Changing Behaviors: Market Transformation Web Sites as Online Narrative

David Hicks, National Renewable Energy Laboratory and University of Colorado--Boulder

ABSTRACT

This research paper explores the communicative practice of designing web sites to accelerate the market adoption of energy-efficient and renewable energy technologies within the U.S. home building industry. In today's world, the Internet is increasingly used as a communication tool in market transformation efforts. By studying the practice of web site design through the lens of grounded practical theory this paper develops a normative ideal that can be used to guide and contribute to the conduct, criticism, and increased effectiveness of this practice.

Research results are derived from an ethnographic study of the evaluation and judging of web sites developed by the twenty teams competing in the 2007 Solar Decathlon and a rhetorical analysis of the top scoring web sites. The Solar Decathlon is a national competition for universities and colleges to design, build, and operate the most efficient, affordable, and livable solar-powered home. This paper identifies the primary characteristics that the jurors found essential to an effective market transformation web site, and proposes that a narrative paradigm can be best used to construct a normative model of this practice within this context.

Introduction

This study explores the communicative practice of designing web sites to assist in changing broad societal behaviors in order to advance the adoption of new technologies. Such changes have been found to be aided through the process of market transformation, where technological "innovations are introduced into the marketplace and over time penetrate a large portion of the eligible market" (Geller and Nadel, 1994, p. 1). A social marketing campaign is frequently an element of the process, and the Internet has been identified as a significant component of a social marketing effort of today and is increasingly used as a communicative tool in this context (Ottman, 1998). By studying the practice of using the Internet within a market transformation frame and a social marketing context through the lens of the grounded practical theory of Craig and Tracy (1995), a normative ideal can be developed to guide and contribute to the conduct and criticism of this practice.

This paper studies web sites developed for the 2007 Solar Decathlon competition using ethnographic and rhetorical methods to derive this normative ideal. The context of market transformation is discussed first, followed by a brief overview of grounded practical theory (Craig and Tracy, 1995) and a summation of current existing normative models of the practice. Data collection and analysis is presented through discussions of the Solar Decathlon as a research setting and the methodology used. Findings are presented through a rational reconstruction of the normative model, including ethnographic analysis, theoretical basis, and rhetorical analysis. The paper ends with a concluding section proposing the narrative as an alternative normative claim for the practice.

The Market Transformation Context

Successful market transformation begins with carefully designed products and programs, and is implemented with marketing campaigns focusing on changing the consumers' or publics' behaviors and practices. It often involves basic ontological changes at individual and cultural levels and overcoming barriers to adoption of technical innovations. While there are several types of such barriers, a common one is a lack of information and awareness on the part of the consumer (Geller and Nadel, 1994). Attempting to change behavior by greater dissemination of information is often implemented through social marketing campaigns: the "application of marketing concepts and techniques to the marketing of various socially beneficial ideas and causes instead of products and services in the commercial sense" (Fox and Kotler, 1980, p. 25).

This research specifically looks at the practice of using web sites in a social marketing effort to help accelerate the adoption of energy-efficient and renewable energy technologies within the home building industry. The broad objective for this practice is to make home consumers, the building industry, those in training to join the building industry, and the general public aware of, more informed about, and interested in applying renewable energy and energy-efficient technologies to the construction or remodeling of residential buildings.

Energy-efficient and renewable energy technologies can provide long-term economic benefits to consumers and builders in many instances, but the widespread adoption of such technologies requires a significant shift in their behaviors, attitudes, and practices. While the use of the social marketing model for environmentally-sensitive issues is not new, the concept has been most often and most successfully applied to health care communication for such issues as reducing smoking, increasing AIDS awareness, and promoting the use of contraceptives (Meischke, 2001).

Web sites are commonly used, however, in information-oriented campaigns that seek market transformation in the areas of energy efficiency and renewable energy. Egan and Brown (2001) cite several such occurrences in their analysis of communication campaigns, including the National Environmental Trust's climate change site (http://ww.hotearth.net), the Regional Public Information Program's "BetterBricks.com" site (http://www.betterbricks.com), and the "Get Energy Smart" web site (http://www.getenergysmart.org) sponsored by the New York State Energy Research and Development Authority. While created for specific campaigns, these web sites are active as of this writing and continue to be integral communication elements of ongoing market transformation efforts.

The practice of web design for the purposes of such social marketing sites creates a need and requirement on web designers that is different from other web site contexts. A commercial web site, for example, is typically focused on meeting the specific needs for which a consumer comes to the site. Sites like Amazon.com excel at meeting the consumers' needs in creating the most efficient path for locating and buying the product that will best meet those needs. Social marketing sites are primarily informational and don't exist to offer goods and services, as can be seen in the examples cited above. For these reasons, it can be argued that a social marketing web site is part of a web site genre that has different characteristics and requirements than other genres, such as personal, commercial, and entertainment (Webmaster's Bureau, 2008; Van Duyne, et al., 2003). And it is within this context that this study seeks to better understand the practice of web site design and development.

Grounded Practical Theory

This study uses the lens of the grounded practical theory (GPT) of Craig and Tracy (1995) to develop a new perspective on designing web sites to achieve market transformation objectives. GPT consists of concepts and methods that seek to theorize communicative practices and grows out of the contention of Craig (1989) and Craig and Tracy (1995) that the field of communication is a practical discipline as contrasted with a scientific one. Rather than discovering "general explanations of phenomena" (Craig and Tracy, 1995, p. 249), they argue that the field should focus on generating practical theories, those that "articulate normative ideals to guide the conduct and criticism of practice" (Craig and Tracy, 1995, p. 249).

The approach develops normative ideals from interpretive-critical studies of situated practices, recognizing that a "careful study of some set of particular features, rather than others, is likely to generate implications for conduct" (Tracy, 1997, p. 317). The final stage of a GPT study is the formulation of a theoretical reconstruction, which Tracy (1997) defines it as "a process of idealizing and typifying specific instances" (p. 317), as a normative claim that will inform the practitioners' reflection on their practice.

This rational reconstruction of a practice is done at the three levels of the technical, the problem, and the philosophical. Craig and Tracy suggest that the problem level is particularly significant, as it "requires both the use of communicative strategies and techniques and also philosophical reflection in order to find good reasons to warrant using one technique rather than another in a problematic situation" (p. 254). In reviewing existing normative models for web site design, conflicts arise from their contradictory stances that may be addressed through the application of GPT analysis.

Web Site Design: Extant Normative Models

Web design is a widespread practice that consists of bringing together a diverse set of skills, including information architecture, writing, graphic design, and computer programming and coding. While all of these skills can be provided by one individual, it is more common to have a team of individuals representing facets of this skill set work in a cooperative effort under the general direction of a project leader. This study is not investigating the interactions of such a team, but is exploring the production and result of a design effort directed specifically to the creation of a web site for a social marketing purpose. The study takes the view that the individual or team that developed the site is functioning as an integrated unit operating as a "practitioner."

There is abundant literature on the subject of designing and developing web sites and a review of some key publications provides insight into what is considered to be the generally accepted approach and process for such a practice. This study looks to recognized experts in the field, who have prepared texts informing practitioners of the generally preferred methods of web site construction.

Van Duyne, Landay, & Hong (2003) begin a book on designing and developing web sites by stating, "Creating a web site is easy. Creating a successful web site that provides a winning experience for your target audience is another story" (p. 1). The quote attempts to define a normative objective for a web site because, as it indicates, programming and coding a web page or site and having it accessible through the World Wide Web can be reduced to a purely technical, if not mechanical series of actions. To be considered an effective web site, however,

these authors require that the coded text, graphical elements, and hypertext links all combine to fulfill the needs of the user of the site.

Authors addressing the practice of web site design often stress the importance of designing with the user or customer of the site as a priority (Van Duyne, Landay, & Hong, 2003; Nielsen and Tahir, 2002; U.S. Department of Health and Human Services, 2006). This not only means having the appropriate content and information on the site, but making it as easy—or as natural—as possible for the user to find and use that information to fulfill the reason for which they came to the site in the first place. Processes recommended or created by these authors integrate this user- or customer-centered approach from the very earliest stages of production and continue it throughout the development process. These expert practitioners readily note, however, that few sites employ this customer-oriented normative model and most sites, in fact, are not developed with this approach in mind.

One recognized expert in the field states, "most web sites suck, even ones created by experienced and highly-paid web designers." and argues that designers usually design for themselves and not the user (Hunt, 2006, p. 1). Another states that "designer-centered design [is] still popular in certain circles," and goes on to quote one such developer as saying, '"What the client sometimes doesn't understand is the less they talk to us, the better it is. We know what's best'" (Van Duyne, et al. 2003, p. 11). A lack of empirical evidence also contributes to this model, "There is little or no research suggesting that user involvement leads to more effective and efficient use of the system" (U.S. Department of Health and Human Services, 2006, p. 4).

The literature, then, yields a problematized view of a normative model. Experts insist on the practice being developed around and for the user or the customer visiting the site; and yet, they fully admit that the great majority of practitioners do not conduct themselves in this way, but place their own technical knowledge and expertise at the center of their developing and designing of web sites. These divergent models lead to two different styles of practice, with the user-centered model involving the establishment of prototypes for design, navigation, and content that involves the user throughout the site's development by incorporating such dynamic techniques as ethnographic studies and focus groups.

The other approach, leads to a technocratic model that involves a select team of designers, writers, and programmers or coders that operate as a unit, but eliminate the need for user interaction in the process or keep the involvement of the user to a minimum. They rely instead on their respective skill sets, knowledge of technology, and assumptions about presenting the content to create a successful or effective site. As Aakhus and Jackson (2005) state about normative models as guides for practice, "it is yet unclear whether these normative models are better understood primarily as representations of actual practice or as idealizations to be achieved if possible" (p. 343). In the communicative practice of web design, however, both of these models are being applied by practitioners, although the user-centered perspective is most often set forth as an ideal. The analysis and findings of this study will help broaden this discussion and offer an alternative perspective on these divergent normative models.

Data Collection and Analysis

Research Setting

The setting for this study is the 2007 Solar Decathlon, a national competition for universities and colleges sponsored by the U.S. Department of Energy and several other

organizations associated with the residential building industry. Teams of students compete to design, build, and operate the most efficient, affordable, and livable solar-powered home, as determined by scoring in ten separate contests that test the success of the structure in achieving this goal. Two years of planning, development, and construction culminates in transporting and assembling the solar-powered homes on the National Mall in Washington, D.C. for two weeks of testing and judging. At the end of this period, scores are tabulated and the teams are given awards.

One purpose of the Solar Decathlon is to encourage architecture and engineering students, as well as students from other disciplines, to learn about these technologies and to continue to develop and implement them throughout their careers. A second and equally important objective of the event is to increase the awareness of the existence, viability, and benefit of these technologies by the general public, home consumers, and the building industry. By increasing awareness, the intent is to have these technologies more widely demanded by consumers and subsequently adopted throughout the building industry. The Solar Decathlon Rules and Regulations (U.S. Department of Energy, 2007, p. 2) state, "The houses will… increase the public's awareness of the aesthetic and energy benefits of solar and energy efficiency design strategies and technologies, which in turn will increase the use of these design principles and technologies."

One of the event's ten competitions is the "Communications Contest," which judges the teams on their ability to successfully create and maintain an informative web site and to conduct educational tours of their homes for the general public while on the Mall. These two communication elements are specifically intended to inform and educate the public as to the availability and benefits of using these technologies in their own homes, now or in the near future. The Solar Decathlon Rules and Regulations (U.S. Department of Energy, 2007) state, "The Communications contest challenges teams to communicate their experiences in this project to a general audience" (p. 6) and in further reference to this contest, "Getting a clear message about delightful design, energy efficiency, and solar energy to the public audience will be an important consideration in this competition" (p. 3). This study focuses on understanding the results and characteristics of the teams' designing and developing of their web sites for the purposes of this contest.

Methodology

Grounded practical theory as posited by Craig and Tracy (1995) provides a framework for iterative data collection and inductive analysis leading to a normative claim about the practice. In the interpretive mode of this frame, ethnographic and rhetorical studies were conducted of the 2007 Solar Decathlon "Communications Contest," and the Decathlon teams' web sites, consisting of the following.

- Content analysis of field notes compiled as a participant-observer in the role of coordinator for the "Communications Contest." of the 2007 Solar Decathlon, including observing and facilitating the jury's deliberations.
- Analytical coding of the web site contest notes and comments created by each of the three jurors during their individual reviews of the Decathlon web sites. The jurors are experienced professionals in developing, designing, or creating content for web sites in the energy efficiency and renewable energy field.

- Content analysis of transcripts of the two-hour deliberation of the jury, during which they critiqued the Decathlon teams' web sites and awarded points for the contest, and notes compiled from a semi-structured interview with each of the jury members. Nearly 400 individual comments were coded into categories that were used in reaching the research findings. Because several comments were found to reflect multiple categories, total coded comments exceeded 600 in number (see Table 1).
- Rhetorical analysis of the team web sites that were awarded the five highest scores by the jury. These are:

1. University of Maryland (http://www.solarteam.org/page.php?id=250)
2. Penn State (http://solar.psu.edu/2007/default.aspx?lang=en)
3. Cornell University (http://cusd.cornell.edu/cusd/web/index.php)
4. Santa Clara University (http://www.scusolar.org/)
5. Georgia Institute of Technology (http://solar.gatech.edu).

Reconstructing the Normative Model

Ethnographic Analysis

Inductive analysis and coding of the ethnographic materials collected in this study identifies seven categories that the contest jurors considered as necessary for a successful web site in the market transformation of renewable energy and energy efficient technologies. These categories and their frequency of occurrence in the discourse analysis are shown in Table 1. These quantitative results of coding analysis indicate the level of importance the jurors placed on each characteristic of a web site's effectiveness. Note that factors affecting content presentation contain the largest number of coded comments by a significant amount. As criteria for determining the effectiveness of a web site, the jurors overwhelmingly referenced comments within this category. A distant second in frequency of being mentioned as criteria is visual design of the web site; followed by information design, including such factors as site navigation and organization; the use of multimedia technologies; technical concerns, such as hyperlinks not working or the site not being compatible with different computer platforms; having information at an appropriate audience level; and interactivity through such technologies as blogs or podcasts.

Table 1.
All Jury Comments Coded by Category

Category	N	%
All coded comments	622	100.0
Content presentation	278	44.7
Visual design	99	15.9
Information design	80	12.9
Multimedia	64	10.3
Technical	44	7.1
Appropriate audience level	31	5.0
Interactivity	26	4.2

With content presentation being such a significant classification, several subcategories were identified within it using the analytic coding method. These results are shown in Table 2. Of these subcategories, informative, easy to understand, and writing quality were the most frequently used classifications. Other categories of drawing the user into the site, narrative or storytelling, clarity, and consistency were also cited as being of concern regarding effective presentation of content. In the informative sub-classification, example comments include "gives a lot of great background," "information valuable and concise," and "not enough content about the project itself." Comments carrying such positive and negative value connotations are found as textually constructing each category.

Table 2.
Jury Comments Coded in Content Presentation Category

Content Presentation Subcategories	N	%
Content presentation	278	100.0
Informative	74	26.6
Easy to understand	54	19.4
Quality of writing	47	16.9
Draw user in	35	12.6
Narrative/story	34	12.2
Clarity/readability	24	86.3
Consistency	10	3.6

While not measuring as a major factor in the quantitative results, the site characteristic of narrative or storytelling was shown by interpretive analysis of the ethnographic data to carry substantial relevance for the jurors in judging an effective site. When referencing a site's narrative or storytelling qualities, the jurors generally used the term in reference to an overarching element of the total site, implying within the term such other factors as information, organization, clarity, and creating interest for the visitor to the site. Narrative was seen by the jurors as a key to a site being effective in conveying information to the general public when seeking to increase awareness and change behaviors. The jury often expressed that the visitors to these sites especially required the telling of a good story in order to lead them into the site and keep them on the site.

The jurors made comments referencing that a site was "very complete and tells a great story" and one juror's comment indicates the inclusive value which the jury placed on narrative: "The stories told in each section are very well written and easy to understand for the average consumer." Analysis of the ethnographic data leads to the suggestion that the concept of the narrative can effectively conflate the category of content presentation into an overall perspective of web design being viewed as storytelling. This perspective can be further supported and expanded by an understanding and application of Fisher's (1984, 1989) narrative paradigm when constructing a normative ideal model of the practice of web site design.

The Narrative Paradigm

Fisher (1984, 1989) proposed the narrative paradigm as the basis for understanding human communication. From his early work he derived the theory that story and story-telling is basic to human communication. As he worked with this concept and elaborated upon it, he came to present it as a true paradigm, or underlying ontology, which is fundamental to all

communication and symbolic action. The essential tenants of this theory are five: 1) humans are essentially story-telling animals; 2) humans make decisions on the basis of what he terms "good reasons;" 3) these good reasons consist of the elements of history, biography, culture, and character; 4) narrative rationality is determined by the probability, coherence, and fidelity of the story; and 5) the world is a set of stories from which we choose, and thus constantly re-create our lives based on our own values and beliefs.

Fisher (1984) defines story broadly, "By 'narration,' I refer to a theory of symbolic actions—words and/or deeds—that have sequence and meaning for those who live, create, or interpret them." (p. 2). And he cites MacIntyre (1981) as arguing effectively that "enacted dramatic narrative" is the "basic and essential genre for the characterization of human actions." (p.200). Fisher argues for the narrative as that rhetorical form which achieves resonance with the human mind and leads to action, both symbolic and physical.

What comprises the essence of a credible story is Fisher's (1989) concept of narrative rationality, which consists of an awareness of narrative probability or coherence—what "hangs together" as a consistent theme—and their testing of narrative fidelity—does the story ring true with experiences in people's own lives. His ultimate claim is that this capacity to understand through stories and to accurately judge the credibility and worth of stories is held innately by all humans. It is a sort of narrative-based common sense which we all possess to some degree or another. Technical, philosophical, or critical experts are not required for ordinary humans to make good decisions based on narrative rationality. This certainly provides a theoretical basis for attempting to change ordinary peoples' attitudes and behaviors by using a narrative or story-telling rhetorical form.

Others agree with Fisher on the importance of the narrative. Bateson (1979) claims that "thinking in terms of stories must be shared by all mind or minds" (p. 14). White (1980) states that," far from being one code among many that a culture may utilize for endowing experience with meaning, narrative is a metacode, a human universal on the basis of which trans-cultural messages about the shared reality can be transmitted…the absence of narrative capacity or a refusal of narrative indicates an absence or refusal of meaning itself" (p. 6). And Burke (1968) argues that all stories have form. They are temporally structured—"creating and fulfilling appetites as they unfold" (p. 124).

Rhetorical Analysis

Having derived the concept of the web site as narrative within the context of the Solar Decathlon inductively from the ethnographic study of the jury's deliberations, findings, and scoring, it is reasonable to explore that assumption by a rhetorical analysis of those five sites that did best in the jury scoring. As shown above, there are several factors other than "telling a story" that went into the jury's findings. Often these other factors were technical in nature: sites that did not display correctly on the monitor, functions or formatting lost with the use of certain operating hardware or software, or poorly executed formatting of the material in general. Other key factors that affected the jury's perception of the site included visual design; information architecture, the organization and navigation of the site; and clear, concise writing at an appropriate level for the audience. While a failure in any one of these elements alone could result in a less effective web site, they also significantly affect the telling of the site's story. It can be argued that fault with the technology, design, architecture, and writing cannot be judged independently, but must

ultimately be considered as contributing to or constraining Fisher's (1989) credibility and fidelity of the site's story.

A rhetorical analysis of the top-scoring web sites derives characteristics that are relevant to both Fisher's (1989) narrative rationality and the narrative flow of a site, including theme, integrated elements, character development, and a story's temporal nature.

Theme. Nearly all of the Decathlon teams chose a theme for their project, inclusive of the web sites, the solar house, and the team, itself. The Penn State team used the theme of Morningstar; The University of Maryland team used the Leaf House, and Santa Clara University, the Ripple Home. The best sites have a theme that is rich in context, is deeply symbolic, and has a strong relevance to the story of the building of the solar home. They use the thematic elements consistently and effectively in telling the story of the house project. The Morningstar theme, for example, is itself, a "natural" story told by Native Americans about the symbolic nature of the morning star as ushering in the light and warmth of the sun to their culture and life. The Leaf theme of Maryland is also a powerful metaphor of nature's own energy generator. While not a story of itself, the leaf concept is well adapted to the design and functioning of the house and is carried consistently through the web site.

Integrated elements. The web is a multilevel and complex text (Warnick, 2007) consisting of linked and associative written, graphic, video, and audio components. The more successful sites have done an excellent job of integrating this complexity into a unified storytelling experience. This balance is more obvious, however, when it is absent than when it is well done. Where the elements are combined to effectively tell a story, they seem to recede to the background. The visitor must study closely to note how the story is seamlessly woven together, as seen in the Maryland site where graphics, concise text, and hyperlinks all carry through the metaphor of the house as a leaf.

This integration is also found in the structure of the pages within the site and how they're associated with each other. The Cornell University site is an excellent example of how the complexity of content increases as the visitor moves to deeper levels of the site. This dramatically reflects the co-constructive element of storytelling that is the web. A visitor can create a light, superficial story of the project and the house, by surfing through the higher level pages of the site, or she can make the story far more complex by "drilling down" as the web developer says, into pages of greater detail and end with a satisfying story that is unique to her interests.

Character development. The more successful sites most often lead the viewer to a personal understanding of the characters of the story. They speak of the individual members of the teams, either through biographies or journals. Penn State, for example, gives us an obvious, direct entry from its home page into a daily journal, written in turn by individual members of the team. These stories are edited into effectively telling the chronological evolution of the project—the design and building of the house—through the eyes of individuals whom we meet through text and photographs.

The temporal nature of story telling. A key element of any story is its temporal nature (Fisher, 1989). Stories follow a chronology: they have a beginning, middle, and an end. In some stories—especially recent motion pictures—this chronology may be presented out of order or in some

other less direct manner, but in the most effective stories, even the transposing of chronology can lend credence to the storytelling; the temporal dimension is still prevalent. The Solar Decathlon projects have a chronology built into their story—from the forming of the team, through early design, through construction, to scoring and the return home. It is, in many respects an epic adventure and rich tale. While the visitor to a web site will usually find some element of this chronology in all the sites, the integration of a temporal aspect with the intent to inform the public about the technologies in use here is an extremely challenging task. The top scoring sites effectively weave this chronology of events throughout the site, either through journals or blogs, project timelines, or photographic slideshows and videos.

The ethnographic and rhetorical analysis of data in this study strongly suggests to this author that narrative or storytelling can contribute to a greater understanding of normative ideals of the practice of web site design. A theoretical basis can also be offered to support this concept and to allow its expansion into a reconstruction of a rational model for the practice.

The Narrative as Normative Claim

From this study, a normative claim can be made that leads to a third perspective on the practice of web design that can help resolve the tension between the user-oriented and technocratic normative models and enhance practitioners' reflections upon these rational reconstructions. This is the concept of web site design as storytelling. The telling of stories is recognized as a traditionally effective method for imparting knowledge and cultural values. As Brown and Duguid (2002) state, "people tell stories to try to make diverse information cohere" and they find that stories can be "a means to discover something completely new about the world" (p. 107).

Based upon the large proportion of comments by the jurors that used as criteria some element of how the content is presented in a textual representation, the normative standard on which a web site might be judged and by which a developer should orient her work revolves around content. It can be argued that the various subcategories under the coding of Content Presentation can be conflated within the overall concept of narrative. While "narrative/story" was implicated cited by the jurors in about 12% of the content presentation comments, it can be suggested that an application of narrative theory can, in fact, represent the other coded categories and resolve the issue of unified content that is informative, easier to understand, of high quality, and can effectively draw the user into the site.

The web site might best serve the area of market transformation if its role as a storytelling medium is enhanced and becomes the focus for a design effort. The user-centered model may or may not be a more effective overall method of web design, but it does appear to be most effective on a commercial site, such as "successful and easy to use sites like amazon.com, yahoo.com, and ebay.com" (Van Duyne, et al., 2003, p. 12), where the visitor is arriving at the site with a need to be fulfilled as easily and quickly as possible.

The technocratic position also has merits in that new technologies such as video integration, podcasts, and blogs have been generated by technical knowledge and advances rather than user involvement, since users were not aware of the technologies. But, constraints of cost and access limit the ability of those involved in social marketing, most often a noncommercial enterprise, to involve the user. By using a site to tell a consistent and cohesive story throughout its sub-pages, the majority of the visitors will be engaged enough to explore the site further and

will follow the storyline to a conclusion, deciding for themselves its value and application to their circumstances and interests.

A story telling focus as a normative practice will be significantly different from either of the prevailing normative models. A teller of stories focuses on the line, content, and moral of the story and while the audience is certainly taken into account, the story can be developed relatively independent of an in-depth understanding of the audience's needs. The storytelling model places the technocratic model in a secondary position. Only the knowledge of and application of technologies are of value in that they clarify or advance the story, or make it more interesting and compelling.

In this model, the story becomes the essence of the design of the site and brings the visitor into a constitutive relationship with the story teller—the web designer. Together they create a story to which the visitor ideally relates and contributes. The story as design bridges the space between the two prevailing, but nonaligned, models of web design practice. In this normative claim, the web design is co-constructive of the story. It can be argued that the narrative approach to web design can replace the user-oriented and technocratic models within the social marketing context.

References

Aakhus, M. and Jackson, S. 2005. "Technology, Interaction, and Design." In K.L. Fitch and R.E. Sanders (Eds.), *Handbook of Language and Social Interaction*: 411-435. Mahwah, NJ: Lawrence Erlbaum Associates.

Bateson, G. 1979. *Mind and Nature: A Necessary Unity.* Toronto: Bantam Books.

Brown, J.S. and Duguid, P. 2002. *The Social Life of Information.* Cambridge, Mass: Harvard Business School Press.

Burke, K. 1968. *Counter-Statement.* Berkeley: University of California Press.

Craig, R.T. and Tracy, K. 1995. "Grounded Practical Theory: The Case of Intellectual Discussion." *Communication Theory* 5: 248-272.

Egan, C. and Brown, E. 2001. *An Analysis of Public Opinion and Communication Campaign Research on Energy Efficiency and Related Topics.* Washington: American Council for an Energy-Efficient Economy.

Fisher, W.R. 1984. "Narration as a Human Communication Paradigm: The Case of Public Moral Argument." *Communication Monographs* 57: 1-22.

Fisher, W.R. 1989. *Human Communication as Narration: Toward a Philosophy of Reason, Value, and Action.* Columbia: University of South Carolina Press.

Fox, K.F.A. and Kotler, P. 1980. "The Marketing of Social Causes: The First Ten Years." *Journal of Marketing* 44: 24-33.

Geller, H. and Nadel, S. 1994. *Market Transformation Strategies to Promote End-use Efficiency.* Washington: American Council for an Energy-Efficient Economy.

Hunt, B. 2006. *Basics of Web Design from Scratch*. http://www.webdesignfromscratch.com. Derbyshire, UK: Scratchmedia Ltd.

Ottman, J.A. 1998. *Green marketing: Opportunity for Innovation.* New York: BookSurge Publishing.

MacIntyre, A. 1981. *After Virtue: A Study in Moral Theory*. Notre Dame: University of Notre Dame Press.

Meischke, H. 2007. *Social Marketing Theory.* http://depts.washington.edu/obesity/DocReview/Hendrika/basedoc.html. Seattle: University of Washington.

Nielsen, J. and Tahir, M. 2002. *Homepage Usability: 50 Websites Deconstructed.* Indianapolis, Ind.: New Riders Publishing.

U.S. Department of Health and Human Services 2006. *Research-based Web Design & Usability Guidelines.* Washington: U.S. Government Printing Office.

U.S. Department of Energy 2007. *2007 Solar Decathlon Rules and Regulations.* http://www.solardecathlon.org/rules_regs.html. Washington: DOE.

Van Duyne, D.K, Landay, J.A., and Hong, J.I. 2003. *The Design of Sites: Patterns, Principles, and Processes for Crafting a Customer-centered Web Experience.* Boston: Addison-Wesley.

Webmaster's Bureau. 2008. *Types of Website.* http://www.web-bureau.com/readarticle.php?article_id=13. West Midlands, UK: The Webmaster's Bureau.

White, H. 1980. "The Value of Narrativity in the Representation of Reality." *Critical Inquiry* 7: 5-27.