Let Your Students Have A Piece of The Action: Real World Projects For AIS Courses

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Abstract

This paper describes a variety of accounting information systems projects that send students into the business world. The projects are easy to organize and are consistent with AECC recommendations. The students acquire and enhance their research, communication, creativity, teamwork and technology skills. Exit interviews have indicated many benefits to all parties involved.

Introduction

The Accounting Education Change Commission's (AECC) position is clear: accounting programs must provide graduates who satisfy the profession's demands. The AECC statements urge accounting educators to include an assortment of intellectual, interpersonal and technological skills, in addition to accounting theory, in their curricula. The AECC also recommends the supplementation of passive lecturing with real world group learning experiences that creatively utilize a variety of technology tools (AECC 1990a, 1990b, 1993a). The AECC statements further advise faculty to create cooperative teaching, research and outreach relationships with community organizations to further these goals (AECC 1993a, 1993b).

These objectives, while intuitive and noble, may seem difficult to implement in current

accounting information systems (AIS) courses. AIS courses already have difficulty accommodating previously established curriculum-required content due to the rapid dissemination of technological developments into the accounting profession. The development of communication skills, interpersonal skills, and technological proficiency takes time to develop. Many accounting faculty believe that the time devoted to these skills comes at the expense of theory and other desired course content. For a variety of reasons, faculty often choose efficient forms of information dissemination that maximize exposure quantity rather than learning quality. These faculty believe that the opportunity cost of pursuing the AECC objectives is simply too high.

However, the reverse is true. The AECC recommendations transform the students' role from being a passive receptor of static information to being active participants in dynamic processes in the "real world". The benefits to the

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student and to the accounting profession derived from engaging AIS students in AECC recommended learning experiences far outweigh the perceived costs.

This paper describes low-cost methods to accomplish the AECC objectives by means of real world AIS projects. The AIS projects document that course content is not sacrificed, but enhanced. Moreover, the accounting profession, the students and the local business community are enlightened and enriched by the transformation of knowledge into action.

While the ideas presented here have been developed for accounting information systems courses, they may be applied to a variety of other business courses. Zlotkowski (1996), for example, documents how students can gain rich business environment information during the process of providing service to their local community. Colorado State University has involved approximately 200 students and Florida International University approximately 500 students, in past and current community service activities (Lenk 1997; Hogner 1996). Bentley College (in Waltham, Massachusetts) manages over 3,000 business students in external activities that enhance their business and technical skills (Kenworthy 1996).

The next section describes projects that have been successfully completed over the past eight semesters at a state university in a town of approximately 90,000 inhabitants. The projects are appropriate for communities of that size or larger; no tests have been conducted on smaller communities. The final section lists the many benefits of this real world experience approach to AIS projects.

AIS Project Methodology

The processes necessary for the AIS projects described in this paper may be classified into three stages: the project design, the project execution and the project follow-up. Each of these stages will be explained in turn, with examples of actual experiences to provide clarification.

An overview of an actual project is first provided for perspective.

One semester, AIS students documented accounts payable procedures and analyzed the internal control of the documented procedures for a variety of businesses in the community. The students set up interview appointments, interviewed the relevant personnel and wrote a narrative of the procedures. They edited their draft until it was deemed easy to understand, organized, accurate and complete by the organizational contact and another student team. Then, they flowcharted the process with computerized flowcharting software, analyzed the internal control of the procedures in their documentation, and wrote an internal control analysis report for the organization. Finally, they orally presented their product to the management in the organization utilizing computerized presentation graphics.

Project Design

The purpose of the project design stage is to (a) identify the purpose and scope of the projects, (b) identify interested organizations and (c) prepare the desired course syllabus, handouts and evaluation forms. Many possible project purposes exist— the choice of which may depend upon the professor's goals for the course and the placement of the AIS course in the degree program. For example, the AIS project purposes may include the reinforcement of financial, managerial, cost or tax theory with additional goals of improved computer-related documentation skills, system analysis skills, teamwork skills, and/or professional written, graphic and oral communication skills. Likewise, the AIS project scope may depend upon the course goals and structure. Project scopes may range from a single procedure spreadsheet design to design of a database structure for an entire transaction cycle, to an internal control analysis for an entire organization. Table 1 has been provided as a summary checklist of the AECC recommendations to assist project purpose and scope decisions.

Further examples of past actual projects

Table 1
Capabilities Needed By Accounting Graduates

Business knowledge	Knowledge of the activities of business, government, and nonprofit organizations.
	Knowledge of the political, social, legal and cultural environments in which they operate.
Accounting knowledge	Knowledge of accounting theory and practices.
	Knowledge of the role of accounting information in satisfying operational needs and reporting requirements.
	Knowledge of information system design and analysis.
	Ability to apply accounting knowledge to solve real-world problems
Intellectual skills	Knowledge of functionality and application of technology.
	Ability to identify problems and solution opportunities in an unfamiliar setting.
	Ability to undertake the process of inquiry in an unstructured environment and research desired information utilizing abstract logical thinking, inductive and deductive reasoning and critical analysis.
	Ability to exercise judgment based on the comprehension of an unfocused set of facts.
Interpersonal Skills	Ability to work with others in groups.
	Ability to positively influence and motivate others.
	Ability to lead others.
	Ability to organize and delegate tasks.
	Ability to withstand and resolve conflict.
Communication Skills	Ability to present, discuss, and defend views effectively.
	Ability to use formal and informal written and spoken language.
	Ability to listen effectively
	Ability to locate, obtain, organize, report, and use information from human, print, and electronic sources
Personal qualities	Creative thinking.
	Integrity.
	Enthusiasm, motivation, initiative and persistence.
	Empathy and sensitivity to social responsibilities.
	Commitment to life-long learning

adapted from AECC Position Statement No. 1, Appendices A and B(1990).

may better illustrate the wide variety of possible purposes and scopes. A popular past project idea has been to have the students formally document a set of transaction processing procedures and evaluate the related internal controls for a company. This product greatly assists management with training new employees and evaluating their systems, and also provides significant assistance to the internal and external auditors. Organizations have eagerly accepted this offer of service as many do not have the resources to do it themselves. The procedural documentation and internal control project is also a safe project choice for novice professors.

During one semester, for example, each of the student teams went to a different company, but all students were documenting accounts payable. Another semester, all of the students went to the same large organization, but each team documented a different subsystem: accounts payable, accounts receivable, personnel, payroll, sales, shipping/receiving, inventory control, production data flow, budgeting procedures, bonus calculation and distribution, etc. Another semester the students assisted the university's internal auditors document cash receipts procedures in more than 50 departments across the university. Yet another semester the students documented petty cash procedures in 18 city-affiliated offices. The creation of a consistent theme across the teams improves the quality of the related classroom discussions.

In other semesters, the students created well-designed spreadsheets for a variety of purposes and organizations: product costing, cost behavior analysis, capital budgeting, a variety of forecasting purposes, time and material pricing, etc. Other students designed database structures for businesses which were considering converting their file-based systems to database systems. Some semesters, a representative from one company comes to class to present their subsystem and all student teams create alternative solutions to the same situation and other semesters, each student team visits a different organization.

Other student projects analyzed and re-

designed documents and/or input screens for companies in efforts to enhance their efficiency and effectiveness and lower their associated error rates. Yet other projects researched appropriate accounting software for smaller businesses and/or created World Wide Web home pages for nonprofit organizations. In all the semesters, each team was required to present and share their finished product with the other teams in their class.

Effective procedures for the identification of participating organizations may vary widely – from requesting the students to go into the community to solicit their own business partners – to advertising the AIS project program in the local newspaper – to mailing solicitation letters to local businesses – to informal, personal solicitations at local professional organization meetings such as the ISACA, IAA, IMA, AAA, and the state CPA society. Another approach is to contact one large local corporation that may commit to involving all of the student groups for that semester. No matter which method is chosen, a critical factor is to provide the organizations with enough documentation of the purpose and scope of the projects to allow the interested individuals to obtain the necessary authorizations for participation in the projects. Another helpful document is to provide each organization with a written promise of confidentiality (with the professor's signature) concerning any and all proprietary procedures and data that may be observed or utilized during the project process (the students also sign confidentiality documents that detail the consequences of a breach of confidentiality). Ultimately, the method of choice is a function of the culture and the attitude(s) of the professor, the students, the department, the college, the university and the local community. Each of the above mentioned methods has been successfully utilized.

Clear descriptions and instructions concerning the requirements and components of the project are imperative for the AIS course syllabus and handouts. The decision whether all of the student teams will be working on the same problem or if each team will be working on dif-

ferent problems is important to make at the beginning of the project design. While the proportion of the course grade dedicated to project performance should depend upon the amount of work the project involves, the percentage should be equal to or above fifteen percent to avoid a lack of commitment on the students' part. Another recommendation is that the professor clearly, yet optimistically, state in the syllabus that the students are representing the department, the college and the university with their actions and choices, and that unprofessional conduct of any type will be reflected in their grade. Exhibit 1 contains an example project description from an AIS syllabus.

There are several other helpful components regarding the administrative design of AIS projects. Two-student teams, created after the drop/add registration period has expired, have been found to be associated with the most successful efforts. Two person teams experienced more equitable distribution of labor and less personality and scheduling conflicts than teams of other sizes. Single-person teams work well for students who prefer this option due to schedule issues and students who want to do the project at the companies where they currently have jobs may be accommodated if the desired purpose and scope may be maintained.

While the motivational response experienced in the past from the AIS students has been extremely positive, a variety of motivational lectures during the first few weeks of classes are recommended to enhance any timid students' enthusiasm about the projects. The lectures could involve enthusiastic testimonies from prior students, or role-playing examples of how to implement project procedures such as professional telephone protocol or interviewing techniques, or the discussion of technology tips or professional report/presentation formats. In-depth class discussions of project experiences support vicarious learning across teams.

Interim deadlines, as well as other process controls, are strongly recommended to eliminate procrastination and reduce non-productive

project efforts. For example, during the previously mentioned procedure documentation project overview, the professor included the following internal controls: (a) the professor's business card and a letter for each student team to give to their organization that requested direct contact with the professor for any unresolved issue with the student, (b) the return of forms signed by the organizational partner which indicated satisfactory completion of the narrative before the students could begin their flowcharting, possibly followed by a telephone call to ensure the forms' validity (c) a required student team-professor meeting to review a rough draft of the flowchart and the internal control analysis to identify "poor" efforts long before the finished project is provided to the organization, (d) optional meetings with the professor for oral presentation guidance, (e) confidential self/peer evaluations, and (f) exit interviews with each organizational partner. Finally, learning was maximized in semesters when significant, personalized final project feedback was provided. Therefore, it is recommended that the due date of the projects not be so close to the end of the semester to eliminate the possibility of further discussing the projects with any interested student team.

Project execution

There are three important critical success factors to the AIS project executions. First, the professor must be enthusiastic and motivated about the projects, showing daily interest in the progress of the teams if possible. This may be achieved by arriving in the classroom a few minutes before the class begins and informally asking the students about the progress on the projects as they arrive. When a student shares an interesting insight or experience, the professor may invite him or her to share it with the entire class. Another motivational tool involves repeated reminders that the students' product should be something they would be proud to share during future job interviews as evidence of the work they are capable of accomplishing.

At times, dysfunctional behavior may

Exhibit 1**Syllabus Information for the Business Documentation Project**

Enhance your accounting information systems documentation and analysis skills while providing an important community service for local companies!

Initial contact: Telephone or email your assigned controller/accounting manager to start this process. Clearly provide your name, your university affiliation, and your purpose. Schedule a meeting to discuss the scope of your documentation and analysis: sales, accounts receivable, purchasing, receiving, accounts payable, payroll, fixed assets, investments, etc. Document the call (even if it an unsuccessful call).

Initial meeting: Be professionally dressed and behaved. Your goal is to identify which area of their accounting system they would like for you to document and evaluate. Do not assume that you will be performing your interviews that day, but be ready if they want you to do the interviews at that time. Clearly explain that what you want to document is what they are actually doing, as opposed to what they should be doing. Arrange for subsequent meetings. Complete your project scope form and ask them to sign it. Leave them a copy with your signature.

Interviews: Ask the relevant personnel to explain to you, step by step, the transaction processing which they perform (when is the form filled out, what sources of information do they use to fill it out, when/how is it approved, when/how is it entered into the computer, when/how is it verified (if ever) or reconciled, how many other employees also do this task, when does the processing involve a different employee, how many departments are involved with the process, etc.) Both partners are required to be present at the interviews. Document your interviews.

Narrative preparation: Your first draft should be well-organized with correct grammar and spelling before it is shared with your business partners. Be professional in your attempts to clarify any questions or ambiguities you may have. Allow your business partner to review your narrative for a week before you ask them to approve it. Be willing to edit this narrative as many times as needed to satisfy the business personnel that it captures their procedures. Complete the "Acceptance of Procedure Manual" form and ask your business partner sign. Leave them with a copy of the form and your narrative.

Flowchart: Using one of the three flowcharting software possibilities in the College of Business computer lab, create a professional structured systems flowchart. Use professional symbol size, headers, trailers and framing to assist your efforts in making your project something you are proud to show future employers.

Internal Control Analysis: Formally document the subsystem's internal control status. List and explain the internal control goals, the existing internal controls utilized, and the internal control strengths and the weaknesses that currently exist. For each weakness, you should suggest a few alternative control plans that would reduce their risk to exposures.

Final Presentation: Professionally arrange a final meeting with the controller/accounting manager who authorized the business-student partnership and the personnel with whom you worked. Prepare and perform a professional presentation that utilizes state-of-the-art presentation graphics. Provide the group with hard copies (and a diskette) of your entire documentation package. Thank them for their participation. Professional handling of the exit interview is extremely important to leave them with a positive experience.

occur within teams, between a team and its organizational partner, or between teams. The second critical success factor is to control dysfunctional behavior within teams or between teams and organizations. Negative experiences at this juncture of the students' academic experience may hinder future learning. Effective preventative control plans include team-building exercises and communication skill exercises in class. Detective control plans involve the frequent solicitation of both formal and informal feedback from all parties involved.

The third critical success factor is to encourage students to help each other. Students are often reluctant to share their work in progress with the professor. They fear that the project process evidence will somehow affect their final project grade. A supportive environment that encourages the positive effects of process sharing should be created. For example, previous classroom sharing experiences resulted in applause, positive verbal and nonverbal support, constructive feedback, creative discussions and vicarious learning. Also, students may exchange their narrative, flowchart, or internal control analysis rough drafts with other student teams, and a few days later provide each other with constructive feedback concerning progress, ideas, creativity, errors, omissions, and ambiguities.

Finally, it is recommended that each team create four professionally bound copies of their projects: one for the participating organization, one for the professor, and one for each team member. Many past students, and recruiters as well, have attributed their job offers to the sharing of their AIS project with their potential employer. The professor's project copies have been extremely useful for instructional performance evaluations, during AACSB reviews, at advisory board meetings, and for recruiting efforts.

Project follow-up

The project follow-up procedures have several purposes. First, they are meant to provide information that will be useful for the grading of the projects. Second, a professional clo-

sure procedure/gesture for the participating organizations is recommended. Third, the information gained from the projects and the other follow-up procedures may highlight a significant, specific problem with a particular student or team of students.

Grading-related follow-up procedures may include an exit interview with the participating organization and/or the student teams. Past experiences have included telephone calls to each of the organizations who participated to obtain detailed project feedback to ensure that professional work was performed by the students. The information from this interview, combined with the insights from the self/peer evaluations, will highlight any dysfunctional performance allowing the professor the choice to meet with these teams in private to counsel them. Any negative feedback has always been discussed privately with the corresponding student team.

Providing thanks and appreciation to the participating organizations is an important gesture. While it may seem that they received "cost-free" labor, their personnel spent time with the AIS students and thanks are due. Possible gestures may include an appreciation telephone call, letter, or card. The students should also mail a thank you letter to their organizational partners. A helpful suggestion to reduce future elbow-grease is to include a turnaround document (postcard) that asks them if they would be interested in participating in future AIS projects with the students.

Finally, self/peer evaluations should be elicited from each student, preferably during classtime to ensure confidential, individual, concentrated efforts. These evaluations provide a reflective exercise for the students by allowing them to articulate what strengths/weaknesses they feel they brought to the team, and how they could have avoided or corrected some of their weaknesses. The information gained from these evaluations are useful to consider in conjunction with the review of the actual project product.

Conclusion

The AECC has recommended that accounting programs change the way AIS is currently being taught. The profession is demanding life-long learners who are cognizant of the issues in the external environment. The essence of these changes is to replace passive information dissemination with real-world, hands-on learning "by doing".

This paper explains several easy to implement AIS project ideas that accomplish many of the AECC objectives. The projects involve the creation of cooperative partnerships with local businesses or university departments (accounting or internal auditing). The students work with their organizational partners to create a professional and useful product. Vicarious learning is maximized when project progress and final reports are shared in classroom experiences.

The feedback that has been received in the past from the participating students, businesses, university departments and recruiters of graduating students has been strongly in favor of such projects. Not only do the projects benefit the organizations in the community, they also emphasize the issues of unstructured decisions, ambiguous data boundaries, analytic models and communication media choices. Furthermore, the projects provide the students and future recruiters with real world evidence of the work the students are capable of producing.

There are numerous additional benefits that accrue to the students: (1) The students are more committed to the course due to their necessary initiative to get the projects started and completed; (2) The unstructured nature of the projects allows the students to apply their creativity in addition to their knowledge. Many times in the past, students have been surprised at the good ideas they did not even know they were capable of devising and operationalizing if it had not been for the course project; (3) The students enjoy being able to apply the knowledge they are learning in the classroom in a real world envi-

ronment without having to commit a semester to an internship experience. Many students have characterized their AIS project experiences as mini-internships; (4) The students realize the importance of good skills in many different forms of communication during the process of the projects. They learn about their innate strengths and weaknesses, and they learn that they must apply extra effort to their areas of weakness to develop into a well-rounded professional; (5) The projects involve close interaction between the team members, thereby developing their teamwork and leadership skills. The projects have been instrumental at developing long-lasting friendships and study partnerships; (6) The students meet many real-world role models in the process by working with actual accountants. Many of these role models become important networking partners in their careers. Numerous students have received part-time and full-time jobs as a direct result of their project experiences; (7) The projects become an critical component of the students' ultimate interviewing portfolio. Both students and recruiters alike are pleased to have evidence of the work the students are capable of producing. Many recruiters have commented that it was the AIS project that distinguished the student, resulting in the coveted job offer; and (8) Finally, many students have commented that the self/peer evaluation experience has been tremendously useful in later job interviews where they are required to orally perform many of these same reflections.

The benefits to the participating businesses and departments are also numerous.. First, desired projects get done without a significant cost to the organization. Second, the organizations enjoy participating in the educational process and enjoy the benefits associated with public disclosure of their partnership with the university. Third, many of these organizations have inadvertently utilized the projects as an informal interviewing process. Numerous students have been hired by their partnership organizations for part-time and full-time jobs.

The benefits for the faculty are also numerous. First, the university enjoys the positive

public relations that result from these projects and the faculty member will be credited for the outreach and service. Second, many new contacts and networking results, oftentimes resulting in research ideas, potential future grant/ scholarship sources, and educational case materials. Finally, the instructional richness of these projects provide a “retreat-like” energy that vitalizes instructional creativity that may be applied to all of their efforts: research, teaching and service.

Education”, *Journal of Business Ethics*, Vol. 15, Issue 1, p. 5-19.

References

1. Accounting Education Change Commission. “Objectives for Education of Accountants”, *Position Statement No. One*, AECC, Torrance, California, (1990a).
2. Accounting Education Change Commission. “AECC Urges Priority For Teaching in Higher Education”, *Issues Statement No. 1*, AECC, Torrance, California, (1990b).
3. Accounting Education Change Commission. “Improving the Early Employment Experience of Accountants”, *Issues Statement No. 4*, AECC, Torrance, California, (1993a).
4. Accounting Education Change Commission. “Evaluating and Rewarding Effective Teaching”, *Issues Statement No. 5*, AECC, Torrance, California, (1993).
5. Hogner, R.H., “Speaking in Poetry: Community Service-Based Business Education, *Journal of Business Ethics*, Vol. 15, Issue 1, p. 33-43.
6. Kenworthy, A.L., “Linking Business Education, Campus Culture, and Community: The Bentley Service-Learning Project”, *Journal of Business Ethics*, Vol. 15, Issue 1, p. 121-131.
7. Lenk, M.M., “Discipline Specific Knowledge in Service-Learning: A Strategic Alliance Between Universities, Professional Associations, and Non-Profit Organizations”, submission under review, *Michigan Journal of Community Service Learning*.
8. Zlotkowski, E., “Opportunity for All: Linking Service-Learning and Business