

December 1999

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Recommended Citation

Power, Daniel and Roth, Roberta, "Issues in Designing and Using Web-based Teaching Cases," (1999). *AMCIS 1999 Proceedings*. 327.
<http://aisel.aisnet.org/amcis1999/327>

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Issues in Designing and Using Web-based Teaching Cases

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Abstract

This paper examines the possibilities and problems associated with designing and using web-based teaching cases in business courses. Six types of web-based cases are discussed, including (1) a traditional linear case with no hyperlinks; (2) a traditional linear case with hyperlinks; (3) a non-linear case; (4) an unstructured “live” case; (5) a “timeline” case; and (6) a case with contingent branching. Web cases can be more dynamic and “richer” in detail than static printed cases. However, designing and developing such cases can involve new challenges and problems, including mastering technical skills; considering the effect of the hyperdocument on reader comprehension; and maintaining a dynamic case study.

I. Introduction

Public excitement about the Internet and World-Wide Web (WWW) and the possibilities provided by web technologies has encouraged some business professors to create web-based teaching cases. Early examples of web-based cases include two cases by Blake Ives and Sirka Jarvenpaa (1994). Both their Digital Equipment Corporation case and their World Wide Web/Electronic Commerce case demonstrated how the web could enhance a traditional teaching case.

A search of the Web for case studies indicates that web-based teaching cases are being used in a number of courses. The eSocrates website (<http://www.esocrates.com/>) has case studies on-line and a number of faculty are using that resource. The I-Case™ Series of Interactive Business Case Studies (www.i-case.com) provides both text cases and multimedia cases. Also, some individual business faculty are maintaining personal web sites and have case studies at their sites (e.g., Anderson, 1997). It seems appropriate to examine what has been happening in designing and developing web-based cases so we can begin to systematically understand the design and use of web-based teaching cases. We need to organize our understanding of what works and what does not work so we learn to effectively use the web for case teaching. This paper may help people who have not created web-based cases get started; and it provides an opportunity for us to share our experiences and conclusions gained by developing and using web-based cases.

In this paper, we examine various types of web-based teaching cases and the problems and challenges associated with web-based cases.

II. Types of Web-based Teaching Cases

A business teaching case tries to systematically organize facts about a specific business situation. The intent of the case content is to provide information that students can use to identify and formulate problems and conduct analyses relevant to the issues of the case. A web-based teaching case has all of the above purposes plus the case is delivered to students via a world wide web server. Usually, a web-based teaching case is a hyperdocument. It exploits the capabilities associated with hypertext markup language (HTML), including anchor tags for links and internal indexes, image tags for displaying graphics, and javascript and java applet tags, to enrich the presentation of case facts and materials for students.

We have identified six types of web-based cases that are currently available on web sites. First, some web sites have traditional linear teaching cases with no hyperlinks. Since these cases make no use of links to related material, graphics, or other features, we hesitate to even call this type of case a web-based case. Some publishers will be tempted to use the web to distribute cases in this manner, however, and then call them web-based cases. Placing traditional cases on the web may actually make it more difficult for students to read and work with the case. The web serves only to deliver the case to the student. Since there is no use of hypertext features, placing the case on the web limits its usability, and the student will be tempted to print out the case.

A second type of web case extends the traditional linear case by adding hyperlinks. The main body of the case is one long document. Tables, figures, and exhibits may be embedded in the main document or they may be linked to the main document with a hyperlink. Hyperlinks may take the reader to other web sites, glossaries, technical or background information, newspaper references, etc. This type of case makes only limited use of web technology. It appears that this type of case is quite common. The Black Diamond, Ltd. case featured on the [Business Case Journal](http://www.businesscasejournal.com) website is an example of this case type.

A third, more complex web-based case can be termed a “non-linear case.” A non-linear web-based case consists of multiple web pages and it has extensive links on pages that include multimedia, especially graphical images; also video and sound. A non-linear case may have multiple “navigation maps” or outlines. Students may follow the arrows on web pages or choose to create their own route through the case materials. For an example, see Kambil and van Heck (1997).

A fourth type is an unstructured, “live” web case. Authors may want to compile and organize intentionally unstructured cases that provide students with a short overview document, a set of issue questions, and a web page with hyperlinks to web-based materials. For example, “live” cases can be developed using 10K reports, web-based magazine articles, and links to a company’s web site. Students can also be encouraged to use web search engines to gather additional information about the “case situation” for an extended analysis. For an interesting illustration of this case type, see Garud’s Browsers War case.

Also, the web makes it possible to create a fifth case type, a “timeline case study.” This type uses a dated sequence of news and magazine articles. The case study can include hyperlinks to the actual news articles and related materials, including company web sites. Students can follow the story chronologically or skip around to satisfy their curiosity. The “richness” and complexity of the situation are fundamental components of the case study.

Finally, a sixth type of case with choices for readers and contingent branching can be developed for use on the web. Ernst and Young’s Strategy Decision Game illustrates this type of case. Until recently complex cases of this nature were distributed on CD-ROM with video clips, pictures and graphics.

What are the benefits and contributions of web-based teaching cases? Web-based cases have all the traditional benefits of cases, including providing realistic situations and important issues to students to help develop problem solving skills. The web-based cases provide a number of added benefits including “fresh” timely materials, a richer set of materials, and the opportunity to use web tools to search for and gather information. Web-cases can include multimedia, sound, pictures, and even video. Authors can easily make data sets available for student analysis using spreadsheets or other tools. In addition, students must use web technology that is becoming common in business to read the case. Students experience for themselves the data storage and distribution techniques that many large companies are using in the so-called paperless

environment. In some situations, it should be easier to get feedback on the case and authors can fine-tune their teaching materials by including an on-line discussion forum with the case.

III. Problems and Challenges in Designing and Using Web-based Teaching Cases

Although there are many advantages to placing cases on the web, challenges must be addressed. Problems have been reduced with authoring tools such as FrontPage that help create materials and keep links current, but design issues must be resolved. It is easy to distribute case materials to students and “instructor case notes” to faculty wanting to use a web-based case. With web cases, content updates can be provided in “real-time.” Also, if a case study discussion forum is established, then faculty from different Universities can team teach a web case.

There are also numerous challenges associated with web cases. A major challenge in using web-based cases is the access issue: students must have access to the Internet to use web-based cases. On many campuses in the United States and in some parts of the world this is not a problem, but for many students in the U.S. access from home is still slow and unreliable. The problem of access is also an issue in many universities in Eastern Europe, Asia, and Africa.

Another significant issue is the need to design the case hyperdocuments carefully. Case authors must design their case materials to enhance reader comprehension. Hyperdocument readability is increased by improving coherence and reducing the “cognitive overhead” required to use it (Thüring, Hannemann, and Haake, 1995). Case authors should strive to reduce fragmentation in their hypertext and provide cues to assist the reader in keeping track of the overall document structure. Readers also benefit from navigation and orientation cues to reduce the cognitive effort of maintaining several trains of thought (“what I’ve read” plus “where I am and how I got here”).

To improve reader comprehension, care should be taken in specifying hyperlinks. This is a reader navigation issue: let the reader know there is a link and where it goes. Some web-based cases do not follow a consistent format for giving user instructions. For example, authors need to let the reader know what actions are possible. Consistency in identifying links is important. Authors should follow a style guide for hyperdocuments.

The use of frames can help reduce the effort of keeping track of one’s position in a case. With nonlinear web-based cases, frames have some distinct advantages. Readers will not get lost quite as easily. Non-linear cases can present information in a new way, but some readers

get lost in the complexity; or readers may not go to the trouble of reading all of the web pages and of following all of the links. Also, once a student arrives at a company web site or an information site "What do you do next?" is often the question. Figures and tables may be overlooked or ignored in web-based cases. Frames definitely help maintain the reader's orientation within unstructured cases.

Another issue is how to store cases on the web. Should the case be stored as a GIF image, as a text document, as an HTML web page, or as a PDF file? There are pros and cons to each approach. In some situations, a good compromise is to provide two versions of a case: an HTML web page and a PDF file of the "main document" for printing. Students persist in preferring paper versions of the cases. Many students want the portability of paper, and some simply do not like to read materials on a computer screen. Of course, paper versions lose the links and the advantages of a real web-based case.

Another consideration is the use of a password zone. In general, we recommend using a password zone to control access to most web-based case studies. The password zone protects the author's intellectual property and reduces the "flood" of materials on the web. The primary problem we have encountered with a password zone is the administrative requirement of adding authorized users.

IV. Conclusions

What's involved in designing and developing web-based teaching cases? In general, begin with a situation of interest and then collect information and web links. Next, identify teaching and learning objectives for the case. We developed a web case on ERTL Company, Inc. using this type of development process. Once a basic case is developed, the authors can "enrich" the case with additional web pages, more links, instructor resources, and even reader comments. We think it is very helpful to explicitly state faculty teaching objectives and student learning objectives for a web-based case. Knowing the objectives can help both students and faculty understand the role and purpose of the web-based case study in a teaching context.

Web-based cases are being developed and they are becoming more sophisticated. These types of cases will be a part of the case authoring and dissemination environment. Good web-based cases will probably be harder to develop and maintain than printed case studies. The richness of material that can be provided through hyperlinks to the various web-based media is appealing, but also adds to the complexity and effort associated with reading the case. Proper design principles need to be

developed and validated through further research. We want to encourage you to visit websites with examples of web-based teaching cases.

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