utilizing social media to reach more potential students presenters and attendees. The efforts this year resulted in a record number of presentations.

The growth of CAURS, while welcomed, will inevitably involve additional costs, and thus the second primary area of growth and improvement for the future is in fundraising. Although the ISB has been successful in securing institutional and corporate support for the event, the board hopes to increase the amount of corporate sponsorship so that CAURS can continue growing. Starting in the fall of 2011, the ISB began reevaluating the current strategy for recruiting corporate sponsors and was able to significantly increase both the number of sponsors and the amounts donated for the 2012 symposium. Finally, to provide a better experience for student attendees, the board members plan to implement an improved evaluation system, so that they can better measure the impact of CAURS on students and make improvements accordingly.

Continued, and ever increasing, participation in CAURS from students, faculty, administrators, and corporate sponsors indicates the high level of interest in this model for a regional symposium. Using the model of a student-run board could serve as a valuable mechanism for other institutions that wish to develop a regional undergraduate research symposium.

References

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Kelly B. Christopher

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Kelly B. Christopher, MA, is Loyola University Chicago's program manager for undergraduate research, which is housed in the university's Center for Experiential Learning. In this position, she has increased the visibility of and participation in undergraduate research, especially in Loyola's 13 fellowship programs, and has developed and implemented new programming, resources, and assessment plans. Christopher also co-directs the Provost Fellowship for Undergraduate Research, Loyola's largest undergraduate research program. Christopher, a member of CUR's Undergraduate Research Program Directors division, has significant experience bolstering university research funding and initiatives and in developing high-impact learning practices.

Thy Nguyen is associate director for the McCormick Office of Career Development at Northwestern University, where he advises undergraduate and graduate engineering students seeking co-operative or internship-based positions. Prior to joining McCormick, Nguyen was the assistant director for engineering and sciences at the Northwestern University Career Services office. He has a bachelor's in communications and a masters degree in education from the University of Northern Iowa and a certificate in learning and organizational change from Northwestern.

Chandler Robinson is CEO of the clinical stage biotechnology company Tactic Pharma, LLC. He previously worked at Onyx Pharmaceuticals and Bear Stearns Investment Bank. Three years of cancer research while an undergraduate at Northwestern University culminated in his publishing in the journal Science on the first-generation version of Tactic Pharma's ATN-224 compound. Robinson earned a BA in mathematics and chemistry from Northwestern University, a master's degree in International Health Policy and Health Economics from the London School of Economics on a UK Fulbright Scholarship, and an MBA from Cambridge University on a Gates Scholarship. He has one year left of training as a physician at Stanford University Medical School.



Members of the CAURS inter-school board pose together following a successful 2012 symposium. The student board plans and executes the entire event.

Stephen Xue is a 2012 graduate who majored in biological sciences at the University of Chicago. He has held a number of research positions in various laboratories since high school and worked as a teaching assistant and a lecturer in several biology courses at Chicago. He was a student presenter at CAURS in 2009 and 2010, joined the Inter-School Board in 2010, and was named co-director for the 2011-2012 year in the spring of 2011. He will enter medical school after graduation from Chicago in June, 2012 and plans to become a physician-scientist.

Stephanie Reeve is a first-year graduate student in medicinal chemistry in University of Connecticut's School of Pharmacy and is currently a research assistant in a drug-discovery laboratory. She graduated from DePaul University in 2011 with a BS in biochemistry; she was also a research assistant and teaching assistant for several undergraduate courses at DePaul. She joined CAURS in 2009 as an Inter-School Board member and was Inter-School Board co-director for both the 2010 and 2011 symposia. After completing her doctorate, Reeve plans a career in the pharmaceutical industry.

*Faraz Khan is 2012 graduate who majored in the biological sciences at the University of Chicago. He has worked in multiple laboratories, ranging from molecular biology to bioinformatics, and was listed as the second author on a manuscript submitted to the applied chemistry journal, *Angewandte Chemie*. Khan has been involved in CAURS since 2009, serving as a volunteer, board member, and now as co-director. Interested in the intersection between science, business, and technology, Khan plans to work in the healthcare industry before eventually applying to medical school.*