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AMCIS 1998 Proceedings

Americas Conference on Information Systems (AMCIS)

December 1998

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Abstract

After the American Assembly of Collegiate Schools of Business (AACSB) adopted new accreditation standards in April, 1991, some business schools revised curricula to integrate core areas and pursued cross-functional content delivery. (AACSB, 1991, 1993) The implementation of curriculum integration across functions is complex and requires concerted effort from faculty. One opportunity to provide a significant cross-functional experience for students materialized in an End User Computing (EUC) course in which the students developed a Decision Support System (DSS) for small businesses considering adoption of a Cafeteria Plan benefits package.

The Cafeteria Plan topic area links accounting/taxation, finance, human resource management, business communication and computer information systems. Students who major in a business area are typically introduced to these topics on a piece-meal basis in individual, stand-alone courses. This experiment showed that with careful preparation by several faculty, a single topic can be used to enhance student understanding of the overall topic and its many cross-functional components, with a "real world" flavor.

End-user Computing

Few courses lend themselves better to providing students with "real world" experiences than does EUC as structured at this university. In this 400-level course, various clients provide students with "live" projects, which will be implemented. The students, working in teams, are responsible for the completion of the project to the satisfaction of the client. In the process, students are, of necessity, integrating information previously presented in individual courses.

The primary focus in EUC, particularly from a student perspective, is developing a software application. In this course, students choose the appropriate development tool(s) (a programming language, a database, a spreadsheet, etc.), share project management functions (systems analysis and design, time-line development, human relations (HR) issues, etc.), divide responsibilities (programming, meeting with the client(s), writing documentation, etc.), and overall, coordinate the project. Ultimately, the students answer to both the client(s) and the classroom professor.

Proposals are evaluated for acceptance as an EUC project. One of the criteria for acceptance is that the proposal require the use of information presented in more than one "stand alone" course, like accounting, economics, marketing, etc. One such project that proved especially viable to cross-functional integration was the development of a DSS for small businesses considering adoption of a cafeteria plan benefits package.

Cafeteria Plan

To cope with the rapidly rising costs of employee benefits, the cafeteria plan under the Internal Revenue Code (IRC) Section 125 has become the fastest growing employee benefits plan. A flexible spending account (FSA) plan is a popular type of cafeteria plan that allows an employee to set aside a portion of his/her earnings with pre-tax dollars for reimbursement of certain expenses such as uninsured medical expenses, supplemental medical insurance premiums, and dependent care expenses.

By adopting a FSA plan, both employees and employers can save tax dollars on the amount set aside in the FSA. Employees' contributions are not subject to federal income tax, most state and local income taxes, and social security (FICA) taxes. Employers save on both FICA taxes (since employers are required to match employees' total FICA taxes) and state/federal unemployment insurance taxes on the amount employees set aside for FSA plan (Burzawa 1996, Erickson 1994, Masterson 1990, McFadden 1989).

Although benefits from plan adoption are obvious, FSA plans have not been quickly nor widely adopted. According to Thurmond (1996), only 18% of all businesses offer such a flexible plan. A comparison by size of organization shows that only 5% of employers with less than 50 employees have adopted a FSA plan, whereas over 75% of large-sized businesses offer a FSA

plan. One reason for the low adoption rate by small-sized businesses is their inaccessibility to means and/or methods of estimating the cost-benefit for employers and employees (Giovetti 1996; Rhim and Kim 1997). In response to this drawback, the EUC students developed a DSS.

The Decision Support System

The software application embodies two models by which an employer can estimate cost benefits and tax savings for an employer and employees from FSA plan adoption. The models provide management with reasonable estimates of opportunity costs to employer and employee associated with non-adoption of the plan. In addition, the software application provides an estimate of realized/foregone benefits to a regional economy and identifies several managerial implications.

Thus one of the first tasks for the students was understanding the overall project: What is a cafeteria plan? What is a FSA? What is the significance to a business? etc. Understanding the math models was another important task before the students could begin program design. A professor from the finance department and another from the accounting department explained the ramifications of the cafeteria plan on tax savings and human resource management as well as the intricacies of the math models.

Model I: An Employer's Benefits

$$B_{ER} = \tau_{FICA} x \sum_{j=1}^{N} |\Delta G_j| + [C_r + C_0] x \sum_{j=1}^{N} [\hat{H}_j + \hat{U}_j + \hat{O}_j] - \Delta C$$

where

- B_{ER} is an employer's benefits by implementing the cafeteria plan.
- τ_{FICA} is flat tax rate of FICA (i.e., currently 7.65% up to $62,700 of Gross Taxable Income).
- ΔG is reduction in gross taxable income due to the implementation of the cafeteria plan and spans each component in the cafeteria plan such as health insurance premium, retirement benefits, unemployment insurance, life insurance, disability insurance, dependant care and/or uninsured medical expenses.
- C_r is the marginal contribution rate of retirement compensation based on the employee's gross taxable income.
- C_o is the marginal contribution rate of another insurance premium based on the employee's gross taxable income.
- $\hat{H}$ is an employee's estimated amount to be redirected into a flexible spending account for dependent care expenses.
- $\hat{U}$ is an employee's estimated amount to be redirected into a flexible spending account for uninsured medical expenses.
- $\hat{O}$ is an employee's estimated amount to be redirected into a flexible spending account for other flexible benefits.
- j is a subscript for j^{th} individual employee.
- n is total number of employees.
- I is interest earned on the amount of pre-tax dollars set aside by the participating employees .
- ΔC is incremental costs incurred due to plan adoption (e.g., implementation, administrative, and others).

Model II: An Employee's Benefits

$$B_{EE,j} = [\tau_{FICA} + \tau_{p,j}] x |\Delta G_j| - E[|R_j|] x e^{-kn}$$

where

- B_{EE} is an employee's benefits by participating in the plan.
- $\tau_{p,j}$ is the marginal tax rate on personal income, including federal, state, and local taxes.
- E is an expectation operator.
- ΔR is reduction in future retirement benefits due to decreased contribution to pension plans and/or social security.
- e is natural number that is approximately equal to 2.718.
- e^{-kn} is a continuous discounting factor of future value at a discount rate k for n periods. This discounting process will give the present value of the expected decrease in future retirement benefits.

Once the students grasped the accounting/taxation, finance, math and HR aspects of the project, system development work was undertaken. That, as noted by multiple students, was the only part of the process they had expected to encounter in EUC. The necessity of incorporating subject matter from other courses was unanticipated.

As the application was completed, the usual program documentation and a user manual was developed. For that phase of the project, a professor of business communication was consulted. And at the conclusion of the project, a typical end-user was procured to test the DSS.

The DSS software application can economically assist any company in evaluating the feasibility of implementing a FSA plan. The application provides a GUI template for data capture and an ASCII text instructional manual and program documentation. The DSS allows an employer to input regulatory data (federal, state, and county tax rates), employee data (salary, number of tax deductions claimed, residence, etc.), and employer data (taxes, retirement contributions, administration costs, etc.), and to determine whether the benefits would exceed costs by adopting a FSA plan.

Both models, showing employer as well as employee benefits, are supported by the software application, thus providing a clear projection of where benefits would be realized. Not only does the DSS provide summary data for all employees, it also shows benefits by individual employee.

Conclusion

Cross-functional curriculum integration, as advocated by the AACSB, is often complex but always requires a concerted faculty effort. The benefits to the students, however, are multi-faceted. This project illustrated to students a managerial decision making process that encompasses the accounting/taxation, finance, and human resource management courses typically taught in stand-alone courses in a business school. Furthermore, the EUC students themselves noted the necessity of integrating, in addition, algebra, written and oral communications, presentation skills, and programming to produce an acceptable software package. Thus this cross-functional approach significantly enhanced student learning, provided them greater insight into the "real world" managerial decision making process, illustrated the necessity for CIS students to understand a wide variety of topics, and provided a bridge among disciplines.

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