

Using Library Services for Fund Raising

Judith A. Ashmore
Marine Biological Laboratory
Woods Hole, Massachusetts

ABSTRACT

During the winter of 1988 the Library of the Marine Biological Laboratory (MBL) was asked to design a method for evaluating the impact of MBL's course, Biology of Parasitism, on research in parasitology and tropical medicine. The reputation of the course was reported to be excellent, but the MBL administration desired an objective study for the purposes of future fund raising and justification of funds already expended. A bibliographic literature and citation survey of former students' publications was conducted to determine what impact, if any, class attendants have in the field. This paper discusses the methodology used and the results obtained.

In 1987 the Marine Biological Laboratory (MBL) Library was asked by the administration of the laboratory if there was a way to measure, in an unbiased fashion, the effectiveness of our course, Biology of Parasitism, on its students and its impact in the field of parasitology as a whole. The Development Office was in the process of seeking continuing funding from a private foundation that wanted reassurance that it was supporting worthwhile educational programs.

To the Library, the course seemed particularly worthy of funding. The students and investigators come closer than any others at the MBL to directly influencing human health. A large proportion of the students come from third world countries where the ravages of parasitic disease kill millions. Twelve million people alone have succumbed to Chagas' disease in South America. In Africa and Asia, schistosomiasis, sleeping sickness, malaria, Hydatid disease and Leishmania are major killers. In Africa the Guinea worm, known in Moses' time as the fiery serpent the Lord sent that "bit the people and the people of Israel died," is still biting and people are still dying.

Parasitology, as a branch of medicine, is under-populated by active researchers in the field, especially when you consider the enormity of the research and treatment problems involved. This makes MBL's support of a teaching program in this field very important. Our summer educational programs have been a central part of the Lab's mission since its founding, and the MBL has been committed to Biology of Parasitism since the course's inception in 1980. The course provides for exchange with members of the research community, as well as intensive individual research. Biology of Parasitism emphasizes current concepts in molecular biology, immunology and biochemistry—the newest developments in cloning, monoclonal antibody production, metabolism and pharmacology of parasites. The course is intended for advanced graduate and postdoctoral students and investigators.

Before the Library was asked to conduct this study, a questionnaire was sent to all students who attended Biology of Parasitism during the years 1980 to 1986. A total of 112 were mailed to the last known address of each student. Forty-six (46) students responded; the remainder either did not respond or never received the inquiry. Each questionnaire asked for name, address, position, and home institution. Each student was provided with a list of the names and known addresses of his or her fellow students with a request to update any known information on friends or colleagues.

The respondents indicated they believed the course was very worthwhile, had influenced their career plans, allowed them to develop a scientific network with leaders in the field and make relationships with other students and faculty, and in four cases led to job opportunities. But this type of questionnaire was not

considered unbiased, and the funding foundation informed the MBL that the survey alone did not measure the true impact of the course.

The library sent a one-page proposal to the administration, outlining the steps, methods, costs and time needed to acquire the information. (Remember, never give administration more than one page of a design project!)

At the initiation of the study we decided that a significant number of student publications on parasitology from the time of course attendance (which at the max could only be seven years), along with the positive student survey, would safely indicate that the course has had significant impact in the field and is meeting its goals.

The second step of the study consisted of a citation review of the parasitology literature published by the students from the date of their course attendance to the present. Each student was searched in LIFE SCIENCES COLLECTION database, 1986 to June 1987, on a compact disk; in MEDLINE from 1980 to the present; and in BIOSIS from 1981 to the present. The search combined the name and address of each student and in some cases subject fields, and was confined to the years since course attendance. Aided by the information received in the questionnaires from their peers, we were able to locate 78.5% of the students. We did not locate citations for 27 of the 112 students in the years 1980-86. This may have been due to a number of variables: a change of name, field, address, or our inability to identify them.

Citations from 85 students were located in the first step, and, as a second step, between one and three citations were chosen to be searched in the SCISEARCH database for the number of cited references. These were citations that we recognized to be in the field of parasitology and prioritized by the student's position in the author arrangement, first author being the most significant or at least recognized as doing yeoman's work on the project.

In consultation with Beth Fuseler-McDowell at the Institute for Scientific Information (ISI), we submitted the names of the course directors and students in the course who were found to have one or more articles that had been cited more than 50 times in step two. Information scientists have tested the assumption that frequent citation is an indication of significance in science. If an author is consistently cited over a number of years, this indicates, with possible exceptions, that the author has made a significant impact in the field. Using the 50+ citation criteria, 11 former students from the course were found in this category. It should be noted that only 150 papers of the more than 600 retrieved were searched for cited references. One hundred twelve were found to have been cited. The current course and past course directors were found to be prolific authors and among the most heavily cited authors in the field.

In summary, more than 600 papers have been published by former students in the years since their course attendance. For the 112 cited papers by former students, we located 1304 citations indicating that these articles have had some impact on the citing authors. The citations reviewed showed that the students have been working in all the major fields of parasitology and participating in field work as far away as Malaysia, Indonesia, Africa, Brazil and Mexico. Papers were located that were co-authored by co-students in the course, indicating the establishment of long-lasting working relationships. We interpreted these results to indicate that MBL's Biology of Parasitism is a very significant resource in training the next generation of parasite biologists, and that the course attracts course directors that are leaders in the field.

The Development Office had originally supported this view, and we all believed it to be true, but granting agencies and foundations often require stringent criteria for determining the reputation of a course of other supported programs. The library and its staff can be very effective in measuring the impact of these programs.

I will leave it to Cathy Norton to tell you how much support MBL received using this study.

BIBLIOGRAPHY

Garfield, E. 1982. "The 100 Most-cited Papers Ever and How We Select Citation Classics." *Essays of an Information Scientist*. Philadelphia, ISI Press, 7:175-81.

Garfield, E. 1985. "Surgery Journals: Another Operation in Citation Analysis." *Journal Citations Studies* 45. *Current Contents* 21:3-18.

Garfield, E., and others 1978. "Citation Data As Science Indicators." *Toward a Metric of Science: The Advent of Science Indicators*. Elkana, Y, Lederberg, J, Merton, R.K., Thackray A., Zuckerman, H. (eds.). New York, John Wiley & Sons, 179-207.