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A Different Model at a Differtent Time for a Different Client Privatization of Education Through Engagement and Partnership

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Privatization of Education Through Engagement and Partnership

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Abstract

The changing technological and business climate is making both industry and academic look for alternative ways to train business students in the information technology. Given the expense and inefficiencies involved in supporting separate training at various facilities that are often disconnected in purpose, the Applied Technology in Business (ATiB) Program with the School of Business at Oakland University makes both the corporate sponsors and the university share this "training burden" while students are still in school. This paper briefly talks about the program, its success thus far and the educational model it attempts to incorporate within the program.

Introduction

Many businesses with large MIS departments have either outsourced their systems development function to external systems vendors or have started to buy software packages for internal implementation. These trends have transformed the role of traditional MIS professional in a firm to that of a systems integrator responsible for analyzing, acquiring and adapting purchased systems to meet business objectives. Increasingly these professionals are required to work in disparate functions that are new technology driven such as client server computing, web-page development, object oriented, and GUI based software development. With the proliferation of PC based technologies and user-friendly end-user software, many business users are themselves gaining proficiency with the development of end-user systems. With the change in the role of the MIS professional, often users are asked to assume greater responsibility in identifying, exploring when feasible, and managing IT related projects to support their business with the help of internal and external IS professionals. For the purpose of our discussion, we call such users business technologists.

Integrating business and IT education has been an area of significant interest for several years in business schools and specifically in MIS programs. With the changing role of business users and MIS professionals, the issue facing business schools today is how to effectively train its business students to support the roles of "business technologists" and "system integrators". The issue is particularly challenging given the rapidity with which business and technology is changing, and the reality that resources are generally somewhat limited and the academic infrastructure is at times slow to react. A logical question that arises then is what role can private industry play to train business students to act as business technologists or system integrators, by effectively partnering with business school efforts in training such individuals?

Program Description and Current Status

To address some of these challenges, a unique program was developed in 1997 at Oakland University, School of Business Administration. This program (described in some detail in Exhibit A) departs radically from conventional co-op and internship programs, as it forces both industry sponsors and faculty to work in tandem to train business students to solve real-world problems using a variety of information technologies. See Figure 2 for a list of sponsors, who helped students solve problems of varying scope in different disciplines and using different technologies (see Table 1 for their summary). Figures 3 and 4 provide some of the sponsor and student testimonials. While the testimonials speak volumes about the success of this program, it is critical that we fully understand the underlying educational model that is at the heart of this program and study it from multiple perspectives. Figure 1 below shows the basic conceptual model associated with this program.

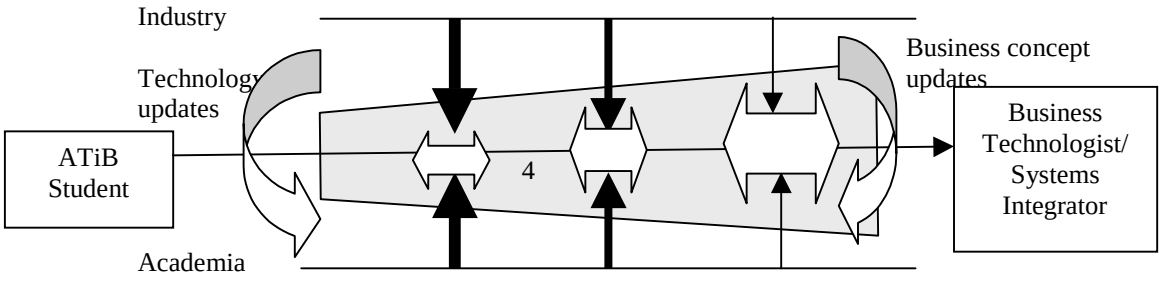
Education and Training Model

Under this program, a student is mentored by both academic and practicing professionals, and supported by other students in a lab environment. Academic and practicing professionals assist students in combining their theoretical knowledge in problem analysis and technology use with practical knowledge of implementing systems to solve these problems over three semesters of project coordination activities.

In Figure 1, the extent of coordination of projects by the faculty/industry (vertical arrows) is greater (shown as thicker and darker arrows) in the early stages of the program (the student's junior year) and it diminishes in significance as the student becomes more certain of his/her own capabilities and moves to the senior level.

The collective knowledge sharing among students within the program (shown as horizontal block arrows) increases in significance over time as the benefits of team-work and mutual support in the knowledge sharing and learning environment of the ATiB lab become apparent to the students. In other words, the ATiB lab plays a critical role in supporting the knowledge sharing culture in the early phases of their program, and fulfills the knowledge dissemination, maintenance and creation role in later stages of this program.

Figure 1. The Underlying Model behind the ATiB Program



Research Goals

The conceptual model provides a framework to help document the key themes underlying program design. Three major research issues are currently under investigation to fully understand and explore this model further:

1) What is the significance of the role of coordination of industry/academia, in general, in the success of the student projects?

2) How does the significance of this role change as the student progresses from early stages of the program to later stages? Does the impact of project coordination, defined as the effort put forward by the faculty and industry partners, on project success diminish as students move from their junior year to their senior year? In other words, is the relationship between extent of coordination and project success moderated by the experience and maturity a student gains as they progress through the program?

3) What is the role of the knowledge sharing culture (represented by the middle block) on project success? If the faculty/industry coordination is minimal in the later stages of the program, was this because of the influence of the knowledge sharing culture and senior mentorship in later stages of the program, or was it due to the experience and learning capacity acquired by the student?

Data to obtain answers to these questions is currently being gathered. Preliminary findings will be reported at the conference in August.

Figure 2: ATiB CORPORATE SPONSORS

Champion Enterprises (97, 98)
Compuware (97, 98, 99)
DaimlerChrysler (97-00)
Eaton Products (97-00)
FANUC Robotics (99)
Hubert Distributors (97)
Kelly Services (97)
Lear Corporation (97-00)
Meritor Automotive (97, 98)
MSX International (97, 99)
Oxford Automotive (98)
RGIS Inventory Specialists (98)
Sequoia Diversified (99)
St. John Health Systems (98)
Volkswagen of America (98, 00)
Comerica Incorporated (97, 99)
Core (United Dominon Ind.) (97)
Durakon Industries (97, 99)
EDS (97-00)
GMAC (98)
ITT Automotive (Valeo) (97, 98)
Kmart Corporation (98,00)
Market Probe – Milwaukee (98)
Milliken Millwork (99)
National TechTeam (98,00)
Providence Hospital (98)
Selectcare (98)
St. Joseph Mercy – Oakland (98)
The Budd Company (99)
William Beaumont Hospital (99)

Figure 3. Sponsor Testimonials

"Over the last two years, I have had the opportunity to work closely with the Oakland University ATiB program and sponsor several student to work on projects at EDS. The program has proven to be an excellent source of people with a significant advantage over standard academic programs. The ATiB students come to us with not only a desire to apply technology in the business world but also come to us with significant experience in the application of technology in business. This head start over students without practical experience has allowed students like Tone Ivanovic and Joe Cottone to hit the ground running and make significant contributions to our company. The high degree of success is not an accident. The students are carefully selected and mentored to develop their technology application skills in conjunction with academic skills. These more fully developed students have been so successful in their work projects that I have hired several into our company so that we could continue to benefit from their services."

Paul Holland, EDS

"We have benefited from the work that students have been doing on our behalf, and have seen the benefit of giving students exposure to real-world IT project activities. We appreciate their energy and enthusiasm, and plan to continue to support this innovative program."

Leslie L. Murphy, VP and Chief Technology Officer for Compuware Corporation.

"The scope of the project the students are involved in will entail the automatic hardware inventory of over 85,000 computers. The data will be used by EDS to track changes in the environment and to help us keep accurate records for billing and hardware movement. I would highly recommend it to our competitors. We get first dibs on the students, though!"

Ike Eickholdt, EDS

"Our Staffing Services business unit had a need for a database to be created that would track their competitors and specific information about each competitor in our technical and professional staffing markets. The students assigned met all the requirements, with enthusiasm, knowledge, and dedication."

Shelley Koral, MSX International

"What worked out great for us was that our programmers were familiar with an older application language, and the (students) came in with Windows experience. The students came in, coded a system, taught it, helped write an instruction manual, and traveled to three or four plants in the United States."

Rob Rinnan, Manager of Global Human Resources Systems, Lear Corporation

"We're getting a fresh opportunity to work with students who have the most current training on the most current software and systems that some of our people may not be as fluent in. It gives us an opportunity to have a talent pool to draw additional people from."

Glen Gouldey, President and General Manager, Eaton Products

"Chrysler sees the ATiB program as a test bed for evaluating the application of computer technology for researching and solving business problems. By supporting ATiB, we stay apprised of cutting-edge technology, while building relationships with potential employees."

Dan Cowan, Senior Manager, Finance Training & Education, DaimlerChrysler

Figure 4. ATiB Student Testimonials

"The technical skills I learned while in the program have become important and very useful to me now as a full-time project manager. The other skills I learned while in the program were even more important. In the ATiB program I learned how important team work is. I learned to trust someone else to work as hard as I do; I learned that what one can do, two or three can do better. In the ATiB program, making presentations was an almost daily activity and with each one, we became better presenters. In the ATiB program, I worked on two corporate projects each semester and at the same time, I also had regular class work to do. Time management became a critical skill that I would need to master in order to do well in school. I learned to prioritize, develop a plan on how I could successfully complete all my work, make lists of tasks to be completed. I value my experience in the program tremendously and much of my success now and in the future can be attributed to what I learned and how I developed in ATiB" - **Tone Ivanovic, Project Manager, EDS, 1999**

"I have no fear of taking on something that is new. ATiB had a tendency to toss many challenges at the students. Not knowing how something was done or not knowing a specific skill does not scare us off!!
So what, we can learn!! We took on many challenges and had many successes due to the fact that we are not afraid to learn something new and challenging. This is something that is needed in today's job market and I believe ATiB gave me that skill", **Jannell Gunn, Project Manager, EDS, 1999**.

"I frequently face some of these same types of problems I dealt with in ATiB. I am able to analyze the problem and use technology to facilitate a solution. For example, to complete a task recently, I had to use computer technology that I never had experience with before I took this position. But the analytical and technical skills I learned in ATiB directly influenced my ability to quickly learn this application without extensive training. Since I became a full time employee within Guardian Industries, my professional demeanor and technical knowledge made management entrust me to take full responsibility of the accounting and information systems (computer) departments just a few months after graduation." **– Ms. Melissa Close, Operations Control Manager/Controller, Guardian Industries Corp., 1999**

Exhibit A: Major Features of the Program

Program is sponsored by corporations - every student admitted into the program has a corporate sponsor, who makes a contribution to the program for two years (at $12K/year)

Sponsoring companies provide real business problems for the students to solve, and these are addressed in three of the four courses students take under this program as a business minor

Students, drawn from all business majors, learn the system development, project management and IT skills in the class room, and apply these concurrently to solve business problems that are posed by the sponsoring firms

Students work as teams to solve at least four to five business problems over a three semester time period, so they learn the use of different information technologies in a variety of business settings and learn to manage projects of different types

Students not only learn to solve problems using IT, when relevant, but also incorporate many of the business and IT professional skills within their activities. Some of these skills include verbal and written presentations, writing executive summaries and status reports, working in teams and time management, conflict resolution, project management, prototyping, and learning to use technology on their own at times using help and other support environments.

Students learn many of their skills in stages:

- some general exposure to PCs and MIS before they enter the program;
- use of IT across many functions within an organization by solving non-industry sponsored problems as teams in their first semester;
- use of IT to solve industry sponsored problems as teams in a controlled lab setting in their second semester;
- use of IT to solve industry sponsored problems as teams in a loosely coordinated lab setting in the third semester; and
- use of IT to solve industry sponsored problems as teams or as individuals in a corporate setting in their last semester.

This staging process is intended to meet two basic objectives:

- support incremental learning and build confidence among students in their own capabilities for developing and managing IT applications in support of their business function.
- support mutual learning that occurs when many of these business projects, sponsored by companies, are done in a lab setting, where each student team sees what others are doing and learn from each other's expertise in technologies and business skills.

Table 1. Project Summary

The following table summarizes the projects that were coordinated from January 1998 to May 2000. Note that many projects span multiple stages described below, as well as span many semester terms.

Project Scope

	No of projects
Opportunity analysis (where can IT help)?	14
Analysis	
Process and requirement analysis	62
Feasibility studies	17
Software evaluation	12
Design	
Data base design	40
Form/query design	34
Data base integration with applications	19
Implementation	
System testing	14
Business/system back-up/recovery	2
System documentation	1
System audit	1
User training documentation	11
Enhancements	
Migration to new systems/data bases	5
Enhancement of existing systems	4

The technology mix

Web applications	56
Data base applications	89
(many of these are related to e-commerce)	
General research	20
Groupware	11
GUI (Vbasic, etc.)	19
Network software	8
Excel based	3
Special application software	17
ERP software	14

The business functions these applications cover

Sales/Marketing	16
Accounting	7
Finance	7
General Bus. Administration	38
(includes compliance, security, policy/procedure administration, user training, etc.)	
MIS	22
Procurement	2
Logistics	1
HR	9
Engineering	3
Education	3

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