[1996-97]

Report on Student Research at Gustavus Adolphus College

Michelle Anderson

Spring 1997

This report on student research at Gustavus was conducted in the spring of 1997 by Michelle Anderson, a junior at the time. She had been awarded the competitive Patricia Lindell Scholarship in order to conduct the study. This scholarship is an annual grant provided through the generosity of the Gustavus Library Associates to a junior or senior student in order to work on a project that contributes to the academic program of the Folke Bernadotte Memorial Library.

This study was undertaken to explore the role of undergraduate research at this college. The intent was to examine past and current student research activities and compile a report on the opportunities, issues, and outcomes of research as a part of the learning experience at Gustavus. Undergraduate research is a feature of the Gustavus curriculum that is highlighted in admissions materials, expressed in the catalog, rewarded through scholarships and opportunities to present research at national conferences, and embedded in many majors. However, in spite of a strong record in these areas, the efforts of many members of the community to understand, nurture, and reward these activities are not well coordinated or documented.

What do we mean by "research" at the undergraduate level? Will all students have some level of expertise in research or is it something only some students will experience? How is undergraduate research involvement encouraged for both students and faculty? Should research be part of the curriculum? What is its role in the major? These are questions that remain unanswered. This report, however, does illustrate that research is, indeed, a vital part of the Gustavus education, something that many students participate in, and an experience that students and faculty find worth while.

Michelle and I would like to thank those who took the time to assist in the interviews and data gathering for this report. We supplemented interviews and published literature with searches of a database of student research that has been maintained by the library since 1990, a resource that is only as complete as self-reporting allows. We hope this report will be useful as the Gustavus community explores and responds to some of the as yet unanswered questions.

Barbara Fister
Folke Bernadotte Memorial Library
August 1997

Report on Student Research
at Gustavus Adolphus College

Everyone knows that research takes place at Gustavus Adolphus College, but beyond that how much is known? This report, based on a series of conversations with students, faculty, and administrators, suggests how little is known (or can be generalized) about student research. In fact, it would be quite accurate to say that more questions have been raised than answered by this study.

Ironically, in academia, there has not been much research done on student research. Perhaps this is due to the variety of definitions that the term "research" can have. Patricia Bizzell and Bruce Herzberg explored this issue in their article "Research as a Social Act." In the article they offered three possible ways of looking at research. The first was what they called "discovery" because it Involves finding new information in what might be considered "laboratory" style. The second method they termed "recovery," alluding to the extraction and synthesis of other researchers' works. The authors then define research in a third way as "a social, collaborative act that draws on and contributes to the work of a community that cares about a given body of knowledge" (304). They argue that research is always collaborative because the researcher is working "within a community of scholars" (304). In this sense "recovery" research becomes "discovery" as the student reinterprets the information and offers new perspectives.

Once a consensus between the student and teacher is reached as to what it means to do research, the students must consider the aims of that research. Robert A. Schwegler and Linda K. Shamoon view the purpose as "twofold, reflecting the duality of the research process it aims to represent. The research paper is at once open-ended and limited--exploratory and demonstrative. It begins with the known, as defined by current scholarship, and moves into the unknown, attempting to pursue an admittedly elusive 'truth'" (821). They also suggest that research be defined in loose terms. The two authors argue that "simply presenting students with a listing of the surface features of the academic research paper [structure, organization] is a practice likely to encourage them to produce papers that are sterile exercises. The proper approach is to view the research paper as a process of thought and expression and to recognize its limits as well as its strengths" (824). This will ensure that teachers will not have to "face plagiarized, unfocused, uninteresting, uninformative, and stiff papers written by resentful students going through the motions of research" (Schmersahl, 231). (See Appendix D for creative sample research assignments)

After the aim of the research is decided, one may focus on the implications of that research. Sandra Stotsky asserts that a research assignment is "probably the most important vehicle teachers at all educational levels have for fostering independent thinking and responsible writing--those critical habits of the mind that contribute to the ability to promote the common

good" (99). In her opinion, the benefits of conducting research stretch far beyond the classroom. Because students "seek information on all points of view about a question, evaluate the general quality of the information that is gathered, support their generalizations with reasonable evidence, and present the results of their research clearly," they will "develop much of the moral reasoning that should characterize public as well as academic discourse" (101). Along those same lines, John Strassburger, president of Ursinus College, feels that undergraduate research is a growing trend which will positively affect academic and national culture. He believes that "the interconnected complexities of the modern world call for people who have learned to be resourceful, responsible, and independent, yet who are capable of working with and learning from others" (5). Furthermore, he maintains that by "having undergraduates engage in sustained work on tough, open-ended problems in which they learn to define and communicate their own solutions...may be the best way to prepare people to face tomorrow's challenges" (5).

Methodology

It was difficult for many of those surveyed to answer the questions posed without knowing what was meant by the term "research." Each department and person interviewed had their own perceptions of what could be considered a research project. No definition was provided and this is part of what led to the great variations in responses. However, it quickly became clear that each discipline simply has different methods and goals in mind when discussing research.

The methods for gathering the data for this report included interviews, e-mail questionnaires, phone calls, and library research. A mass e-mail was sent out to every department chair along with a request for an interview with the chair or someone within the department involved in student research. In addition, I requested the names of students currently doing research or those who had recently completed a project. I proceeded to e-mail those students and proposed interview times or the option of answering the questions via e-mail. The majority of responses were obtained through in-person interviews, although there were a number of e-mail replies as well.

The questions asked during these interviews were tailored to the experiences of the interviewee. Students, for example, were asked:

1. A brief description of their most recent project.
2. Thinking of your GAC experience as a pie chart, what portion of it would involve research? Explain.
3. How valuable is doing research to your education?
4. Where does the initiative for conducting research come from--the department or the student? Explain.

Faculty interviews, on the other hand, were more concerned with the "behind-the-scenes" part of research. Professors, most of whom were department chairs, were asked:

1. Is research in your department geared towards majors to further their entrance into that field or for any student just to get them interested?
2. Is research infused through the department (from lower to upper level classes)? Explain.
3. How many faculty in your department advise student research? What do you see as the role of the faculty advisor?
4. What would you like students to get out of research? Or, what does it prepare them for?
5. Names of students currently doing research, any previous works on hand.

These questions allowed for a look at two very different (and yet linked) perspectives on research.

Student Responses

While the answers were often just as varied as the questions, certain threads were woven through the responses. In reply to the second question, most students felt that research took up about 30% or less of their academic time at GAC. However, that figure means very little without some explanation. Most students qualified their answer by explaining that a particular semester was especially research-oriented. As one student put it, "I am doing research now as an independent study, so I spend a lot of time on it." Many did the same by dividing their experience into two pie charts--one for their current workload and another for their Gustavus experience as a whole. Several students mentioned that their major required research and certain projects were built into part of the program for the degree. The geology program, for instance, insists that students take a research class during the spring of their junior and senior years. One geology student mentioned that her assessment included a "field camp" experience which took place during the summer. That particular research training is a requirement to get into graduate school programs.

All of the student respondents felt that working on a research project was an extremely valuable part of their education. Many cited graduate school as a major motivating factor in their decision to participate in a research project. In addition to the research experience being "very good practice for grad school," another student stated, "I think that my research experience got me into my first choice for grad schools." Other students mentioned how conducting research helped them to foster independence, get to know their professors better, apply book knowledge, learn field/lab skills, practice better time management, use new problem solving techniques, and hone abilities which they believe will be useful in their future careers.

The last question asked of the students brought up another interesting similarity. Most of the students replied that it is the student's responsibility to

approach a professor if they are interested in doing research. Some departments hold open meetings at the beginning of the year or semester where professors explain what they will be working on. From there, it is up to the student to seek out a project that fits their abilities and interests. One student summarized, "We [students] are encouraged from the beginning to be looking for a research project we would enjoy working on. The department is very supportive and helpful as far as providing equipment and opportunities for research." Another student wrote, "All in all, they make it very easy to get involved, but the students have to take a little initiative and make the first step."

Faculty Attitudes

Answers to the faculty questions were diverse as well. Most of the professors interviewed felt that while typically it is majors doing the research, they would welcome and encourage non-majors to try it. It is usually students within the major because, as one professor pointed out, most teachers need "someone with an understanding and appreciation of the field." Or, as was mentioned in the student interviews, sometimes research is a requirement for the major and therefore will apply most directly to those students. For those professors who believe, as one in particular did, that research is an opportunity for a student "to engage in a conversation" with the subject they are studying, then research becomes an important element for all students. Others felt that research should be reserved for upper level classes with upper level students who have the greatest familiarity with the discipline. In other departments, the nature of research shifted as the course numbering grew. For example, perhaps all students participated in the research done in lower-level classes, but, as the topics became more specialized, classes usually consisted of majors. One professor wished that all students would get involved with his department's research, but found that it tends to be majors with their eyes on graduate school or recipients of a Partners in Scholarship award.

These different philosophies were reflected in the answers to the second question. While some departments have opted to make research an integral part of their program, other choose to leave it to the most experienced and best prepared students. The answer to this question also depended upon how each professor defined research. For some, a trip to the library or any extra effort outside of class counted as research and therefore, research played a role in all parts of the major. On the other hand, some faculty felt that research meant a semester or year-long project which involved library research, field work, lab time, or any combination of methods. In that sense, research would not be included in the lower-level classes and would not be considered to be "infused" throughout the department.

With a few exceptions, all of the professors in the departments covered by this study serve as advisors for student research in one capacity or another. For instance, one department has a rotating position for their senior seminar teacher. At some point in time, each professor in the department takes a turn advising those students and their projects. Some faculty are involved in the Partners in

Scholarship program or take on students through independent studies. The professors involved in this survey viewed their advisory role in several different ways. Some have served as a collaborator with students, while others prefer to act as a mentor. At other times, it may be as simple as being a soundboard for ideas or an editor. Once again, however, there are many gray areas. Most professors who are advisors find themselves in at least two, if not all, of these positions. One professor noted in a truly collaborative spirit that sometimes when working on a project, "I'm the student."

Although they may have sometimes felt like the pupils, every member of the faculty interviewed hoped that students were getting the most out of the experience. The most common answers to the first part of the fourth question included critical thinking skills, independence, confidence, and "life" skills. Included in that last category were writing and oral presentation skills, problem solving, and research methods. Some professors stressed the importance of "first-hand learning" as a way of being "socialized into the career." Other faculty believe research projects are more "intellectual fun" for students and help to increase their interest in the subject. Because of the nature of the general classes at Gustavus, one professor felt that research was a means for students to obtain "specialized knowledge" that would not normally be covered in the course. Interestingly, only a couple of the professors mentioned graduate school in their responses, as opposed to the importance it had for many of the students interviewed.

Administration Views

From an administrative perspective, research has a slightly different importance. The "Focus on Excellence" report from October 1994 stated that there had been a "significant increase of student-faculty research." The report also mentioned that Gustavus would like to "develop a significant endowment fund to encourage and to support student/faculty research." This fund would be used "to cover the significant expenses associated with student travel, stipends for summer research, room and board." The report went on to say that the college views "student/faculty research as an innovative form of teaching that promotes interactive and collaborative learning." All of these statements are fairly vague. There is no indication of what a "significant increase" is or (other than an endowment fund) other methods of encouraging collaborative research.

Some of the publications sent out to prospective students also stress the value of research at Gustavus. One publication mentioned that the total of GAC papers presented at NCUR was the third highest total in the nation. It is interesting to note that this paragraph was placed directly below a paragraph on the Nobel Conference, indicating the importance administration places on undergraduate research as a major drawing factor for the school. Another brochure advertised NCUR, Sigma Xi, and the Partners in Scholarship program. In addition, it included an interview with a student who was very involved in research while attending Gustavus.

One administrator felt that the college needs to hone its definition of the role of research in a liberal arts education before any facts and figures would be meaningful. As it stands now, there is very little incentive for faculty to assist with student research. He wondered why it would be important for faculty to take the time to tailor their projects for students? Another concern was that if research is such a priority, then what can the school do to help promote it?

Alternative Ideas

Similar questions and suggestions (on a myriad of topics) were offered by others during the course of this survey. Addressing the issue of feasibility of student-faculty collaborative research, one faculty member suggested an independent study to bring the student up to speed on other research done in a particular field. Then, once familiar with the material, the project could follow. One student, a Partners scholar, had several suggestions for improving the nature of student research at Gustavus. First, she suggested recruiting more research-oriented students through better tours with more opportunities to make preliminary connections with future peers and faculty who are conducting research. Also, she offered an interesting twist on collaborative research. She feels that fist-year students in a department should know what the older students are doing and possibly work with them. This would not only enable the upperclassmen to pass along their wisdom and skills, but would also free up a considerable amount of faculty time. In addition, working with another student might be less intimidating for a first-year student. Often, she said, "students don't have the same level of communication that faculty have." Funding was also a major concern for this student. She feels that it is difficult to balance the time it takes to complete a research project with the funds available. She suggested changing the Partners in Scholarship program to offer the student initial money and then around $1000 per year thereafter to cover the costs of conference fees and travel expenses. Furthermore, she feels that making research count for more credits would make it easier for students to get involved. Another faculty member thinks that there should be increased recognition for student research through an on-campus conference which would highlight the best in student research from all departments. While the college does support Sigma Xi, that conference includes many, but not all, departments. In addition, though some departments have symposiums for Honors students or other in-department presentations, these rarely receive the attention they deserve. The students are recognized, but only within a small group. One professor feels that the concept of student research needs to change and students need to realize that research is not just a one semester thing. It can be an ongoing project of a couple years if the student is motivated and dedicated. While most students did not deny the importance of research, one student feels that Gustavus could do more to foster a research-oriented environment. One student commented, "I think there should be more opportunities for it [research] at GAC. I feel like I have had to put in a lot of extra effort in order to create opportunities for myself. None of my experiences at GAC would have involved research if I had not taken the initiative to design a project and seek help."

Summary

In sum, what can be said about student research at Gustavus? It appears that there are many benefits to the current way research is approached. Besides acquiring basic researching skills (using the library, presentation of material, evaluating sources or data), students gained internal (self-confidence, independence, critical thinking) and external (resume boosters, taste of graduate school, job skills) rewards. However, as has been made clear by several faculty and student comments, research at GAC is far from ideal. This study raises many questions which Gustavus needs to ask. How important is research to the college? What can be done to improve the nature of research for both students and faculty? Are prospective students given an accurate picture of research at Gustavus?

Bibliography

Bizzell, Patricia. "Research as a Social Act." The Clearing House 60 (1987): 303-306.

Schmersahl, Carmen B. "Teaching Library Research: Process, Not Product." Journal of Teaching and Writing 6 (1987): 231-238.

Schwegler, Robert A. and Linda K. Shamoon. "The Aims and Process of the Research Paper." College English 44 (1982): 817-824.

Stotsky, Sandra. Connecting Civic Education and Language Education. New York: Teachers College Press, 1991.

Strassburger, John. "Embracing Undergraduate Research." American Association for Higher Education Bulletin May 1995: 3-5.

Appendixes

Much of the following information was taken from the Gustavus Student Research Database found in the Folke Bernadotte Library. Since 1990 the library has kept a database of student research projects published or presented off-campus or at the annual Sigma Xi symposium. Entries are gathered from information provided by departments on an annual basis and, because not all departments have responded every year, they are not a complete record of student research activities.

A. Off-campus Conferences at which GAC Students have Presented:

American Academy of Religion/Society of Biblical Literature, Upper Midwest Regional Conference
American Alliance of Health, Physical Education, Recreation, and Dance
American Anthropological Association Annual Meeting
American Association of Applied Linguistics Annual Conference
American Association of Physics Teachers
American Mathematical Society/Mathematical Association of America Joint Meeting
American Physical Society Meeting
American Political Science Association
American Society of Biochemistry and Molecular Biology
Ascona Workshop on Muonic Atoms and Molecules
Blandin Fellowship Conference
Communication and Theatre Association of Minnesota
Geological Society of America
International Workshop on Muon Catalyzed Fusion, mCF-92
Mathematical Association of America, North Central Section
Midwest Political Science Association Meeting
Midwestern Psychological Association Convention
Minnesota Academy of Science
Minnesota Area Association of Physics Teachers Meeting
Minnesota Council of Teachers of English
Minnesota GIS/LIS Consortium
Minnesota Philosophical Society Student Conference
Minnesota Undergraduate Psychology Conference
National Association of Women Geoscientists
National Conference on Undergraduate Research
National Speech Communication Association Convention
National Undergraduate Honors Conference, Department of Communication Arts
Northland Chapter American College of Sports Medicine
Pi Mu Epsilon Conference
Pi Sigma Alpha and the Political Science Department Undergraduate Research Conference
Sharing Our Voices: An International Symposium
Society for the Scientific Study of Religion
Southern Political Science Association
Southern States Speech Association

Speech Association of Minnesota
Speech Communication Association National Convention, Lambda Pi Eta
Third World Studies Conference
Undergraduate Research Program
Undergraduate Honors Conference in Communication Arts and Sciences
University of St. Thomas Undergraduate Research Conference
West Lakes Division of the Association of American Geographers
Western Political Science Association Annual Meeting
Workshop on Low Energy Muon Science

B. GAC Students have been Published in the Following Journals (in most cases as co-authors with a faculty member):

American Journal of Physics
Bulletin of the American Physical Society
Episteme
Journal of Freshwater Ecology
Journal of Undergraduate Research in Physics
Minnesota Cells
Optics Letters
Physics Teacher
Wittenberg Review

C. Number of Students (by Department) with Research Projects in Database:

Art and Art History	23
Biology	70
Chemistry	44
Classics	4
Communication Studies	74
Economics and Management	21
Education	1
English	10
Geography	15
Geology	13
Health and Exercise Science	68
History	2
Mathematics/Computer Science	13
Modern Foreign Languages	2
Music	10
Nursing	1
Philosophy	16
Physics	70
Political Science	21
Psychology	95

Religion	12
Scandinavian Studies	1
Sociology/Anthropology	6
Theatre/Dance	8

***These figures may be misleading because they simply indicate students involved and in many cases, several students work on one project. Also, size of department makes a difference. In addition, some projects are not brought to the library's attention and therefore not included in these figures.

D. Sample Research Assignments:

Bizzell and Herzberg's "practical implications for reimagining research":

1. The whole class must work in the same area of inquiry--not the same topic, but different aspects of the same central issue. A well-defined historical period might do: by investigating work, play, social structure, literature, politics, clothing styles, food, and so on, students would become local experts contributing to a larger picture of the period.
2. Students will need some common knowledge, a shared text or set of materials and, most of all, the opportunity to share with each other what they may already know about the subject. By collaborating on a questionnaire or interviewing each other, students learn valuable ways of doing primary research.
3. They will need to ask questions, critically examine the shared knowledge, and perhaps do some preliminary investigation to determine what the most tantalizing unknowns may be. Here again, some free exchange among class members will be helpful.
4. The exchange of ideas must continue through the process of discovery. Like expert researchers, students need to present working papers or colloquia to the research community, distribute drafts and respond to feedback, and contribute to the work of others when they are able. Finally, their work must be disseminated, published in some way, and made available to the group. The early framework of the research community ought not to be reduced to a way to introduce the regular old term paper.

(taken from pages 304-5)