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**WEBSITE ANALYSIS USING TAYLOR'S VALUE-ADDED
MODEL FOR THE EVALUATION OF INFORMATION
SYSTEMS
(Assignment 2)**

by

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EXECUTIVE SUMMARY

This paper presents an analysis of the Website of Wizards of the Coast according to Taylor's value-added model for the evaluation of information systems. Throughout the analysis, the contemporary Website is compared and contrasted with earlier editions dating back to 1996 obtained from the Internet Archive. It is shown that Wizards' Website has been considerably improved over the years and has generally scored quite highly against Taylor's criteria. Although Taylor wrote his criteria back in 1986 before the birth of the Web, his writings have been proven to be as valuable as ever in assessing the worth of information systems in the world today.

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WEBSITE ANALYSIS USING TAYLOR'S VALUE-ADDED MODEL FOR THE EVALUATION OF INFORMATION SYSTEMS

1. Introduction

The Website chosen for analysis in this paper is that of the company Wizards of the Coast ("Wizards"), located at <http://www.wizards.com/>. Wizards, based near Seattle, USA, with its multi-national offices containing over 1,200 employees, is the world's leading creator of trading card games (such as *Magic*) and paper-based roleplaying games (such as *Dungeons & Dragons* and the *Star Wars* roleplaying game) (Virgin & Parvaz, 1999). Recent figures are not available, but, in 1999, Hasbro purchased the company for \$US325 million when its sales for that year were forecast at \$US400 million (Virgin & Parvaz, 1999). Since that time, the company's Website and range of products has expanded dramatically, so it is reasonable to assume that the company's value and sales are much higher in 2002.

According to contemporary results obtained from both the Google (<http://www.google.com/>) and AltaVista (<http://www.altavista.com/>) search engines, Wizards of the Coast's Website enjoys considerable popularity. Google claims that 5,490 links lead to <http://www.wizards.com/>, while AltaVista claims that figure is closer to 20,862. Searching only for "Wizards of the Coast" yields even more impressive results. According to Google, 184,000 Web pages mention the company, although AltaVista claims a lower figure in this regard of 42,371.

However one interprets these figures, it is clear that Wizards is a large company with a well-known and popular Internet Website which is thus well worth being the focus of this analysis. Furthermore, Wizards is a company that has expanded in recent years at a considerable rate and this is reflected in the many changes observed in its Website. Assisting in this analysis are the author's considerable personal experiences of learning about and purchasing various products released by the company.

The development of a Website assessed against Taylor's criteria can only be properly accomplished if one has access to earlier copies of that same site. Not having saved such copies personally while looking through the Web pages of Wizards of the Coast over the years, it was necessary to turn to the Internet Archive at <http://www.archive.org/> to see if they had saved useable copies that were suitable for this analysis. Fortunately, they had done so, and the following archives for Wizards were selected (although not all are used for each section of the analysis): 19 December 1996, 6 June 1997, 1 December 1998, and 1 March 2000. There are no selections for the years 1999 and 2001 as they are too similar to those that come immediately before or after them. Each selection shows some significant changes compared to what preceded it. These are all compared to the same Website as it existed on 16 April 2002 at <http://www.wizards.com/>. Wherever references to a year are given in relation to Wizards' Website, they should be taken to mean from the exact date given for that year within this paragraph.

Taylor's value-added model information system evaluation criteria were written in 1986, prior to the creation of the World Wide Web, but they have stood the test of time and are sufficiently general to be applied to newer technologies. The basic structure of this model as presented in Taylor (1986) is as follows:

- User – This person uses the information system for the specific purpose of finding out something they need to know (for any reason). The criteria users use to judge the usefulness of information systems are:
 - ease of use,
 - noise reduction,
 - quality,
 - adaptability,
 - time-savings, and
 - cost-savings (pp. 49-50).
- Interface – These are values the system adds to the information for the purposes of user assistance (pp. 49-50). They may include measures such as formatting for ease of use and increasing the response time of the system to

aid in saving time (p. 50). Interfaces sit between the user and the information system.

- System – “Specific processes that add specific values” comprise the system (p. 50). These value-added processes include features such as alphabetising and highlighting to assist in ease of use, and editing and updating to enhance the quality of the information provided by the system (p. 50).

In both the interface and the system, it is important to note that these values ensure that information that goes into the system is not the same as the information that goes out of the system (p.51). It is always changed in some way. With all these factors in mind, each of six user criteria as defined by their twenty-three interface (values added) subcategories of the structure of Taylor’s value-added model will be used to analyse the changes in Wizards’ Website over a five and a half year time period, showing how a system can add value to information.

2. Detailed Analysis of Wizards of the Coast’s Website

2.1 Ease of Use

2.1.1 Browsing = “*the capability of a system to allow a client to scan an information neighbourhood with the probability that the client will serendipitously find information of value*” (Taylor, 1986, p. 70).

Wizards has always tried to fit as many links as possible on any given page to other pages on its own site. The techniques used to accomplish this changed as the site grew larger over the years and as Web technologies improved. In 1996, this meant hyperlinked icons, limited use of frames in 1997, a left hand side navigation bar in 1998, and both left and top navigation bars by 2000. Technologies for the top bars by 2000 included drop-down menus and submenus. With the gradual expansion of the

site, the number of links to other pages in the site that were deemed important to include on every page increased. All years have had a site map option, but this option is typically not immediately obvious.

2.1.2 Formatting = *“the physical presentation and arrangement of data/information in ways that allow more efficient scanning and hence extraction of items of interest from the store”* (Taylor, 1986, p. 70).

Up until 2000, Wizards did not specify the variable width font used on their pages, compelling most Web browsers to display all the text in the very standard Times New Roman font, often at 12 point size or larger. This does not allow for interesting looking, very professional pages. Matters changed in 2000 with the use of the Arial font which looks more professional, readable, and interesting, and which was further enhanced with various font sizes, many below 12 point so as to fit as much information on one screen as possible. The various enhancements to browsing, especially improved and more extensive menu options, also helped in this regard. From 2000, graphics as links to other pages were not used as extensively, thus freeing space for more menu options which took up less room than graphics and were often much easier to scan.

2.1.3 Interfacing I (Mediation) = *“the means used to assist users in getting answers from the system”* (Taylor, 1986, p. 70).

Although Wizards has always had a search engine facility for its Website, it was very basic with no real options up until 2000. Even then, options were few, and were only slightly enhanced by 2002 (eg: search exact phrase, any words, all words). It is really just a pale imitation of the highly structured search facilities available at most general Web search engine sites. Search results have always been presented with a link to and summary of each page that was found and ranked according to relevance. 2000 was also significant in that Wizards created different search engines for different parts of its site, from a general search facility, to a search facility for its online store, message

boards, and even one for retailer locations. In a more primitive sense, Wizards has used the idea of directing people who read a particular product page to other product pages that they might also like to read since 2000, but this sort of internal advertising had considerably expanded by 2002 to the point where no visitor could claim to be uninformed about all possible similar products offered by the company.

2.1.4 Interfacing II (Orientation) = *“the means used to help users understand and to gain experience with the system and its complexities”* (Taylor, 1986, p. 70).

Wizards has never had a general help file or help section for any version of its Website. Instead, it has provided partial alternative assistance by various means. Most obvious in all versions surveyed was a page or more listing the e-mail contact details of various people and sections within the company to whom visitors can write for assistance. As the company expanded, this list grew progressively longer. In 1998, Wizards opened the Online Store section of its Website as well as various message boards. Both these sections contained a help page for the benefit of new users. Additionally, in 2000, Wizards included some general pages to explain the nature of its two main product lines: trading cards and roleplaying games, for the benefit of those new to these forms of entertainment. Strangely, such introductions are absent in 2002.

2.1.5 Ordering = *“the value added by initially dividing or organising a body of subject matter by some form of gross ordering, such as alphabetisation, or large groupings”* (Taylor, 1986, p. 70).

Ordering has long been a strong point of the Wizards Website. Their trading card and roleplaying game rulebooks are rigidly structured, so it comes as no surprise that their Web pages reflect a similar orderly structure. Order is sometimes expressed in alphabetical terms, but it may also be seen in the way in which they often list their products from most to least popular or from introductory to advanced material. As their site expanded over the years, their archives of past pages and news stories

increased considerably, so archive pages are listed in descending order by date, most recent first. In 2002, the elaborate drop-down menus show a new form of ordering. By this stage, Wizards products cover many categories and subcategories. Thus, their menus in the top navigation section are similarly divided.

2.1.6 Physical Accessibility = *“the process of making access to information stores easier in a physical sense”* (Taylor, 1986, p. 70).

Naturally, Wizards’ Website has always been available on the Internet only, and simply cannot be presented in any other medium in anything like its current form. Like most Websites, it does allow for the provision of information that would be much harder to access in physical form. For example, from 2000, it allowed visitors to download complete examples of past products that had been converted to electronic format as well as excerpts from current products. From 1998, it provided pointers for visitors to allow them to find real-world retail stores that carry Wizards products. As at the same year, it also permitted visitors to buy the company’s products online to avoid having to visit an actual retail store.

2.2 Noise Reduction

2.2.1 Access I (Item identification) = *“the value achieved by the identification of any information chunk or discrete piece of data by systematic physical description and location information”* (Taylor, 1986, p. 69).

To observe this degree of indexing on any Web page produced by Wizards, one needs to turn to Product Catalog and Online Store pages that describe particular products rather than product lines. Such pages can only be seen from 1998. As time progresses, the textual information provided for each product remains the same: title,

a mini-abstract, item code number, release date, format (eg: hardcover), page count, ISBN number, and price in both US and Canadian dollars. Visitors can search on most of this information (such as name and release date) on specialised search pages within the Wizards Website. Nothing resembling indexing of this complexity can be found anywhere else in any version of the Web pages for this company.

2.2.2 Access II (Subject description) = *“the provision of subject description through access points such as index terms, descriptors, and names”* (Taylor, 1986, p. 70).

Searching for anything in any version of Wizards’ Website is considerably aided if one knows a fair amount about the range of products offered by the company. Many lines of products are devoted to any one of many imaginary medieval and science fiction fantasy worlds created by or under license to the company. Knowing the names of the worlds you are interested in helps a lot with navigation and searching. Also helpful, but to a lesser degree, is knowledge of the names of particular fantasy characters that feature in Wizards products and some idea of the overall types of products Wizards produces from rulebooks to adventures to trading cards. Naturally, as the site expanded, and particularly since 1998 with the introduction of the Catalog and Online Store, such prior knowledge is even more beneficial. Those without the ideal prior knowledge could always consult the various help facilities mentioned elsewhere.

2.2.3 Access III (Subject summary) = *“the result of processes which reduce or compress large amounts of information into compact items, such as executive summaries, abstracts, terse conclusions, chemical structure diagrams, mathematical formulae, graphs, or charts”* (Taylor, 1986, p. 70).

The abstracts provided for each item in the 1998 and later Product Catalog and Online Store entries have already been mentioned, but it should also be noted that even non-indexed items often have some summaries connected to them. From 1998, but especially from 2000, many links provided in the main body (non-navigation sections)

of many pages have included detailed descriptions. In 2002, most links include such additional information that makes it even easier for visitors to decide if clicking to another page is worth their time or not. From 2000, the pages that introduce certain product lines have included some charts that explain what products to buy if you are unfamiliar with that product line and what to buy if you require more advanced information.

2.2.4 Linkage = *“the value added by providing pointers and links to items, sources, and systems external to the system in use, thus expanding the client’s information options”* (Taylor, 1986, p. 70).

In 1996, Wizards provided a form on their Website that visitors could use to submit the locations of their Wizards product fan pages. If approved by the company and if such sites conformed to the legal guidelines, they would be listed on a separate page on the company’s own Website. 1997 saw an expansion of this scheme whereby those holding gatherings of fans for Wizards products could post the relevant Web address that contained information about their particular gathering. By 1998, however, such linking programs stopped altogether and were not reintroduced. As of that year, Wizards apparently introduced a policy of no links to external sites except in very rare circumstances. Perhaps they feel that such links present some sort of threat to their business interests. It is partial compensation, however, that, in 1998, Wizards Web pages expanded considerably and started to include message boards on which fan based links and announcements might be posted for interested visitors to see.

2.2.5 Precision = *“the capability of a system to aid users in finding exactly what they want by providing signals on attributes such as language, data aggregation, sophistication level, or by ranking output”* (Taylor, 1986, p. 70).

The search results from general searches of the Wizards Website have always been ranked according to relevance (as determined by the search engine’s unknown

reasoning). From 1998, the specialised search engine for the company's Online Store has been able to rank output according to name, release date, or even sales rank. More recently, the store's search engine has been able to rank these forms of output in either forward or reverse order, plus being able to accept the user's input as to how many search results per page should be displayed. Other than these features, there are no more examples of precision on any version of Wizards' site.

2.2.6 Selectivity = *“the value added when choices are made at the input point of the system, choices based on the appropriateness and merit of information chunks to the client population served”* (Taylor, 1986, p. 70).

Apart from the 1998 and later public message boards (which are moderated by Wizards staff), no non-Wizards employee is permitted to add information to the corporate Website. All information provided is thus strictly controlled and selected by the managers within the company who oversee the site. Prior to 2002, little material that was more than a few months old or otherwise largely obsolete was allowed to remain on the Website. There were massive changes by 2002, however, as most pages written for the site are now archived by date and year. Such pages are usually introductions of various sorts to new products released by the company that have the clear aim of boosting sales for each product so discussed. Wizards' site is very large these days, so keeping plenty of archived pages, and even so-called “classic” message board discussion threads, make it even larger and thus harder to fully comprehend, even with its enhanced search facilities.

2.3 Quality

2.3.1 Accuracy = *“the value added by system processes that assures error-free transfer of data and information as it flows through the system and is eventually displayed to a client”* (Taylor, 1986, p. 70).

In all the versions of the Wizards Website surveyed for this paper, the author could not find even one incidence of a misspelling. Wizards is, after all, a company that primarily produces detailed rulebooks for complex roleplaying games. Clearly, the very high degree of English proficiency demanded by its customers and shown in its products is reflected on its corporate Web pages. Additionally, as Wizards writes about the products they produce themselves and has a high degree of quality control, it is highly unlikely that any errors will be made in terms of describing or indexing the products. All Web pages were served promptly and completely.

2.3.2 Comprehensiveness = *“value added by the completeness of coverage of a particular subject or of a particular form of information”* (Taylor, 1986, p. 70).

Wizards is a commercial enterprise that depends upon the sales of its products to survive and expand. Thus, it is not practical to expect comprehensiveness of information such as if all their retail products were placed online for free access to everyone. What they have done since 2000, however, is perhaps the next best thing. They have significantly increased the number of articles they write about their products, provided some samples of their current products for free download, and have even provided hundreds of their out of print products for paid downloading. All current product lines get some mention and some samples in their sites since 2000. Archived articles from the past two or three years add to this overall impression of maximum comprehensiveness without damaging sales figures.

2.3.3 Currency = *“the value added (a) by the recency of the data acquired by the system; and (b) by the capability of the system to reflect current modes of thinking in its structure, organization, and access vocabularies”* (Taylor, 1986, p. 70).

All versions of the Wizards Website contain a “What’s New” section that lists, summarises, and dates new additions or modifications to the company’s Website. By 2000, new additions had become so frequent so as to merit an additional mini-column

on the site's home page. This mini-column was expanded in 2002 to include many more entries to reflect the rapidly updated and expanding nature of the site. Additionally, by 2000, all articles written about products included creation or posted dates. Current modes of thinking are reflected in all versions through the headings and links used to navigate and understand the content of the site. Such indicators changed over the years depending upon the rise or fall in popularity of various product lines.

2.3.4 Reliability = *“the value added by the trust a system inspires in its clients by its consistency of quality performance over time”* (Taylor, 1986, p. 70).

From personal experience over the years, the author can say that he has found the Wizards Website to be highly reliable. Compared to many other commercial Websites, it is fast and relatively easy to navigate. Downtime is practically non-existent. In terms of how this quality may be measured by the archived and current versions of the Wizards site, one might point out the ever-growing size and scope of the Wizards message boards, especially as seen in 2000 and 2002. With so many visitors, it can reasonably be assumed that this is considered to be a trusted and reliable site by thousands of interested Web visitors.

2.3.5 Validity = *“the value added when the system provides signals about the degree to which data or information presented to users can be judged as sound”* (Taylor, 1986, p. 70).

Since 2000, Wizards has occasionally released background profiles on its staff writers. These usually list each person's educational qualifications along with previous work experience. In almost all cases, such people have degrees in the English language and/or extensive previous writing experience, especially in the fantasy and science fiction fields. From this information, it can reasonably be assumed that such writers can be trusted to produce appropriate quality written work for the company and its customers. Other indicators are surely in the fact that the site,

since 1998, has had increasingly well-visited message boards which display postings by many satisfied customers for all to view and reply to.

2.4 Adaptability

2.4.1 Closeness to Problem = “*the value added by the activities of the system, usually through human intervention, to meet the needs of a person in a particular environment with a particular problem; this implies knowledge of that person’s style, bias, idiosyncrasies, and sophistication, as well as the policies and constraints of the context*” (Taylor, 1986, p. 70).

If some visitors to the Wizards site encounter any difficulties locating what they need, they have always had the option of emailing a relevant human being in the company. Such helpful employees have traditionally been listed on a separate page, but by 2002, the potential email addresses one may write to had grown so dramatically that email addresses were categorised on multiple pages. Examples of relevant email addresses are those for the Webmaster (for technical problems with Web pages), the company’s legal department (to see if you can use some of Wizards’ intellectual property), the customer service department (for general enquiries), and the rules answering department (if a customer has a question related to any one of the detailed roleplaying or other rulebooks released by the company). These people are presumably supported by a considerable body of knowledge about their customer base and can make accurate and timely responses to customer queries as a result.

2.4.2 Flexibility = “*the capability of a system to provide a variety of ways and approaches of working dynamically with the data/information in a file*” (Taylor, 1986, p. 70).

Wizards' Website has not always shown much flexibility, and, even now, flexibility is quite limited (if one does not count the humans visitors can write to as explained in the previous subsection). Traditionally, before 1998, flexibility was limited to the relevance ranking of simple keyword searches. Since 1998, a fair amount of flexibility has also been shown in the way in which the Website places cookies on the visitor's machine to remember their details and preferences for their next visit. Such information may include one's name and address for online product shopping purposes and how one likes to have the shop's search output presented. Additionally it should be noted for all years that the visitor can click on links to get to the desired destination, or simply type in what they want in the site-wide general search engine and see if that will provide a list of suitable links to follow.

2.4.3 Simplicity = *“the value achieved by presenting the most clear and lucid (explanation, data, hypothesis, or method) among several within quality and validity limits”* (Taylor, 1986, p. 70).

Users of Wizards products know to expect lots of written information from that company. Wizards' Websites have always been text intensive rather than graphics intensive for this reason. The company's products are not for those who are unwilling to read large amounts of rules and explanations. All surveyed versions of the Wizards corporate site show that literary simplicity is not a virtue sought of the Web page designers and writers. However, despite these factors, most of their writers have university degrees in humanities areas and display their written expression skills by writing very clearly, a benefit also of use in explaining difficult to understand rules and their applications in game play.

2.4.5 Stimulatory = *“those activities of an information system that may not be directly supportive of its primary mission, but which assume importance in establishing a presence in the community or organization served and which encourage use of the system and/or its staff expertise”* (Taylor, 1986, p. 70).

Since 1998, Wizards has actively encouraged message boards (and chat rooms to a much lesser extent) on their site as a means of fostering an online community of those with similar interests (namely in Wizards products). With frequent posting to the message boards encouraged and many topics to choose from (especially in 2002), Wizards is sure of attracting many repeat visitors to its Website – visitors who will most likely relate their positive experiences of the company’s products to others and who will look around other areas of the site. Presumably, this will mean more visitors will feel more motivated to buy more of the company’s products.

2.5 Time-Saving

2.5.1 Response Speed = *“the perceived value of an information system based on the speed of its response time”* (Taylor, 1986, p. 70).

On the basis of the author’s personal experience, all email enquiries made to the company using any of the addresses mentioned on its Website are responded to relatively quickly. They are certainly not ignored nor unduly delayed. Given that graphics on Wizards Web pages have always been relatively minimal, it is not surprising that most load quickly and efficiently. Although the search facilities for years prior to 2002 were not always useable in the archived versions of Wizards’ Websites, those contemporary versions tested by the author were fairly swift in operation. Finally on this topic, it needs to be remarked that shopping at the company’s online store (as at 1998) can save plenty of time from having to visit an actual retailer. If you want to find an actual retailer anyway, facilities available from 1998 help you to locate one in your area.

2.6 Cost-Saving

2.6.1 Cost-Saving = “*the value achieved by conscious system design and operating decisions that save dollars for the client*” (Taylor, 1986, p. 70).

With reference to the most recent examples of the Wizards site, namely 2000 and 2002, the consumer of the company’s products has been able to save costs by the increasingly informative content on the site and through increases in free samples compared to previous years. Thus, if a customer is only partly interested in a product, they might think the free offering to be sufficient, thus saving the cost of buying the full product. Also, if the sample or article about a particular product is not to the customer’s liking, they then know not to buy the full product, thus saving money yet again.

3. Conclusion

This paper has seen the analysis of the Website of Wizards of the Coast according to Taylor’s value-added model for the evaluation of information systems. Throughout the analysis, the contemporary Website is compared and contrasted with earlier editions dating back to 1996 obtained from the Internet Archive. It has been shown that Wizards’ Website has been considerably improved over the years and has generally scored quite highly against Taylor’s criteria. Although Taylor wrote his criteria back in 1986 before the birth of the Web, his writings have been proven to be as valuable as ever in assessing the worth of information systems in the world today.

REFERENCES

AltaVista [search engine] 2002, URL: <http://www.altavista.com/> (April 24, 2002).

Google [search engine] 2002, URL: <http://www.google.com/> (April 24, 2002).

The Internet Archive 2002, URL: <http://www.archive.org/> (April 15, 2002).

Taylor, R. S. 1986. The value-added model. In *Value-added processes in information systems* (pp. 48-70). Norwood, NJ, USA: Ablex.

Virgin, B. & Parvaz, D. 1999, *Wizards sold to Hasbro Inc., will collect \$325 million*, URL: <http://seattlepi.nwsourc.com/business/wiz10.shtml> (April 24, 2002).

Wizards of the Coast [corporate website] 2002, URL: <http://www.wizards.com/> (April 16, 2002).
