

Teaching Tip Column: BRINGING REAL WORLD EXPERIENCE TO THE CLASSROOM

Charles R. Woratschek Robert Morris College

Students appreciate real world experiences in the classroom and college professors need periodic breaks from the classroom. To bring current real world experience to the classroom I decided to apply for a full-time sabbatical leave from my teaching duties and enter the business community as a full-time employee. I was granted the sabbatical leave for the Fall 1998 -Spring 1999 academic year and secured full-time employment in a financial institution as a programmer/analyst, working with a team of thirteen individuals who dealt with on-line banking, supporting such products as Managing Your Money, Quicken, and Quickbooks. The system was written on an IBM mainframe in DB2 and used COBOL II and CICS.

From working with the team and the system for eight months, I was able to experience first-hand some of the essential skills necessary to work and be successful as a programmer/analyst in the MIS/IS field. These skills include:

3.

4.

6.

7.

8

9.

Have the ability to read and analyze a program that contains very little, if any documentation; Have the ability to read and analyze a program that is written in a style different from what the programmer was taught, or from the way the programmer personally codes;

Have the ability to quickly learn and successfully implement new coding techniques;

Have the ability to differentiate programming code that gets the job done from programming code that gets the job done and is maintainable and reliable;

Have the ability to write maintainable and reliable programming code on an individual basis and in a group situation;

Have the ability to correctly write both internal and external documentation;

Prepare and execute a thorough and meaningful test plan;

Possess excellent time management skills -there are no programs accepted late;

10. Be self-motivated;

11. Be able to admit when you made a programming error and volunteer to fix it;

12. Understand what it means to be a team player; 13. Possess effective communication skills both oral and in written; and

14. Be flexible and adaptable.

My experiences have led me to re-evaluate and change the assignments in two courses: Advanced COBOL Programming (a junior-level course) and Introduction to Database Management Systems (a senior-level course). I have successfully changed the assignments of Advanced COBOL Programming from the traditional ten individual programming assignments to ones that contain more realistic experiences. The students now gain experience in writing and executing a test plan, writing maintainable programming code, teamwork, and communication skills. And, no assignment is accepted late. One of the assignments of the course involves a data validation program. The students are given a "test data file;" i.e., one that contains a sample of data with some errors. The students must analyze this data and decide which of the program specification data validation requirements it does not test. They then must create appropriate test data and a test plan as well as successfully execute their test plan before they are given the actual data file to complete the assignment.

Another assignment in the Advanced COBOL Programming course deals with program maintenance. A multiple level control break program is given to the student which is incomplete, contains some "spaghetti code," and minimal documentation. The student is assigned to complete the program, in maintainable code, without totally re-writing it from scratch. Both internal and external documentation must also be completed.

Two assignments in the Advanced Programming course now involve teams

COBOL These

Journal of Information Systems Education

assignments concern sequential creation and maintenance, and index sequential file creation, batch updating, and on-line updating. Students are divided into teams of three. Each team member has a substantial program to complete that is essential to the success of the overall project. At completion of the project, the team is responsible for presenting their project to their peers. The peers evaluate the team's presentation. The team project assignments are all different so no one but the members of the team are aware of the project specifications.

In the Introduction to Database Management Systems, the students design and fully implement an ORACLE database as a final project. A real world approach is used for this project. Students are divided into teams with a maximum team size of four. Each team prepares professional written documentation regarding their design which includes CODD notation, Bachman Diagram or E-R diagram, test plan, and the results of each trial run of the test plan. The team must orally defend their design, test plan, and changes to the database design made based on the test plan results to me. Each member of the team then demonstrates to me their SQL knowledge and savvy by answering ad hoc queries based on the team's database design. Finally, each student completes a confidential written evaluation of each of their team members.

The types of assignments now included in the two courses reflect my personal experience in the business community. There is no doubt that they involve a tremendous amount of time and effort from both faculty and student. Students complained about the assignments: they were too long, they were too hard, they took too much time, they were impossible to complete, and the requirements were too rigid. Nonetheless, several students who have successfully completed these revised courses have expressed their appreciation. They believe that these types of

assignments were vital to their current job assignment, in applying for promotion, or in securing employment. Additional feedback from prospective employers confirms that the revised course work is relevant, valuable, and welcome.

My experience in the business community has provided me with invaluable lessons in how theory is put into everyday practice. While I highly recommend that faculty return to the work force at least once in their academic careers, it is not practical for everyone. However, faculty can connectre- connect to the business community in other ways: supervising student internships and work experiences, business-academe meetings (conferences, colloquiums, lunches), gathering feedback from employers and former students (surveys, face-to-face meetings), consulting opportunities, sponsoring "update your skills" workshops, and/or finding business mentors. Starting and maintaining a two- way dialogue between academe and business benefits you, your institution, your students, and business.

AUTHOR BIOGRAPHY

Dr. Woratschek has over 20 years of teaching experience; the first 5 years on the middle school level as science educator and the next 16 years on the collegiate level in the business/computer information systems area. While his doctoral degree is in Higher Education, his research interests include business- collegiate relationships, the application of computer technologies, computer hardware/software management policies, and effective methods of teaching programming concepts. Dr. Woratschek is currently an associate professor of Computer Information Systems at Robert Morris College and specializes in teaching courses in programming languages, database management systems, data communications, and human-computer interaction.



STATEMENT OF PEER REVIEW INTEGRITY

All papers published in the Journal of Information Systems Education have undergone rigorous peer review. This includes an initial editor screening and double-blind refereeing by three or more expert referees.

Copyright ©2000 by the Information Systems & Computing Academic Professionals, Inc. (ISCAP). Permission to make digital or hard copies of all or part of this journal for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial use. All copies must bear this notice and full citation. Permission from the Editor is required to post to servers, redistribute to lists, or utilize in a for-profit or commercial use. Permission requests should be sent to the Editor-in-Chief, Journal of Information Systems Education, editor@jise.org.

ISSN 1055-3096