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## Teaching Systems Analysis and Design to Non-IS Majors: A Management Simulation

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The title of this article may throw many readers. First, why teach systems analysis and design (SAD) to non-IS majors? Second, how can systems analysis and design teach management? These questions get to the heart of this article.

Why teach systems analysis and design to non-IS majors? Business students take business core courses to learn the important concepts specific to each discipline. I would argue that development methodologies (e.g., prototyping) teach critical skills in the structuring of unstructured projects, regardless of discipline (Dwight Smith-Daniels discussed the importance of and high demand for MBA project management skills in the May 1997 issue of *Decision Line*). Following that philosophy, this article describes the implementation of a systems analysis and design project within a business core management information systems class.

The second question implies that SAD is more of a technical task than a management task. There are technical aspects of SAD, without a doubt, but I would argue that these tasks are routine compared to the difficulties of managing a project to its completion. Moreover, the nature of the task—supervising another team and holding that team accountable for the quality of the finished product—is a critical skill that all prospective managers need to develop.

### Project Overview

The purpose of this assignment, therefore, is to simulate the difficulties of management within an IS environment, not to teach formal systems analysis and design. The

task involves website development using the prototyping methodology, although the assignment could easily be adapted as a database or programming project.

Each team plays management and developer roles in the SAD project. In its management role, the team supervises the construction of a resource website by a development team. The website topic is an important issue in information systems (e.g., the year 2000 problem or electronic commerce). The management teams are considered “the experts” on the chosen topic, but—in their roles as managers—know nothing about website development. The other role each team assumes is that of a website development team. Within this role, the team is an independent contractor hired by one of the management teams. My role within the SAD project is that of vice president. As vice president, I supervise the management team, while each management team supervises its developers. Using this structure, three levels of management are simulated.

The class’ team structure, therefore, is a circle, with Team 1 managing Team 2, Team 2 managing Team 3, and so on with the last team managing Team 1. Team 3, therefore, develops the website for Team 2, who develops the website for Team 1. To succeed in its role as a management team, each team must successfully hire and manage a development team who will complete a resource page on the management team’s chosen topic. To succeed in its role as a development team, each team must develop a website that satisfies the requirements of its boss, the management team.



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## The SAD Project

The SAD project begins with the selection of team officers. Each team has a team leader, who supervises all aspects of the team; a communications representative, who facilitates intra-team and interteam communication; and a technical leader, who oversees website construction.

I also begin my role as vice president. My role changes from instructor to facilitator, supervising the management teams. I no longer answer developer questions regarding expectations on the project: those questions must be directed to the appropriate management team. To add structure to the assignment, I introduce students to the prototyping methodology. I also collect deliverables for requirements definition, the prototype, management feedback on the prototype, and the final deliverable. The project is completed when management accepts the final deliverable from the developers.

## Class and Project Grading

The first step in determining the SAD project grades is the assessment of each team's performance. To increase the validity of performance assessment in the business world, companies are moving away from the supervisor-centered concept of evaluation to a multi-rater framework, commonly called "360 degree evaluation."

In that spirit, SAD teams are assessed from three different perspectives—management, employee, and customer. Each perspective counts one-third of the team's final SAD grade.

The management and employee perspectives result from evaluation forms that are completed at the end of the project. Each management team evaluates its developers, and each development team evaluates its managers. Within each of the two roles, teams receive feedback on team organization, attitude, reliability, and communication, as well as the quality of the project deliverables.



As the vice president, I determine the customer perspective by reviewing the final website for content completeness and visual impact. The customer grade is different than any other grade that students will receive. In the business world, a manager's performance is highly dependent on the performance of his or her employees. Similarly, the team's customer grade on this project results directly from the quality of the work performed by its development team: in other words, the team's customer grade is determined not by the quality of the work that the team completes, but by the quality of the work that is completed for the team. This mechanism increases the importance of management team supervision; management teams also realize it is in their own self-interest to motivate their development teams.

Once the composite team grade is determined, the final step is to assign grades to individual team members. Within a group, feedback can be an effective mechanism to encourage team performance and to motivate errant team members. The problem that all faculty members face in grading team projects, however, is grading each team member equitably. In recent semesters, therefore, I have adopted a grading schema which accomplishes the difficult task of perceived equity on the students' part and fairness on my part. (Phil Van Auken, a colleague in Baylor's management department, introduced me to this idea.)

Since only the team knows how its members performed, the obvious answer is to let the members allocate the individual grades. Each team multiplies its composite team grade by the number of team members. The team then discusses each individual's contribution, reaches a consensus, and divides the available points. This zero-sum scenario forces students to base grades solely on the merits of their work; that is, students cannot reward themselves without penalizing others. In addition, accountability is achieved because all discussions are conducted openly with all team members present.

## Conclusion

The most obvious result of the SAD project is that students better understand systems analysis and design, office politics, and the difficulties of managing people. Teams seem to be more cohesive, with fewer loafers—mainly because loafing team members receive feedback through lower grades. In reviewing the individual grades, many teams grade each team member differently on the first few assignments. By the end of the semester, however, almost all team members are receiving equal grades on the projects. There is, in effect, no way to loaf without being penalized by your teammates.

In presenting an overview of the SAD project, I have condensed many aspects of the assignment. A paper discussing the project in greater depth is currently in progress. In reviewing student feedback forms, I have found that students consider the project to be a rewarding—but stressful—experience. I consider the parallel between those comments and today's managerial careers to be the project's strongest gauge of success. ■

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