A Hypermedia Strategic Management Case—Design, Use, and Student Reaction

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ABSTRACT. A strategic management case written by the author in hypermedia format is illustrated. The case combines text, graphic images, and an embedded expert system to describe a major U.S. resort center. It also employs multiple decision roles for students. Over half the students who analyzed the case preferred a mix of paper and hypermedia formats for cases, with about an even split between those who preferred one format over the other. Among four case features, students ranked highest the ability to play multiple decision roles and rapid access to case information. Of seven functional features, students used the ability to print text the most and the ability to export text the least. Future revisions of the case are discussed.

The *Chronicle of Higher Education* reported in 1994 that only about 4% of respondents to a survey used multimedia and CD-ROM materials in the classroom (Liebowitz & Letsky, 1996). Armstrong (1996) reported that after significant expenditures to equip classrooms with educational technology, only 2–3% of the faculty used the facilities. Despite these dismal figures, software is now available that will increase the use of computerized instruction materials inside and outside classrooms. Slide shows written from popular presentation programs are replacing overhead transparencies for lecture support. Of potentially greater import, classroom and individual interactive materials are being written for students. Most notable in management education is the commitment of Harvard Business School to produce 100 multimedia strategic management case studies during each of the next 5 years.

This commitment will no doubt spur other academicians to write such materials and ensure that multimedia case studies containing text, photo-quality images, sounds, animations, and video clips will be commonplace by the year 2000. The variety of possible formats that such cases can take opens exciting possibilities for case authors and students. My purpose in this article is to describe the subject matter and design of a strategic management case written in hypermedia format and to report initial student reactions to it.

Effective Hypermedia Design

Hypertext is a text document read on-screen that contains highlighted words or phrases that act as links to other target locations in the document that contain related information. The user identifies these marked items by a combination of color, underlining, or colored boundary marker. Hypermedia, invented by Douglas Englebart in 1962 (Tapscott, 1996, pp. 95, 111), is hypertext enriched with some combination of graphics, sound, or video. Hypermedia is particularly adaptable to case studies for two reasons: Cases are text-intensive and can benefit readers by offering rapid access to specific information; and cases can benefit from sound clips, video clips, pictures, or the addition of data presented in some graphic form.

Hypermedia also is a familiar format to many students who peruse the World Wide Web and read encyclopedias or other text and graphic information on CD-ROM. Almost all students are familiar with hypertext from reading DOS and Windows help files. They know its special strength—rapid access to information located anywhere in a document. Hypertext and hypermedia materials also help prepare students for corporate careers because many firms are converting volumes of company regulations and other data to CD-ROM format to save storage space and provide faster access to the information. Hypertext is one of the best ways to search these huge databases rapidly. As van Tyle (1990, p. 70) put it, "Hypertext's nonlinear interconnectivity more closely approximates human thinking than conventional computing." Our minds do not always think linearly, which is the way hard copy documents are written.

Hypermedia also makes sense from a distribution standpoint. Like other software, hypermedia teaching materials can be distributed in archived form. The case used in this study required three megabytes of disk space to run, yet its files were easily compressed and distributed on a single 3.5-inch, high-density diskette. The program is running on about 130 machines available to students in the College of Business computer labs. Students do not need their own hardware or the software to get the

offered help in navigating and using the document as soon as they open it.

4. Economy. Authors should avoid adding all sorts of multimedia to the document just because it is possible to do so. The best guide is to add something only if its value exceeds its cost. Authors should also make it easy to update the document.

Some critics of hypertext and hypermedia believe that they let readers delve too far into a system of links, causing

Payne did find, however, that the browser improved undergraduate hypertext readers' efficiency in moving through documents, reducing the number of repeated links and increasing the total proportion of links read. These appear to be considerable benefits.

Description of the Case

The case, titled "Branson: Music Show Capital, U.S.A.," concerns one of the most interesting recent events in the burgeoning U.S. entertainment industry: the phenomenal, unplanned growth of Branson, Missouri, as an entertainment mecca. The 4,000 residents of this town welcomed about 5.8 million visitors in 1994 and again in 1995. It is the top tour bus destination in the United States, with over 50,000 theater seats—more than on Broadway.

The case is unique in two ways: It concerns an entire resort area instead of a single organization; and it offers five decision roles for students instead of the single one found in other strategic management cases. These roles are:

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full benefit of the case unless they wish to run it on their personal computer. This means that cases as physical products can be reduced from heavy, expensive books to a small diskette to nothing at all.

More efficient media do not guarantee better learning experiences. Like any other learning materials, those written as hypermedia must be well designed and well written. Brooks (1993) described four goals of effective hypermedia design:

1. Simplicity. Authors should keep design elements to a minimum. For example, they should limit themselves to one or two fonts and as few navigational controls and boxes and borders as possible. Authors also should keep a consistent background throughout a document and should not overuse special effects.

2. Appropriateness of tone for the publication's purpose.

3. Function. Authors must consider how the hypermedia publication will be used. This involves giving readers multiple means to control navigation, if necessary. These can include scrolling, word search, menus, and links to most likely destinations. Readers should be

them to become disoriented or to begin working with irrelevant information (Maquire, 1988). Bernstein (1991) found no convincing evidence that interlinked information necessarily disorients readers any more than a difficult lecture or essay would disorient a listener or reader. Hypermedia authoring involves a trade-off between regimentation and richness.

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The case that is the subject of this article is displayed to readers by means of a graphical reader, or browser, that looks much like a Windows word-processing document on the screen. Investigators have sought to measure the benefits that a graphical browser gives hypertext readers. Reynolds and Dansereau (1990), Tripp and Roby (1990), and Wenger and Payne (1994) found that a graphical browser did not improve information recall, comprehension, or retention of the hypertext structure for hypertext readers. Wenger and

• The Ozark Marketing Council, which markets the entire Branson resort area nationally
• An existing performer
• A new performer wanting to come to Branson
• A new attraction for Branson
• Full House Resorts, a gaming firm wanting to bring some form of gambling to Branson

Students choose one of these five decision roles. If they select one of the middle three roles in the list, they also pick a specific performer or attraction. The case provides information concerning 22 current performers, 8 possible new performers, and numerous current attractions in Branson, so each student in a class can focus on a different strategic subject in the case. Class discussion of the case multiplies what students can learn from it by bringing together the issues faced by students who chose other decision roles.

Key technical and informational features of the case include

• Full mouse compatibility. Once inside the program, a student can have a

work session without ever touching the keyboard.

- The ability to jump from one part of the case to any other. This is a key feature of hypertext and hypermedia.
- Graphical interface. The program exploits the ability of the authoring software to use colorful screens that evoke the mood of Branson. This gives students a software like those they use in Windows applications, CD-ROM multimedia products, and the Internet's World Wide Web. I attempted to offer plenty of data and information packaged in an eye-appealing format.
- Information Center. A submenu gives access to a theater browser, attraction browser, information about possible new Branson performers, and information about Full House Resorts. This information includes show and attraction reviews, ticket prices, theater seating capacities, a discussion of Lee Iacocca's connection with Full House Resorts and Branson, the complete Compact Disclosure file on Full House Resorts, and a discussion of the contentious American Indian/gambling issue in the Branson area. The Information Center also includes data about the U.S. entertainment industry from the *Statistical Abstract of the U.S.*
- Decision Guide. This helps students assigned to bring a new attraction to Branson decide which type of attraction to offer, without making the decision for them. It informs them of existing competition for each type of attraction they select. This procedure takes advantage of an author's ability to place an embedded expert system inside a hypertext or hypermedia document. By clicking on answers to a series of questions, students are led through a decision tree to select a category of attraction, under which they see a list of specific types of attractions. They can click on each type in this list to read the number and general location of existing close competitors in the area.
- A menu can be invoked at the top of the screen to make all the program's functions easily accessible.
- An icon toolbar at the top of the screen invokes most of the browser's functions without using the menus.
- A Zoom icon lets students size text from 70% to 150% of normal size. At

all sizes, text fits the screen perfectly. One good use for smaller-than-normal text is to see a large table of data on one screen.

- Full-text search is available throughout the current subtopic or the entire document.
- Students can print the topic they are in, although the browser does not print tables well.
- Students can export text from the case to a plain-text file.
- Students can click a Notes icon and type annotated notes up to 32 KB in size. They can save these notes for later reading on screen or export them as plain text files that can be imported into their word processors. This lets students write parts of their analysis as they read the case.
- The bookmark function lets students mark important points to return to later. When exiting the program students are asked if they want to leave a bookmark where they stopped reading.

Administering the Case

Three sections of an undergraduate strategic management course, with a total enrollment of 72 students, were assigned the task of analyzing the case. Before this assignment, the students spent 1 month studying chapters from a strategic management theory textbook supplemented with lecture/discussion, wrote a discussion exam on this material, and wrote analyses of three other case studies from a strategic management casebook. Students chose one of the five decision roles to analyze in a written, conventional strategic case format, consisting of a SWOT analysis, alternative strategies from which they chose one to implement, justification for the chosen strategy, and key implementation steps for the strategy. Immediately following the class discussion of the case, I administered a one-page survey on the case format and the students' use of the HyperReader browser.

Survey Results

Students were first asked if they preferred strategic management cases in conventional paper format, hypermedia

format, or a mix of the two. Fifty-three percent preferred a mix of formats, with about an even split between those who preferred paper (24%) and those who preferred hypermedia (22%).

Next, students were asked to rank four features of the case:

1. Rapid access to information
2. Use of color graphic images and colored text
3. The ability to write and export notes
4. The use of multiple decision roles

In Figure 1, I show the percentage of first-place rankings. Students rated the ability to use multiple decision roles slightly higher than the ability to access specific information rapidly (42% versus 40%, respectively). Fast information access also received many number-two rankings. The use of color for graphics and some colored text, and the ability to write notes were ranked third and fourth, respectively.

Finally, students were asked if they used the seven features of the HyperReader browser listed in Table 1. Seventy-three percent used the text-printing feature, by far the most-used feature. The least-used feature was exportation of case text to a text file (16%). Though 38% of the students wrote notes, apparently only about half of those exported the notes to a text file that could have been imported into their word processors.

Students were asked if they had any technical problems with the software. Only two or three individual, minor
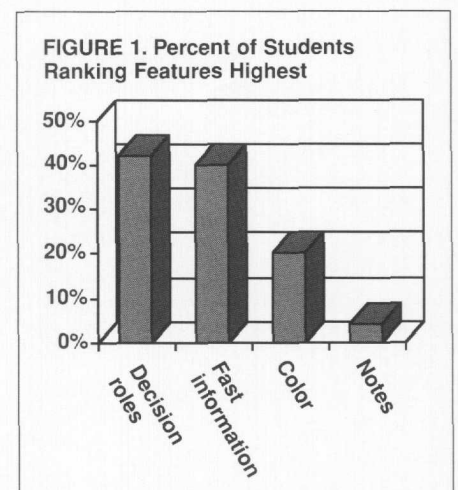

FIGURE 1. Percent of Students Ranking Features Highest

TABLE 1. Students Using Case Features, in Percentages

Case feature	Users (%)
Printed text	73
Text search	48
Bookmarks	42
Notes	38
Zoom text	32
Export notes	20
Export text	16

problems were reported, all of which appeared to involve lack of understanding of an aspect of the software's features or running it on an unusual type of computer. Overall, the case ran smoothly on students' individual machines and on the network.

Discussion

Students ranked highest the ability to use multiple decision roles in the case analysis. That enables different students to approach the case from varying strategic perspectives. Class discussion can then integrate the perspectives into a more comprehensive understanding of the case. The hypermedia format is merely a facilitating mechanism for multiple-decision scenarios. The subject matter of this case lends itself to more than one point of concentration. I decided that what this approach sacrificed in depth of analysis (i.e., of a single organization) was more than offset by giving students a broader view encompassing an entire major resort area. The precision with which the hypermedia format permits students to access relevant information greatly facilitates this broader perspective.

Students gave high ranking to rapid access to information, which is one of hypertext's and hypermedia's key strengths. Consistent with Bernstein's (1991) recommendation, the case structure employed several navigational tools to help students access any part of the case material from any point. They included a central table of contents, menus at various points in the document, links from the end of sections to logical next locations, and a right mouse

click to return one link. Also, Next/Previous icons and a Table Of Contents icon on the screen's toolbar helped students move quickly to the next topic or to the opening screen's main menu.

Brooks (1993) recommended giving the reader help as soon as the document opens. The first item on the case's opening screen is a tutorial showing students how to navigate the document. In addition, the screen's toolbar contains a Help icon that accesses HyperReader's hypertext help file, which explains how to use all the browser's features.

The case follows other hypermedia design recommendations made by Brooks (1993). It has a single font throughout except in the two sections described later in this paragraph. Font sizing, bolding, and coloring were used to highlight titles and topic headings. Link words and phrases are displayed consistently both in menus and within text. Links to other text blocks are bounded by green markers, and links to graphic images are bounded by blue markers. The case uses graphic images judiciously. Most images are found in the Information Center section of the case, which includes the Theater Browser and Attraction Browser. Each of these two browser sections has a unique background screen, colored text of a different font than the rest of the case text, and clip art images. Graphics also were used for two map screens that help students visualize the area and other important case concepts.

Students' high ranking for rapid access to case information indicates that they did not experience the disorientation feared by Maquire (1988). These results instead support Wenger and Payne's (1994) finding that using a graphical browser improved the efficiency with which a reader can move through a hypertext document.

The high proportion of students who printed parts of the case text (73%) suggests that many students still feel the need for hard copy. Parts of the case did present several screens of scrolling text. Brooks (1993) cautioned against this. Too long a stream of text without reader interaction may cause the feeling that the document is controlling the reader rather than the other way around. Students reading long blocks of material on

screen may also feel that they will forget or miss key points. There is a certain security in having hard copy of long passages of text.

Hypertext and hypermedia authors may be able to limit this compulsion to print in several ways: keeping the blocks of text shorter, adding relevant and informative links from within a long stream of text, and adding some decisions that keep readers in control of the document.

Future Revisions

With 22% of the students in this sample reporting that they prefer hypermedia strategic management cases and 53% reporting that they would like a mix of paper and hypermedia cases, further development of hypermedia and other new forms of cases should be encouraged. I am in the process of updating the data and completely rewriting the Branson case in a multimedia format that will resemble a screen presentation. The amount of scrolling text will be minimized, with essential content retained. The new version will include photo-quality images of Branson theaters and performers, as well as 30-second sound clips of music from some of the shows, to give students a "virtual tour" of Branson. The same five decision roles will be retained in the new version. Students choosing to develop a strategy for Full House Resorts will be given current financial data for the firm in hard copy. A research design yet to be determined will test student reaction to the conventional paper, hypermedia, and multimedia case formats.

The Branson case is among the very first strategic management cases to be delivered in a digital format. Harvard Business School's commitment to produce 500 multimedia cases between 1996 and 2001 will encourage other authors to write such cases and ensure that digital case formats will be commonplace in 5 or fewer years. As these cases multiply, it is important for case authors and users to experiment with different formats and report which ones are the most effective learning tools to help case authors develop the best cases for students.

NOTE

Readers interested in examining the Branson case discussed in this article may download a free copy from the Internet at www.smsu.edu/contrib/mgt/boyd.htm by clicking the "hypermedia case" link. Readers may also request a copy of the hypermedia case on a single diskette by writing to the author at Southwest Missouri State University, Dept. of Management, 901 South National Avenue, Springfield MI 65804.

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