

An Introductory Course on E-Commerce and Web Development: A Case Study Approach

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Abstract

This paper describes an introductory course in E-Commerce and Web development using an original case study designed specifically for the course. Students learn general terms and concepts about E-Commerce, and techniques of Web page design and construction. This knowledge is then applied to the case study with students working in teams. The instructor's experiences teaching the course are presented and conclusions are drawn.

Keywords: E-Commerce education, case study approach, team project

1. INTRODUCTION

Teaching an introductory course in E-Commerce or E-Business presents the instructor with a variety of interesting challenges and opportunities due to the rapidly changing field and the many perspectives through which the subject can be viewed, including business strategy, marketing, payment systems, fulfillment, security, the role of government, Web page design, and backend programming, database and other technical issues. Covering such a laundry list of topics in a single course usually proves to be a rather unsatisfying experience for both instructor and students alike. There is simply too much material to cover and the depth of coverage is necessarily shallow.

Having found myself in this situation too many times, I searched for another approach. I was looking for a way to involve students, to give them a feeling for what it takes to establish a Web presence for a business enterprise, and to have students leaving the course with a tangible skill set. I also wanted to place the various terms, facts, techniques and concepts into a context that would provide a frame of reference for organizing this new body of knowledge.

2. A CASE STUDY APPROACH

After some thought, I decided upon a case study approach. The remainder of this paper is devoted to a description of the course and my experience in

creating and teaching it with a case study as its centerpiece.

Most business case study courses involve reading and analyzing a number of "third party" descriptions of company or organizational situations with the objective of drawing out of the case certain concepts or insights that will help students understand the subject at hand. This is often a useful and effective approach, but it was not the one I selected. Instead, I chose to build my own case study and put the students right in the middle of it as participating role players.

My Audience

My target audience was graduate M.S. in Information Systems programs or MBA students with an Information Systems concentration at Pace University in the New York City Metro area. These are working people attending evening classes, and their backgrounds and knowledge of business and information technology varied widely. There were a small number of full time international students as well. The course itself was entitled "IS660R: Internet Development for Electronic Commerce" and was designated as a "Special Topic" course. Thirty-one students enrolled in the course.

Developing the Case Study

Because of the differences in background and knowledge of the students, I concluded that a team approach would be very effective. If properly selected, this would allow students with complementary skills

and knowledge to form an effective team. The case study Web development project was intended to provide each student team an opportunity to apply Web page development techniques covered in class to a realistic case study, while being mindful of the broader issues regarding electronic commerce that would be discussed during the course.

I eventually concluded that having the student teams play the role of a small Web-development consulting firm would meet these objectives well. Moreover, it would introduce an element of competition between the teams, which would help develop cohesion within each team. I realized that most students were only vaguely aware of what a Request for Proposal (RFP) was, and many had never heard of the term. My plan was to form the teams, "issue" an RFP for a Web development project, and have the consulting firms (teams) develop a formal written response to the RFP. After "winning" the job, each firm would implement its design and present its solution to the class at the end of the semester. Members of the class would rate each presentation.

The next step was to develop the RFP document and the surrounding scenario that would provide the context for the case. After several false starts, I arrived at the idea of basing the case and RFP on the Esther Price Chocolate Company in Dayton, Ohio. I was familiar with the firm, since part of family lives in the Dayton area. Esther Price Chocolates is a local legend in southwest Ohio, but is largely unknown elsewhere. I contacted the firm, interviewed the marketing manager, visited the main retail outlet in Dayton, collected product catalogs and price lists, and did some research on the history of chocolate and the major chocolate-based confectionaries.

From this set of base information, I created the fictitious "Mrs. Mills Chocolates" and placed it in Evansville, Indiana. Here is a brief overview of the case scenario, followed by an explanation on how the case would be run. The full RFP document appears in Appendix A.

Brief Case Background

Mrs. Mills Chocolates is a local favorite in southern Indiana that specializes in high quality chocolate candy and related products such as candy covered almonds and dinner mints. Mrs. Mills, a family owned firm, has been in operation since its founder, Ethel Mills, started the business in 1922. Her two grandsons, Dennis and George, now run the business and would like to expand the business outside of its current southern Indiana area without compromising quality. They believe that having a presence on the Web could be an important part of their expansion plans.

Procedures To Be Followed

- Students will form themselves into 3 or 4 person teams who will take on the role of a small Web-development consulting firm. Each team will organize itself, and create for itself a company identity and history, including a name.
- Teams will be presented with a Request for Proposal (RFP) from Mrs. Mills Chocolates, and will submit a response following guidelines described in the RFP.
- After reviewing the RFP, the teams will attend a bidders information session conducted by Mrs. Mills management. (I played the role of the of the firm's executives.) Teams are invited to ask questions and clarify information provided in the RFP.
- Each team (consulting firm) will develop a Web site for Mrs. Mills Chocolates employing the feedback from Mrs. Mills management and the team's best judgment on how to most effectively represent the company's product line on the Web.
- Teams are expected to work independently, but may confer with one another as they see fit.
- At the last class meeting, each team will present its Web solution to the class explaining its features and the reasoning used in designing their Web solution as they did.
- Students will vote on the Web page that they think is best. The winning team gets a box of Mrs. Mills chocolates.

3. THE OTHER HALF OF THE COURSE

Running parallel with the Mrs. Mills chocolates Case Study was a more traditional lecture and discussion portion of the course. This consisted of the presentation of basic terms and concepts dealing with E-Commerce, and a discussion of related issues. The first several weeks of the course also covered Web page development using HTML, Javascript, CGI, and Web page design principles. Three textbooks by Turban et al, Casey, and Sachs and Stairs were assigned (Turban, 2000; Casey, 2000; Sachs, 1997).

On two occasions, guest speakers from industry were invited to give presentations on topics related to the course. The lectures, discussions and guest presenters occupied the first half of each weekly class session, while the second half of the class was devoted to the case study. The technical material on Web page development was intended to give the students the needed skills to permit the teams to implement their

Web page designs. Some students already had these skills, while other students had little technical knowledge of Web page development. Likewise, some of the technically oriented students had little background in business procedures or thinking.

4. PUTTING THE CASE INTO ACTION

After the Mrs. Mills Chocolates Case Study had been presented to the students, I asked the students to form teams of three or four members. I let students do this pretty much on their own, but watched to make sure that each team had a reason mix of skills. A team full of "hot shot techies" might do dazzling work, but might miss key business and marketing issues. Likewise, a team of keen business strategists would be at a disadvantage when it came to actually creating a professional looking Web page. Finally, those possessing artistic skills, especially graphics, were in short supply and much sought after.

To help students better understand the dynamics of teamwork, I described Tuchman's "Forming, Storming, Norming, and Performing" model of teamwork stages (Tuchman, 1965). This model asserts that all teams go through a sequence of necessary stages as follows:

1. **Forming:** In this stage individuals agree to come together to conduct some type of joint work for an agreed upon purpose;
2. **Storming:** During this stage the group strives to develop a common understanding of the goals and objectives of the team, how the team will conduct its work, how decisions will be made, how disagreements will be resolved, what roles team members will assume, and so forth;
3. **Norming:** The team arrives at a common agreement on the rules it will follow to conduct its intended work;
4. **Performing:** The team performs its work.

Students were told that sometimes a team that is at the "performing" stage might encounter an unanticipated point of disagreement or conflict that will throw the team back into the "storming" stage. The team then must "renorm" itself before it can continue its work. I found that by reviewing this model with the class that the teams were better able to anticipate possible problems and would use their time more effectively. As it turned out, one team simply could not get itself out of the "storming" stage, and was soon split into two smaller teams. The thirty-one students eventually formed eight teams.

Finally, I looked at the question of what should an optimal group size be for a small team project. Although I could find no definitive answer, most

researchers had reported that from three to five members normally works well in terms of both group member satisfaction and group productivity (Marsden, 1999).

It was quickly apparent to me that students enjoyed the teamwork better than the lecture-discussion part of the course. As the class approached the end of the semester, I found myself tending to cut short the lecture-discussion part of the meeting so the teams could continue their work. In addition to class time, much of the intra-team communication was done outside of class via email, phone conversations, and occasional face-to-face meetings.

Each team was allocated space on the University's Web server and was given instructions on how to use the WS_FTP95 FTP software to upload Web documents and other files to the server.

Evaluating the Team RFP Responses

After the student teams studied the RFP and the bidders information session was held, each team submitted a formal written response to the RFP. The teams were expected to be attentive to the evaluation criteria outlined in the RFP, but were also encouraged to be creative and to not be afraid to take a risk if they felt strongly about an idea. In general, it was the job of each team to demonstrate how its Web-based solution would contribute to Mrs. Mills Chocolates business growth plan.

Feedback on the RFP responses was provided at the next class meeting in the form of a single page summary evaluation sheet. A copy of a typical evaluation sheet is provided in Appendix B.

In general, the team RFP responses were well thought out and written. Many good and interesting approaches were offered and the enthusiasm for the project ran high. In some cases, the work plan schedule extended well beyond the end of the semester, while other teams tried to shoehorn everything into the remaining few weeks of the course.

In one area, however, the RFP responses were deficient. The teams almost uniformly mishandled the budget. The budget is a very important document. It not only indicates the overall project cost to the client, but it also shows the amount of resources the consulting firm intends to devote to the various tasks that are described in its work plan. Most of the team budgets, however, were weak in the second respect. In some cases, no funds were allocated to activities that were described in the work plan. Most budgets were not broken down in sufficient detail for the client to know what the consulting firm intended to do. And the estimates of the total project cost varied wildly from team to team. The estimates ranged from \$1,200 to \$225,000 to provide Mrs. Mills Chocolates its Web

solution. Of course, some proposals were more ambitious than others, but such a dramatic range of estimated project costs indicates a fundamental misunderstanding of the budgeting process for most of the teams. Probably at the heart of this problem was the lack of experience in conducting a Web development project for a real client.

Each team was then asked to adjust its RFP response according to the feedback. The teams were then told to assume that they were the “winner” of the contract, and should go forward with its implementation plan. I was available to offer advice or help resolve issues, but found that for the most part teams handled things on their own.

The Big Night Arrives

The last class meeting was devoted to the eight team presentations. Each team had 15-20 minutes to present its solution. Most teams did a combination of a PowerPoint presentation and a demonstration of the features of their Web solution. The presenters were asked to imagine that they were debuting their solution to Mrs. Mills Chocolates management. Members of the class who were not on the presenting team were asked to rate each presentation and Web solution on a number of criteria. They were also encouraged to ask questions of the presenters, but most students just listened. A copy of the rating form is given in Appendix C. At the end of the class, I finally told the class about Esther Price Chocolates as the model for the case. After a quick tabulation of the rating sheets, the team with the highest average student rating was presented with a two-pound box of Esther Price Chocolates. The winning team graciously decided to open the box and pass it around the class.

6. REFERENCES

Carey, Patrick. *Creating Web Pages with HTML*. Course Technology: Cambridge, MA, 2000.

Marsden, J.R. & Mathiyalakan, S. “A Comparative Study of Individuals and Groups Over Time in an Electronic Meeting Systems Environment.” *IEEE Transactions: Systems, Man, and Cybernetics*, 29(2), Part C, 1999, pp. 169-185.

Sachs, David & Stair, Henry. *The 7 Keys to Effective Web Sites*. Prentice Hall: Upper Saddle River, NJ, 1997.

Tuchman, B.W. "Developmental Sequence in Small Groups," *Psychological Bulletin*, vol. 63, 1965, pp. 384-399.

The evening did bring out one point rather clearly; the importance of the presentation should not be overlooked. It was obvious that several teams had not spent much time on planning how they would “pitch” their solution to a bunch of chocolate makers.

One example stands out in particular. The team had a good solution to offer and undoubtedly had the most polished and professional looking Web page. But their presentation was full of technical jargon and pointless fancy graphics that did not relate to the clients needs very well. The result was that the team with probably the best solution was rated in the middle of the pack. On the other hand, another group has a solid but unpretentious solution that nonetheless served the needs of the client. The team also made it clear that it was committed to maintaining a continuing relationship with its client to ensure a smooth integration of the Web presence into the overall company expansion plan. This team had the top rated solution.

5. CONCLUSIONS

In the student course evaluation survey the responses almost universally cited the Mrs. Mills Chocolates Case Study as the high point of the course. The students appreciated the opportunity to work on a realistic Web development project in a team format. For many the process of bidding for a contract in response to an RFP was an entirely new experience. This was reflected in the inadequate attention paid to the budget and the presentation of the finished product to the client. Fortunately, the classroom is a place where mistakes can be made that have no long-term consequences.

Turban, E. et al. *Electronic Commerce: A Managerial Perspective*. Prentice Hall: Upper Saddle River, NJ, 2000.

Appendix A

REQUEST FOR PROPOSAL

MRS. MILLS CHOCOLATES WEB DEVELOPMENT PROJECT

DESCRIPTION

Mrs. Mills Chocolates, Inc. wishes to entertain proposals to this RFP for the purpose of assisting Mrs. Mills Chocolates in establishing a presence on the World Wide Web so as to improve the company's name recognition and marketing sphere beyond its traditional southern Indiana and northern Kentucky areas where it currently has an excellent reputation for quality products. The company is proud of its accomplishments over its seventy-five years, and is confident that it can compete favorably at a national level.

The company, with annual sales of just over five million dollars in 2001, believes that the World Wide Web offers the potential to allow it to compete beyond its traditional geographical area without having to establish a physical presence throughout the country. Besides improving revenue generation through market expansion, the company also is interested in the potential of the World Wide Web for cost reduction. Currently, it spends a considerable amount annually on catalog development and mailings in support of its mail order business. The company is seeking advice on the feasibility of electronic commerce as at least a partial substitute for its costly traditional mail order procedures.

COMPANY BACKGROUND

The following section provides the reader with an overview of Mrs. Mills Chocolates, including its history, product line, and current company management structure.

Brief History

It all started when Ethel Mills discovered how to make fudge in her home economics class in high school. From the beginning, Ethel was enthusiastic about making candy and loved to experiment with new ideas. Years later, while working for a large department store, she made candy every night to take to her co-workers as snacks. After her marriage to Jonathan Reynolds, a pharmacist, and the start of her family, these same co-workers encouraged her to continue making chocolates and bring them to the store's candy department so they could buy them. This helped Ethel's young family make ends meet and before long, word about Ethel's delicious chocolates had spread. It was only a matter of time before she was supplying department stores and downtown businesses. Soon after this, she gave up her position at the department store and devoted herself full time to her candy business.

Mrs. Mills Chocolates Today

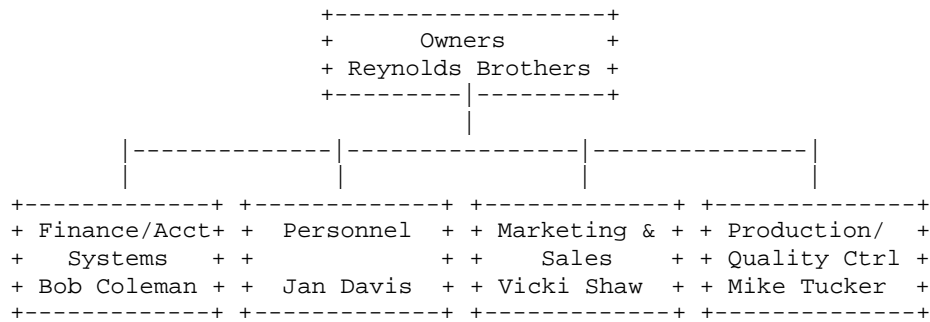
Over the years, Mrs. Mills Chocolates has become a local legend in southern Indiana and northern Kentucky that specializes in high quality chocolate candy and related products such as candy covered almonds, dinner mints, as well as specialty items. Mrs. Mills Chocolates, a family owned firm, is celebrating its seventy-fifth anniversary since its founder, Ethel Mills, began operations in 1922. It was incorporated in 1949. Her two grandsons, Dennis and George Reynolds, now own the controlling share of the business, and would like to expand the business outside of its current southern Indiana and northern Kentucky area without compromising quality.

Currently, the company operates three retail outlets: the main store at the factory site in Evansville, Indiana on Walnut Street, a mall location on the outskirts of the city, and a location across the Ohio River in Henderson, Kentucky. The company owns the Main Store property and leases space at the other two locations. Sales at the company operated retail outlets account for only 15 percent of total annual sales. Most sales, about 55 percent, come from area supermarkets and department stores, such as Kroger's and A&P that carry the more popular items of inventory.

Another important part of the business is the company's corporate gift service. The company provides their corporate customers with large quantities of boxed chocolates at a considerable discount for customers to distribute as gifts to their employees and important customers, especially around key holidays. This accounts for about 12 percent of annual sales.

Finally, mail order sales account for about 18 percent of the business. The company maintains a customer list of about 60,000 people who receive catalogs each fall in anticipation of the holiday season. Catalog preparation, printing, and mailing services are all subcontracted to local providers.

The company has 100 employees, 65 of which are seasonal. The management style is largely informal, and most of the full time employees have been with the company for better than ten years. The organizational chart is shown below.



The production season runs for seven months from October through April. Inventory is stockpiled in refrigerators for the summer and early fall; there is no production during the warm summer period.

The company prides itself in its traditions. The distinctive Gold Box and Red Ribbon has been a signature of high quality for two generations. There are no preservatives or additives in any of the products. All chocolate products use 40 percent butterfat cream, and only cane sugar is used even though beet sugar is cheaper. There is a sugar free line of products as well. See Appendix A for a list of products and prices.

RFP EVALUATION CRITERIA

This section describes the criteria to be used in evaluating RFP responses. It should be emphasized that Mrs. Mills Chocolates is looking to form an ongoing partnership with the successful bidder. Thus, a record of reliability and service is important. Good organization and clarity of expression will weigh heavily in the evaluation of proposals.

The proposal should contain the following sections with each section being weighted as shown. The points total to 100.

- Company Profile (10 points)

Describe your company, including the number of years in business, brief profile of the key personnel, and record of previous Web development activities.

- Statement of Rationale (25 points)

This section asks you to explain how you see the Web page project helping Mrs. Mills move toward its goal of extending its market beyond its traditional geographic area. Describe any features of the Web site that will help us provide better service to our customers. What new opportunities will a presence on the Web potentially offer? What new issues and challenges must the company address in this new electronic commerce environment?

- Project Plan and Estimated Time Table (30 points)

Describe the set of tasks that you expect to undertake to successfully launch the Web site, and provide an estimated timetable of project milestones. Outline your company's plan for the Web site.

- Budget (25 points)

Provide budgetary items and estimated amounts for the project. Include your monthly charges for maintaining the Web site once it is launched.

- Statement of Client Responsibilities (5 points)

Describe what resources you expect from Mrs. Mills Chocolates that will facilitate the completion of project. This includes access to key company personnel, office space on Mrs. Mills Chocolates premises, clerical support, and so forth.

- Non-Compliance Clause (5 points)

Describe the service level standards that your company intends to live up to, and specify the penalties for non-compliance to these standards that you are willing to accept.

RFP RESPONSE FORMAT AND DEADLINES

Bidder responses to the RFP must address the five sections described above, and should not exceed ten pages in length. Bidders should provide a cover letter that gives full contact information and specifies a project liaison from the bidding company.

Bidder proposals are due not later than March 21, 2002 at 6:00pm. There will be an open bidders information session on the evening of February 29, 2002. Questions from potential bidders will be addressed at this time.

Notification of RFP response evaluations will be made on the evening of March 28, 2002.

Bidders are advised that the successful bidder will be expected to sign a non-disclosure agreement before work can commence.

*** End of RFP ***

Appendix B

A TYPICAL REQUEST FOR PROPOSAL EVALUATION FOR MRS. MILLS WEB DEVELOPMENT PROJECT

Company Name: **Advanced Visions Internet Solutions**

Team Members: D. Grieco, M. Cross, J. Griffo, R. DiRusso

1. Company Profile (10 points).....: 7

Comments: The company profile is not specifically addressed other than the reference to the company's "success stories" on the last page and the nicely worded cover letter.

2. Statement of Rationale (25 points).....: 24

Comments: The proposal does a good job of selling the concept of doing business via the Web first before addressing the specific advantages that it holds for Mrs. Mills. The business versus technical approach to the RFP response is the way to go.

3. Project Plan and Estimated Time Table (30 points).....: 27

Comments: The implementation schedule is very aggressive. It was not expected that the "real" job be completed on the last day of class. Otherwise, the plan seems to be well thought out. Mrs. Mills will appreciate the customer orientation.

4. Budget (25 points).....: 18

Comments: Considering all that you are promising to do, I don't see how Advanced Visions will stay in business. Please rethink your development budget. The monthly maintenance fee is more realistic.

5. Statement of Client Responsibilities (5 points).....: 5

Comments: Well done.

6. Non-Compliance Clause (5 points).....: 5

Comments: Very clear. Promotes confidence.

Total Score (out of maximum of 100).....: 86

Appendix C

STUDENT RATING OF CASE STUDY PRESENTATIONS

Directions

Please do the following:

1. Rate each presentation on the categories shown below on a 0 to 10 point scale;
2. Do not rate your own team's presentation;
3. Imagine yourself in the place of the Mrs. Mills management as you do your evaluation;
4. Turn in your sheet at the end of the period of the last class.

Ratings

<u>Web Team Company Name</u>	<u>Visual Appeal</u>	<u>Valuable & Useful</u>	<u>Easy to Use</u>	<u>Meets Clients Needs</u>	<u>Overall Effect</u>
A+ Designs	_____	_____	_____	_____	_____
Advanced Visions Internet Solutions	_____	_____	_____	_____	_____
Chameleon Enterprises	_____	_____	_____	_____	_____
Computer Aided Technologies, Inc.	_____	_____	_____	_____	_____
eSolutions, Inc.	_____	_____	_____	_____	_____
SpaceNet	_____	_____	_____	_____	_____
Sweet-Site, Inc.	_____	_____	_____	_____	_____
WebTise, Inc.	_____	_____	_____	_____	_____