



This paper appears in *Managing Modern Organizations Through Information Technology*, Proceedings of the 2005 Information Resources Management Association International Conference, edited by Mehdi Khosrow-Pour. Copyright 2005, Idea Group Inc.

# Guidelines for a Successful Computer Professional Internship Program

Parviz Partow-Navid and Ludwig Slusky

College of Business & Economics, California State University, Los Angeles, 5151 State University Dr., Los Angeles, CA 90032, USA  
{ppartow, lslusky@calstatela.edu}

## INTRODUCTION

One commonly heard criticism of business colleges is that graduates are not well prepared for the job market. The concern is that colleges put too much emphasis on theory and not enough on practice. For many years, organizations have called for more relevance in the educational preparation of business graduates to ease students' transitions from the classroom to workplace (Elkins, 2000). Employers have complained that universities often fail to respond to one of their most basic needs: equipping students with abilities needed to function successfully in a business organization (Fitt and Heverly, 1992). Many universities now try to create opportunities for students to test their existing knowledge and learn new skills in a professional environment.

The IS curriculum is very common in universities; it educates students in the foundations and practices of the IS field. However, most of the class work is conceptual in nature and covers issues often stated in generalities. With no tangible examples or an application of these principles, the student is left without a genuine understanding of the principle and what the various applications might be.

Application of principles contributes to retention as well as to understanding of a learned concept. Imagine the process of learning how to drive a car by reading a text. While basic knowledge might be acquired, missing the experience denies the student the opportunity to master the skills. Without actual application, the retention of the material is also poor, extending slightly beyond the classroom exit on the day of the final exam. Teachers of subsequent classes are discouraged to find that prerequisite material must be dredged up and rehashed to lay the proper foundation for new studies. One needs only to imagine how this feeling is amplified for a new employer (Van Over and Dangerfield, 1993).

Case studies and class projects are frequently used to substitute for real applications. However, case studies are not always practical tools for illustrating issues discussed in lectures. Only few cases are broad enough to illustrate all of the necessary principles; and short cases in general are incomplete and necessitate several assumptions, some of them critical to the development of solution. Thus, while cases offer general help, they do not provide the depth in application of the learned skills.

Projects are more beneficial, particularly with real clients, because the analytical process can be directly experienced. However, large classes and project teams do not allow teachers with enough time to work with students individually. In addition, a student on a project team normally experiences only a subset of the total project activities. A typical student criticism at the end of the term is, "I didn't understand what was going on." While this disappointment is a problem for the project leader or the instructor, it is a more severe problem for the student who has missed the experience. The end result is that a number of students can graduate from a university with only nominal understanding of real world IT issues.

An extra effect of such lack of real-world work experience for many students is low self-confidence. Students occasionally show some fear and hesitation about getting into their first job because they "don't know anything." That is why; a major objective of a higher education is to acquire superior work habits and problem-solving skills. Furthermore,

students need an adequate amount of direct contacts with the practices common to their major to realize that they have selected the appropriate profession. As a minimum, they should be self-assured that they can perform well on the job.

Employers are familiar with the nature and boundaries of education and most of them will allow for some initial training phase before new graduates become productive. A lot of employers assign a probationary period during which time the skill base of new graduates is assessed. In contrast, graduates with real work experience are given preference and often get higher starting salaries.

One response from universities has been to build-up internship programs designed to offer experiences more closely tied to possible work settings. Internships and other cooperative education programs have been around for many years. For some time, organizations have used these cooperative education programs to "preview" students as potential employees (Frazee, 1997; Woodward, 1998). However, such programs have not been commonly used by universities to incorporate knowledge and practical experience (Calloway and Beckstead, 1995; Jones, 2002). This underutilization is disturbing in light of changes shaping today's business environment.

Thousands of college students and career changers come into the IT profession every year, but have no clear-cut place to begin. Today's organizations need access to prospective employees who will take on responsibility, identify a career path and become the future of their profession.

## THE SOLUTION

Internship programs are one of the most cost-effective ways of getting qualified and energetic employees on board, particularly during a soft economy. According to career portal Vault.com, Fortune 500 companies may end up spending three times as much per new hire by recruiting through advertising and visiting universities versus recruiting interns (Leung, 2002). Most professionals, educators and students agree that real-world experience is necessary and that an internship can be one of the best ways of getting that experience (Somerick, 2001). Recruiting and training a top-quality workforce is an investment in the organization's continuing success (Stein, 2002).

An increasing number of IS organizations are building relationships with local universities to ensure a constant source of talented job applicants. Some IS organizations are also developing internship programs designed to give experiences in the work place (McGee, 1996; King 1997; Leung, 2002). Offering interns education and hands-on experience is also important in providing real-world examples of what they are studying – especially if what they read in books is hugely different from what happens in real life (Leung, 2002).

Since 1983, the Computer Professional Internship program administered by the Department of Information Systems in the College of Business and Economics at California State University, Los Angeles, has provided companies with dedicated employees who work on a contract basis while earning degrees in information and computer sciences. The

program provides practical work experience for senior and graduate students with majors in Information Systems, Computer Science, and Electrical and Computer Engineering. An IS Internship Committee was formed to select students for the internship. Organizationally, the committee stands between the clients and the students who work for them. Selection for an internship is based on classroom ability and technical skills which are likely to be needed for the various projects. Only senior students are selected for the program. We have found that seniors have enough training to be productive IT employees. Interns gain experience in various IT divisions, including network infrastructure, services, telecom and Web design. Performing technical support gives them experience of troubleshooting problems and working with end users. Over 50 students have participated in the program over the past four years.

The National Association of Colleges and Employers reported that 61 percent of their survey respondents offer summer internship programs, after which nearly half of these interns were offered full-time employments (Peak and O'Hara, Winter 1998). The City of Los Angeles and LA County's IT internship programs are excellent examples of well thought out programs. Interns gain exposure to various areas of IT, including database design, local and wide area networks, security, and Web development.

An intern is expected to be a novice professional, and the internship exists so that the intern may attain experience he/she is lacking (Norris, 1996). However, it would be wrong to look at internship programs as a way of getting inexpensive labor to do the tasks that no one else wants to do. The best organizations provide closely supervised practical experience. Offering interns education and hands-on experience is crucial in providing real-world examples of what they are learning – especially if what the interns study is vastly different from what goes on in actual work place.

Interns – most often students who work part-time while completing a degree – can enhance an IT department's productivity while enabling IT managers to prepare a candidate for a full-time position. The department will gain an extra staff member and often receive an infusion of fresh energy and commitment to the group's work – all for a rather small investment on their part (DeVoe, 1997).

By recruiting minorities, companies ensure that they are hiring from the largest possible pool of qualified workers. This can help ease the current IT staffing crunch. Varied perspectives foster greater innovation. Having an IT staff that reflects customer and employee bases' diversity enables the staff to better understand the needs of the people they serve. To diversify staff, companies need to make considerable efforts including implementing in-house programs that target underrepresented groups and building partnerships at all levels of academia. To organize internship, companies team up with universities, especially those with large populations of minorities

## LESSONS

The lessons we have learned from our experience with student internship may be helpful to others who are thinking about offering this type of program. The following tips can help ensure a successful internship that benefits both the student and the organizations (White and Fuller, 2002).

### Define Ideal Candidates

Before setting up interviews, it is crucial to carefully consider the requirements for the position. Even though we would like the interns to have specific skills and types of experience, we start by looking for students who can communicate and present themselves well. Specific IT techniques and procedures can be taught on the job, but necessary people skills and proper attitude should be present from the beginning. Also, with no exception, all of our interns have possessed superior technical training. In terms of professional background, we try to find candidates who have finished at least three years of academic study, maintained a solid record of success, and held leadership positions in university or

through extra-curricular activities. Students who demonstrate ambition and show dedication in their academic career are more likely to perform well as interns. Self-motivation of an intern is one of the key factors in selection process.

### Seek Hiring Assistance

Many organizations keep a centralized student internship program. The program's coordinator can often provide assistance with the follow-up interviewing process. In organizations that do not have a centralized program, the human resources department can often help with candidates interviewing and hiring process. No matter who provides this service, managers must ensure that the initial screeners clearly understand the requirements for the position and the type of candidate desired.

### Select a Contact Person

A management-level staff member from the IT department should be in charge of the internship program. This individual is responsible for interviewing the interns, serving as the student's mentor throughout the program, and maintaining contact with local academic community.

### Establish a Work Plan

Once the hiring process is complete, the department's contact person should set up a plan with the student regarding how the internship will proceed. At the start of a student's academic term, the person meets with the new intern to determine what areas of interest the student may have. He/she then tries to design a work plan that fits the department's needs as well as the student's interests.

### Create Challenge and Opportunity

Although we stay away from placing our students in the positions where they may feel uncomfortable, we aim to include in our training the type of activities that any staff member might be expected to perform. For example, our interns conduct database design, network security and risk assessment, and web design. At all times, they are under the supervision of an in-charge department manager or other staff members who can offer assistance and answer questions. However, we encourage the students to work in a team setting but with little supervision required to ensure that supervision effort does not become overbearing.

We strive to make the internship as educational and rewarding as possible, as students are at the work place not just to contribute, but also to be trained.

## BENEFITS OF THE PROGRAM

From an educational perspective, our student internship program has been a full success. Since we started the internship program, we have identified a number of substantial benefits:

- **LOW-COST HELP** – The typical hourly rate for an intern is far less than the cost of hiring from temporary-employment firms or the cost of professional service providers. Especially if the IT department is short staffed for a considerable time, internships are a particularly cost-effective way to manage work until the department can hire additional full-time employees.
- **HIGH WORKER PRODUCTIVITY** – All of our interns have been hard working and motivated employees. Interns' enthusiasm for the job and eagerness to learn lead them to high levels of productivity, and it has had a direct impact on the timely completion of their IT projects.
- **DECREASED HIRING RISK** – If the internship does not go well, it is much easier for both parties to walk away from the situation than it would be with a regular employee.
- **CONTACTS** – Because we've established contacts with a number of local organizations, many students from other universities now call us regarding internship opportunities, adding to our pool of prospective candidates.

- **MORE FULL\_TIME CANDIDATES FOR THE COMPANY** – Most of interns are interested in seeking permanent positions at participating organizations upon their graduation. The program encourages the organization to consider interns for permanent employment.
- **DIVERSITY** – By recruiting minorities, companies can ensure that they are hiring from the largest possible pool of qualified workers. Varied perspectives foster greater innovation. Having an IT staff that reflects the diversity of both the customers and the employees enables the staff management to better understand the needs of the people they serve. To diversify its staff, companies need to make considerable efforts, including implementing in-house programs that target underrepresented groups and also building partnership at all levels. Companies can team up with universities, especially those with large populations of minorities, to organize internship programs (DeVoe, 1998).

## CONCLUSION

Our internship program has been so successful that participating organizations had made it a permanent part of their long-term staffing strategy. Of course, there are some potential drawbacks to hiring interns. For example, one problem we've experienced is that the time and effort invested in training a student hasn't always resulted in a full-time employment in the IT department or the company. If the student decides not to return for permanent employment in the company after graduation from his/her university, the company loses its perceived potential long-term benefit. However, over 93% of our interns have stayed as a permanent employee with the participating organizations.

We highly recommend student internships as a way of solving workload issues while keeping staffing expenses down. In addition, working with enthusiastic, young students who aspire to professional careers can be a rewarding, mutually beneficial experience. For company's staff (OR YOU MAY SAY – FOR US), it's an opportunity to teach young interns as well as to learn from them and to train tomorrow's IT leaders for the challenges they will face upon entering the workforce.

## REFERENCES

Calloway, D., and Beckstead, S. M., "Reconceptualizing internships in management education," *Journal of Management Education*, Vol. 19, 1995, pp. 326-341.

DeVoe, Deborah, "Interns can bring relief to IT labor shortage," *InfoWorld*, Vol. 19, Iss. 50, December 15, 1997, page. 87.

DeVoe, Deborah, "Diverse staff brings benefits," *InfoWorld*, Vol. 20, Iss. 8, Feb. 15, 1998, page. 93.

Elkins, Teri, "Academic internships with the equal employment opportunity commission: An experiential approach to teaching human resource management," *S.A.M. Advanced Management Journal*, Vol. 67, Iss. 3, Summer, 2002, pp. 40-47.

Fitt, D. X. and Heverly, M., "Involving the private sector with higher education," *Journal of Cooperative Education*, Vol. 27, 1992, pp. 64-72.

Frazee, V., "Work/study programs give a sneak preview," *Workforce*, Vol. 76, 1997, pp. 19-20.

Jones, Nancy L., "Blueprints for a Profession: A formal internship program may be the final item the CFPs need to join the ranks of the other professions. Here's how to do it." *Financial Planning*, September, 2002, page 1.

King, Julia (Feb. 17, 1997), "Companies use interns as hiring pool," *Computerworld*, Vol. 31, Iss. 7, Feb. 17, 1997, pp. 63-64.

Leung, Linda, "IT Interns," *Network World*, Vol. 19, Issue 1, March 18, 2002, page 48.

McGee, Marianne Kolbasuk, "IS creates 'farm teams'," *InformationWeek*, Issue 599, September 30, 1996, page 120.

Norris, Melinda, "UNO Dean Seeks to Mold Information Specialists," *Omaha World Herald*, 1, October 6, 1996, page 3.

Peak, Daniel, and O'Hara, M., "Practical Liability Issues of Information Technology Education: Internship and Consulting Engagements," *Information Science*, Volume 1, No. 2, Winter 1998, pp. 43-51.

Somerick, Nancy, "A Strategy for Protecting the Integrity of an Internship Program," *Public Relations Quarterly*, Vol. 46, Issue 3, Fall 2001, pp. 40-42.

Stein, Sherri, "Recruiting 101: Invest in tomorrow's workforce," *Rough Notes*, Volume 145, Issue 3, pp. 104-105.

Van Over, David, and Dangerfield, Byron, "Students Internship in Information Systems: Creating Opportunities and Solutions," *Journal of IS Education*, Vol. 5, No. 4, December, 1993, <http://www.gise.org/JISE/Vol1-5/STUDENTI.htm>, downloaded on 8/6/2003.

White, Scott, and Fuller, W., "Managing a student internship," *The Internal Auditor*, Vol. 59, Iss. 3, June, 2002, pp. 36-39.

Woodward, N. H., "From the classroom to the office," *HR Magazine*, Vol. 43, 1998, pp. F2-F6.

0 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

[www.igi-global.com/proceeding-paper/guidelines-successful-computer-professional-internship/32626](http://www.igi-global.com/proceeding-paper/guidelines-successful-computer-professional-internship/32626)

## Related Content

---

### Interpretable Image Recognition Models for Big Data With Prototypes and Uncertainty

Jingqi Wang (2023). *International Journal of Information Technologies and Systems Approach* (pp. 1-15).

[www.irma-international.org/article/interpretable-image-recognition-models-for-big-data-with-prototypes-and-uncertainty/318122](http://www.irma-international.org/article/interpretable-image-recognition-models-for-big-data-with-prototypes-and-uncertainty/318122)

### Mathematical Representation of Quality of Service (QoS) Parameters for Internet of Things (IoT)

Sandesh Mahamure, Poonam N. Railkarand Parikshit N. Mahalle (2017). *International Journal of Rough Sets and Data Analysis* (pp. 96-107).

[www.irma-international.org/article/mathematical-representation-of-quality-of-service-qos-parameters-for-internet-of-things-iot/182294](http://www.irma-international.org/article/mathematical-representation-of-quality-of-service-qos-parameters-for-internet-of-things-iot/182294)

### Meta-Context Ontology for Self-Adaptive Mobile Web Service Discovery in Smart Systems

Salisu Garba, Radziah Mohamadand Nor Azizah Saadon (2022). *International Journal of Information Technologies and Systems Approach* (pp. 1-26).

[www.irma-international.org/article/meta-context-ontology-for-self-adaptive-mobile-web-service-discovery-in-smart-systems/307024](http://www.irma-international.org/article/meta-context-ontology-for-self-adaptive-mobile-web-service-discovery-in-smart-systems/307024)

### An Objective Compliance Analysis of Project Management Process in Main Agile Methodologies with the ISO/IEC 29110 Entry Profile

Sergio Galvan-Cruz, Manuel Mora, Rory V. O'Connor, Francisco Acostaand Francisco Álvarez (2017). *International Journal of Information Technologies and Systems Approach* (pp. 75-106).

[www.irma-international.org/article/an-objective-compliance-analysis-of-project-management-process-in-main-agile-methodologies-with-the-isoiec-29110-entry-profile/169769](http://www.irma-international.org/article/an-objective-compliance-analysis-of-project-management-process-in-main-agile-methodologies-with-the-isoiec-29110-entry-profile/169769)

### Measurement Issues in BI

William K. Holsteinand Jakov Crnkovic (2015). *Encyclopedia of Information Science and Technology, Third Edition* (pp. 5154-5162).

[www.irma-international.org/chapter/measurement-issues-in-bi/112964](http://www.irma-international.org/chapter/measurement-issues-in-bi/112964)