Case Studies in Project Management: Theory Versus Practice

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Many books, seminars, and courses related to project management are now available from a variety of sources. However, there is still a need for good strategies for using real projects in classroom settings to help students understand and apply various aspects of project management. There is also a need for good case studies for analyzing and evaluating various topics in project management. In this paper, we present three distinct ways to enhance learning in the field of project management—using real projects, analyzing past projects as case studies, and using fictitious case studies.

Using Real Projects

Most students and educators agree that the ideal way to learn project management is to apply concepts learned in a classroom to a real-world setting. Several college courses and professional seminars use real projects to help students apply what they are learning, share experiences, and reflect on lessons learned. The main advantages of using real projects are that students and instructors work together to initiate, plan, execute, control, and close real projects. Sponsors of the projects often receive excellent work for little or no fee, and students gain great experience that will help them in current or future work settings. The main disadvantage of using real projects is the up-front time needed to find and screen potential projects, the risks involved in having students take on responsibility for real work needed by real sponsors, and the reality of facing the inevitable changes that occur on real projects.

Kathy Schwalbe has been teaching project management to junior and senior management and MIS majors at Augsburg College since 1993. She has also been teaching a senior/graduate course in project management to engineering students at the University of Minnesota for the past two years. In several of her classes, Kathy's students work on group projects to produce real products for real clients. Kathy has found that providing detailed guidelines for group projects in the course syllabus helps them run more smoothly. She has also found that requiring certain project management documentation and verbal and written status reports helps keep projects track.

The purpose of the group project is to use a structured approach to project management in a team setting. Each team will accomplish the following:

1. Decide on a project for your team. Since most of you are engineers, sample projects could be to design and possibly build a prototype of something fairly simple. Or your project could involve writing a case study on a big project and analyzing how it went. Or for students interested in software, your project could involve creating some sort of system or doing an analysis/research report for a real sponsor.

2. Prepare project documentation and deliverables for your project, using feedback from me, the T.A., and any other stakeholders involved in the project. Project documents will include the following, as a minimum:

- A one- to two-page summary of the project, including the business need for the project
- A project charter
- A stakeholder analysis
- A responsibility assignment matrix
- A short communications management plan
- A financial analysis
- A short scope document or specs for the product or service produced as part of your project
- A Gantt chart for the project, created using Microsoft Project or other project management software
- Project progress reports
- Final project report, including all the above documents and a summary of how the project went and what the results were. Include at least one example of "What Went Right?" and "What Went Wrong?" for your project similar to those found in your text.

1. Create a project website: Develop a website for this group project that includes as much of the above information as possible. Assign a team web master, and post information as soon as possible to use the website as a communications tool. See sample websites from past student projects. The fall 2000 Unite team had a great website (www.scc.net/~igor/ie5541/). Focus on making the website easy to read and navigate. You can just link to application files versus converting everything to html.

2. Final project presentation. Prepare a formal presentation to present to the class.

3. Final project notebook: By May 1 hand in a hard copy (one per team) of your project documentation (described above) and deliverables of your project in a well-organized project notebook. Put your team member names on the cover of the notebook along with the date and project website url.

The final group presentation should be a team effort. Each student should give part of the presentation, which should last 20–30 minutes. Groups should discuss the products of their project as well as process. Group project managers will email a progress report to me (or point to it on your website) and provide a brief oral report to the class on February 20 and April 3.

Table 1

Criteria	Weight
1. Enhances new product development	20%
2. Streamlines operations	20%
3. Increases cross-selling	25%
4. Has good NPV	35%

I suggest you at least have a project charter, responsibility assignment matrix, and draft Gantt chart by February 20. Group project managers will earn a small amount of extra credit for successfully leading their project teams and providing good progress reports. Students will assess individual and group performance. Individual grades may vary from the group grade based on these assessments and the instructor's.

In order to reduce the amount of upfront time required in finding and screening real projects, Kathy has established relationships with several nonprofit organizations and companies in the Twin Cities area. She worked with some senior MIS students to create a web-based system University Neighborhood Network) where non-profit organizations can post potential projects against courses offered in a variety of disciplines at several Twin Cities' colleges and universities. Kathy has also had success in finding real projects by providing an assignment to her University of Minnesota class (with 40+ students) to encourage the students to propose projects themselves.

Review my website (www.augsburg.edu/ppages/~schwalbe), mainly the first bullet with links to project management information. Look at some of the past student projects and the information in this syllabus about your group projects. Then write a one-two page paper with the following information:

- Describe at least one potential project you would be interested in working on for this class. Be as specific as possible.
- Describe the main tasks/roles for your project and which one(s) you would like to do and why.

Be ready to "sell" your project idea to the class. Write a few sentences with your sales pitch to give in class

Student and sponsor response to real group projects has been very positive. Many projects provide services for needy nonprofit organizations. An excellent example is a website for Trinity Lutheran Church that three Augsburg Weekend College students prepared in the winter of 2001. See www.augsburg.edu/ppages/~rund/TeamPage.htm for the team's project website and a link to the church website they created. Students believe that doing a real project and applying what they are learning in class is a valuable learning experience.

Analyzing Past Projects

Another method for enhancing learning in project management is to have students analyze past projects performed by real organizations. Students like to compare theory versus practice, and they learn valuable skills by collecting real project documentation, interviewing real project managers and teams, and analyzing the project with their classmates. The main disadvantage of analyzing past projects are finding organizations willing to share project information, finding time for students and sponsors to meet and discuss the project, and the risk of not finding much relationship between theories taught in the classroom and how real organizations are actually managing projects. Students often prefer doing project work themselves, also, instead of reviewing what others have done.

Kathy Schwalbe and Vijay Verma have collected dozens of recent case studies students prepared based on real companies' experiences in managing projects. In their presentation, Kathy and Vijay will provide a summary and analysis comparing the theory versus the practice of project management based on this sample of data.

Using Fictitious Case Studies

Many educators use fictitious case studies to help promote student learning. Most business courses include homework assignments and class discussions based on case studies. The main advantage of using fictitious case studies is that students and faculty have all the information they need in the book or online site with the case study. The main disadvantage of using fictitious case studies is that students cannot interact with the characters in the case, and faculty must continue to find new cases to avoid boredom by doing the same case over and over again and to combat potential cheating if students share their case study assignments with future students.

Unfortunately, there are not many case studies targeted specifically toward concepts discussed in most project management classes. In the second edition of her book, *Information Technology Project Management*, Kathy Schwalbe includes minicases at the ends of most chapters. Kathy and Vijay are considering writing a book together to provide more case studies in project management.

A financial services company has a long list of potential projects to consider this year. Managers at this company must decide which projects to pursue and how to define the scope of the projects selected for approval. The company has decided to use a weighted decision matrix to help in project selection, using criteria that map to corporate objectives. All projects selected must develop a WBS using corporate guidelines.

Part 1: You are part of a team to analyze and recommend which projects to pursue. Your team has decided to create a weighted decision matrix using the following criteria and weights:

To determine the score for the last criterion, your team has developed the following scoring system:

- NPV is less than 0, the score is 0
- NPV is between 0 and $100,000, the score is 25
- NPV is between $100,000 and $200,000, the score is 50

- NPV is between $200,000 and $400,000, the score is 75
- NPV is above $400,000, the score is 100.

The following is information for three potential projects:

- Project 1: Scores for criteria 1, 2, and 3 are 10, 20, and 80, respectively. Estimated costs the first year are $500,000, and costs for years 2 and 3 are $100,000 each. Estimated benefits for years 1, 2, and 3 are $200,000, $400,000, and $600,000, respectively.
- Project 2: Scores for criteria 1, 2, and 3 are all 50. Estimated costs the first year are $700,000, and costs for the second year are $200,000. Estimated benefits for years 1 and 2 are $300,000 and $700,000, respectively.
- Project 3: Scores for criteria 1, 2, and 3 are 0, 50, and 80, respectively. Estimated costs the first year are $300,000, and costs for years 2, 3, and 4 are $100,000 each. Estimated benefits for years 1, 2, 3, and 4 are $0, $600,000, $500,000, and $400,000, respectively.

Develop a spreadsheet to calculate the NPVs and weighted scores for the three projects. Use a 10% discount rate for the NPV calculations.

Part 2: One project selected for initiation is development of an expert system that current customers can use to give them advice on other financial products and services that would meet their needs. Corporate guidelines for creating project WBSs are to use the five project management process groups as level 1 in the WBS. Each process group must have at least one major deliverable, such as a signed project charter for initiating, an approved project plan for planning, monthly status reports for controlling, and a final report, presentation, and lessons learned for closing. The deliverables for execution vary by project.

Use the corporate guidelines to develop a WBS in tabular form. Leave the categories of initiating, planning, controlling, and closing at level 1. For the executing section, include level 2 categories of analysis, design, prototyping, testing, implementation, and support. Assume the support category includes level 3 categories of training, documentation, user support, and enhancements. Number and indent categories appropriately. For example, your WBS should start with 1.0 Initiating. In addition to creating your WBS, describe three potential milestones you could include under the executing tasks for this project.

Many instructors appreciate having well-defined case studies to assign to students for homework. In class, a student can go over the assignment to reinforce his or her understanding of the topic and to practice speaking skills.

References

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