The Use of Undergraduate Interns as a Means of Creating Interest in Safety and Industrial Hygiene Careers

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Abstract

Over 200 undergraduate science students have participated in a 12-week, paid summer internship over a 15-year period. Selection processes, stipends, mentor selection, evaluation, and career preparation success are presented below.

Introduction

Sam Houston State University is a regional state university in Texas that offers a variety of undergraduate and graduate degrees. These include degrees in education, business, the fine arts, agriculture, criminal justice, as well as others. It has a disproportionate number of students studying criminal justice, which is explained by the fact that Huntsville, Texas, is the headquarters for the Texas Department of Corrections. The University was founded in 1879 as a teacher-training institution. In 1965, Sam Houston State Teachers College became Sam Houston State College; four years later, it acquired its current University designation. Since that time, there has been a metamorphosis at the University whereby many new programs and advanced degrees have been added.

The 15,600-student population university is located approximately 70 miles from downtown Houston. The 18-county area of Southeast Texas has a current population of approximately 5.7 million, which is up from approximately 3.5 million in 1980. Nearly 65 percent of that population is located in Harris County, which includes Houston. The principal industries of Southeast Texas involve petrochemical companies. These industries range from refineries to specialized companies that use raw materials produced from hydrocarbons. The area also includes a major seaport, a large medical center, a major installation for aerospace, and a variety of other companies typical of large cities.

The Environmental Science Program at Sam Houston State University was initiated in 1970 after a committee of faculty members performed a survey of industries of Southeast Texas to determine what type of an academic background would best serve the needs of area employers. The survey generally pointed to an education in the basic sciences with a few specialty courses that involved law, water and wastewater, air quality, and instrumentation. The program that was ultimately approved was an interdisciplinary program in the basic sciences. A graduate with a B.S. Degree in Environmental Science has typically completed six chemistry courses, four or five biology courses, mathematics through calculus, two physics courses, physical geology, and five environmental science courses with industrial
hygiene being one of the possible course. The program was not designed to produce a highly specialized technician-type of graduate, but rather one that was well prepared as a scientist, with more latitude to enter a variety of entry-level positions.

During the early years of the program, few students entered careers of safety or industrial hygiene. In the 1980s, more students seemed to be interested in safety and industrial hygiene mainly because of information that was often acquired from newspaper articles related to industrial accidents, the handling of certain types of waste, indoor air quality, and a variety of other things from entities in our region. To begin to address those needs, the University employed a faculty member to teach an introductory course in Industrial Hygiene and Safety. The course allowed students to become familiar with basic concepts and principles. This was in tandem with a growing need for professionals in the large Houston metropolitan area.

The positions that graduates of the program accepted upon graduation varied from year to year. The variation in position openings was principally due to the large external need for well-prepared, entry level persons. Well-prepared students were able to acquire acceptable employment.

**Internship Program**

In 1988, the M. D. Anderson Hospital, in Houston, Texas, cooperatively helped establish an internship program with the Environmental Science Program at Sam Houston State University. Only three students participated during the first year of the program, in which the Environmental Health and Safety Department at M. D. Anderson Hospital sponsored and mentored all three interns. Mr. H. Erle Janssen, then director of the EHS, was the liaison person with M. D. Anderson Hospital. He helped develop the procedures and guidelines for the program.

For undergraduates to qualify for the summer program, they must complete 64 semester credit hours of their undergraduate academic program. Effectively, they are at least of junior standing, with a grade point of three or better on a four point scale. They also must have a positive recommendation from two faculty members that have taught courses in the required curriculum. Some exceptions have been made to the grade point requirement; however, no exceptions have been made regarding recommendations.

Internships are designed as a 480-hour experience with a majority of them being a 12 week, full-time experience during the summer. No classes are to be taken during the experience, and the intern is expected to meet the same employment standard as a typical employee. Less than 5 percent of the 200 interns, since 1988, have completed their 480 hours outside of a summer-time period. The current salary expectation is $1,600 a month, or approximately $10.00 per hour for the undergraduates. If a graduate student participates in the program, the salary expectation is at least $2,300 per month.

Successful internships are principally a function of the mentor of the sponsoring entity. To insure that mentors have an interest and possibly a passion for helping college students, each potential mentor is reviewed prior to assigning a student to a sponsoring entity. The mentor also has a role in determining the grade that the intern will receive as a result of the experience.

Initially, the internship sponsors were obtained by networking with professionals in the environmental field. Later, as the internship program became well known, companies would seek out students from the program. The program has been publicized somewhat in the area via technical
bulletins, newsletters, etc. Starting with three in 1988, the program now typically has from ten to twelve students per summer. About one fourth of the students have elected to obtain internships in either the safety field or the industrial hygiene field. The intern would typically work with a mentor that was certified and interested in helping an undergraduate student. The tasks are sometimes routine, but for the student interns, it is their first exposure to what goes on in a professional career.

The University allows students to enroll for three hours of internship experience for the 480 hours of participation. A faculty member tries to visit each of the interns at least once during the internship program. A technical report must be prepared by the students and submitted by September 30 following the internship. The following month, a meeting of all of the summer interns is convened, at which time each of the interns make a 15- to 20-minute presentation about their experiences. The session is open to faculty members and to University students. The grade that the student receives for the internship is based on four components, namely: the mentor’s evaluation; the evaluation of the faculty member in charge; the quality of the technical report; and the content and quality of the oral report. The majority of the students receive high grades for the experience.

**Sponsors**

One might ask why would an organization sponsor an intern. There are several reasons, but three reasons predominate, namely: (1) to help students in their educational process by providing a summer experience of learning in an area that interests the student; (2) to provide a setting and experience that allows the sponsor to accomplish tasks or to complete surveys (these are often tasks that the permanent staff does not have time to complete); and (3) some sponsors use the internship experience as a means of looking for future employees.

In looking at the statistics of the 200 Sam Houston State University interns, approximately 70 percent received job offers as a direct or indirect result of their undergraduate experience. The students that have interns in the area of industrial hygiene or safety have a higher job offer rate than the other interns. This is possibly explained because of the huge need for well-prepared people in the greater Houston area.

It is very typical for a B.S. Degree person who has participated in a summer experience in the area of safety or industrial hygiene to accept an entry-level position upon graduation. A typical course for them, from that point on, would be a combination of their work and the pursuit of certification. Usually, in approximately five years, they have obtained some type of certification and are well into the first stages of their career. It is interesting to note that nearly all of the students that have entered the career path stayed with the profession.

**Summary and Conclusion**

Internships, in general, are a win-win situation for the students and sponsors. Students obtain experience external to the classroom that is invaluable to them as they return to their academic classes following their internship. They have an experience that is “first hand” and is helpful to them as they select a career path. For the sponsor, it is an opportunity to help a college student, but most of all, it is a way of getting tasks completed without a long-term staffing commitment, and it is a method to recruit people to their entity. It is easy to see why entities that need entry-level professionals often seek to hire interns. Although it is different from the “co-op program,” there are certain aspects to internships that are similar.