SUCCESSFUL ONLINE PUBLIC RELATIONS MESSAGE CONVEYANCE:

THE ROLE OF USER CONTROL IN WEBSITES

by

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(Under the Direction of Bryan H. Reber)

ABSTRACT

The purpose of this study was to propose the user control model as one of the most effective methods to successfully convey public relations messages in a web-based environment. The user control model suggests systematic application methods as a way of increasing interactivity. User control was defined by three elements, participation, flexibility, and personalization. Three websites were designed with high, medium, and low user control levels, and 183 participants were assigned one of three websites to explore. The results of an ANOVA and MANOVA revealed that a website with high levels of user control succeeded in creating a positive evaluation of the website and the organization. However, the analysis also revealed that levels of high user control failed to change people's behaviors, such as supporting the organization's mission and donating money. The findings suggest that user control is an essential web communication factor for creating a pleasant web experience, improved comprehension, and a positive attitude toward the organization.

INDEX WORDS: Interactive web communication, Public relations websites, Website features, Human computer interaction, Communication strategy

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CHAPTER 1

INTRODUCTION

The impact of the Internet on public relations communications has been tremendous in recent years, and it continues to grow. As a result of this sustained growth, the Internet has been studied as one of the most essential tools for organizational communication (Stuart & Jones, 2004; Sullivan, 1999). Websites are the most common communication channel on the Internet. A large number of studies have shown the importance of the Internet and of organizations' websites as tools for public relations (Hill & White, 2000; Kent & Taylor, 1998; Kent, Taylor, & White, 2003; White & Raman, 1999) as well as the growing importance of organizations' websites for communicating organizational responsibilities (Esrock & Leichty, 1988, 2000). It has been posited that websites have the potential to influence users as a means of achieving communication goals. One of the most studied characteristics of the Internet is interactivity, commonly considered as a key element influencing users. Even though interactivity in websites has been studied in various fields with various purposes, not many studies have focused on specific website features. Online polls, hyperlinks, and games are considered as interactive features, and researchers differentiate interactive features and non-interactive features. There are also many studies that propose theoretical frameworks or conceptual guidelines for improving interactivity (Lustria, 2007). However, there are not many empirical studies that explain specific differences among interactive features for public relations purposes. Which interactive features are more effective than other ones? What makes these interactive features more effective than

others? This study focused on researching the key concepts that make interactivity features effective in terms of degree of user control. The subject of this study is interactive features used on websites. This study investigates how "effectiveness," which includes web-experience, comprehension, and attitude, is affected by "user control," defined by participation, flexibility, and personalization (see Table 1.1). This study aims to investigate characteristics of website communication so that message planners can customize their message plans to maximize the advantage of the medium.

Table 1.1 Cause and Effect of Communication in a Web Environment

Cause		Effect
User Control Level	→	Effectiveness
Participation		Web Experience
Flexibility		Comprehension
Personalization		Attitude

CHAPTER 2

LITERATURE REVIEW

In order to build an extensive foundation for interactive features in a web environment, an interdisciplinary approach is necessary. This literature review covers a wide range of previous studies from media theories to web development. Web focused studies regarding a user-centered approach are explained. Public relations studies about interactivity also are reviewed, and discussion of computer mediated communication theories and studies follow. This literature review guides the theoretical orientation of this study.

Web-based Research

Medium Theory in web-based studies

Warnick (2007) suggested that medium should be examined when considering medium-specific possibilities and potentialities for persuasive expression. In other words, scholars should consider specific characteristics of a target medium, web-based discourse, before applying traditional rhetorical theories. Medium-specific characteristics of the web, such as nonlinearity, differential access, and dispersion of web texts, affect the processes of web production as well as users' experiences with and responses to web-based messages. In other words, scholars need to take into account specific traits and challenges. In a web-based environment, readers are considered active participants, not only in the production of meaning but also in the contribution of content itself. The message or information authorship is also different in web-based contexts. Since the content on the web tends to be co-produced or drawn from databases, authorship is

often not provided by a website. Information in web contexts is fragmented and reproducible. The versatility of the Internet enables users to produce, reproduce, alter, or comment on content for all kinds of purposes. Web users' patterns of consuming media are different from those of any other medium in that users are free from many constraints of traditional media. Based on medium theory, studies whose subject is the web should consider web specific characteristics.

User-centered Design

The user plays a crucial role during the life cycle of web projects or services. Usability is the most frequently used term to describe the user-centered approach. Usability is defined in various ways, and one way to define usability is the ease with which a system can be learned and used (Mendelson, Coleman, & Kurpius, 2005). A usable system is easy to use, has a low user error rate, is satisfying to use, and, as a result, brings users back to the site. Users should be involved from the very beginning, not just after projects or services are ready to work. A usable system is achieved by a user-centered design that allows users to be involved in the entire web exploring process through an interactive approach. The user-centered design should be applied based on the preconception of how users use a site, including users' desire and usage patterns. The key to designing websites without user frustration is efficiency. The interactive nature of user-centered design means that features should be revised based on users' actions: how users will use a site (Mendelson et al., 2005). To achieve user-centered design, the web developers should not substitute their own personal preferences for the users' needs.

User-centered design incorporates usability principles into web design and places the focus on the user during development. Gould, Boies, and Lewis (1991) cite three principles of user-centered design: an early focus on users and tasks, empirical measurement of usage, and interactive design to include user input into the design and modification. They emphasize that for

increased functionality, usability principles should apply to web design, which should be treated as a software development project. They advocate incorporating user evaluation into the design process first through an evaluation, followed by usability testing with a redesign after each phase of evaluation.

The focus of user-centered design is the evaluation of human performance and effort to the coupling of design and evaluation activities in one development process. Applying a user-centered approach in development has long been advocated. Venturi, Troost, and Jokela (2006) suggested in their research that management should ensure that user-centered design is part of their strategy, included in the mission of the company and supported by higher management. The usability goals need to be explicitly discussed with publics.

User-centered design has gained wide interest among many different fields, and has been championed by the usability community. The goal of user-centered design is to create easy-to-use service (Shneiderman, 1998). User-centered design advocates involving actual users in every phase of the design process. The important point of user-centered design is ensuring that the design remains focused on the users. The principles of user-centered design are the following: understanding users, assessing competitiveness, designing the total user experience, evaluating designs, and managing by continual user observation (Mackenzie, 2002). User experience and expectation are also major factors in the success of user-centered design. Based on previous research, it can be assumed that user-centered approach is one essential element for successful web projects and services, and users should be embraced and involved throughout the entire web development process and beyond.

Interactivity in Public Relations

In research on public relations and the Internet, the possibility of interactivity between the

public and the organization is an issue of high relevance. Interactivity is one of the major characteristics of the Internet, and has been studied by a large number of researchers in the field of communications (Downes & McMillan, 2000; Ha & James, 1998; Rafaeli, 1988; Schultz, 2000). With regard to the degree of interactivity that organizational websites have, several authors in public relations have defined two basic approaches: the dissemination of information and the generation of relationship between the different publics and the organization (Esrock & Leichty, 1998, 2000; Kent & Taylor, 1998; Ryan, 2003; Taylor et al., 2001; White & Raman, 1999). In the first approach, the level of interactivity is low, and the use of the Internet is one-way, with the essential objective of diffusing information and trying to influence publics to have the aimed image of the company. In the second approach, the degree of interactivity is high, and the Internet is used to make two-way communication easier and to establish and build relationships by allowing dialogue and interaction between the organizations and their different kinds of publics (Capriotti & Moreno, 2007).

Kent and Taylor (1998) offered five principles for organizations to follow that enhance open communication and organizational responses to public needs. These principles include offering dialogical loops, ease of interface, conservation of visitors, generation of return visits, and providing information relevant to a variety of publics.

The five principles of dialogue suggested by Kent and Taylor (1998) are closely related to interaction. Most communication theories share several basic ideas of interactivity: interactivity is based on interest or attention; interactivity is based on interaction; interactivity is based on trust yet involves some risk; interactivity requires periodic maintenance; and interactivity involves cycles of rewarding and unsatisfactory interaction. Interactivity first involves attraction that makes publics desire to interact ("usefulness of information"). Taylor, Kent, and White

(2001) further asserted that interaction is necessary for relationships with publics to develop, grow, and thrive.

In her online campaign comparison study of moveon.org and GeorgeWBush.com, Warnick (2007) concluded that online interactivity plays a role in persuasion by bringing users to identify themselves with the speaker's interests. Her subsequent analysis showed that interactive features were employed in order to display user participation and to amplify existing messages. As evidenced in this review of literature, many studies in the public relations filed focus on interactivity as a means of achieving public relations goals.

Relationships Between Interactivity and User Control

There is increasing interest among scholars in investigating the connection between web content and user attitudes and behavior. Some studies discuss the possibility that interactive and pleasant web experiences lead to positive user attitude and behavior.

Web content can be conceptualized as a mix of stimuli that takes the form of text, image, audio, animations or video. In the course of interacting with a web page, a user is subjected to the influence of many of these stimuli or sometimes all. Many researchers have studied to identify relationships between web stimuli and user attitude. Moreover, many studies shed light on the intimate relationship between web content, processing goals, and user behavior. In addition, research on flow indicates that an interactive and stimulating experience is likely to induce a flow experience, which in turn leads to more exploratory behavior (Chen, Wigand, & Nilan, 1999; Koufaris, 2002; Koufaris, Kambil, & LaBarbera, 2001; Novak, Hoffman, & Yung, 2000; Webster & Hayes, 1997; Webster & Martocchio, 1992).

It has been posited that a website is one of the most important communication methods on the Internet (Ghose & Dou, 1998), as it has the potential to provide high levels of information,

as well as virtual experiences (Klein, 2003). Communication scholars have searched for effective ways to send messages (Sheehan & Doherty, 2001). As with the Internet, the key factor of a website is its interactivity (Ghose & Dou, 1998; Macias, 2003). Interactivity represents the facility for users to communicate directly with one another regardless of distance or time (Berthon, Pitt, & Watson, 1996). In addition, a website enables users to interact with the medium itself, which is called "machine interactivity" (Steuer, 1992).

The level of interactivity is associated with how much control users have. People surfing the web perceive more control over the information exchange process and its outcomes with high levels of interactivity than with low levels of interactivity. Interactive systems can help users to process information, as they are able to easily reduce or eliminate unwanted or superfluous information and can organize that information in such a way that facilitates the process (Klein 2003; Peterman, Rohem, & Haugtvedt, 1999).

Interactivity allows users to control the flow of web exploration. Control demands active participation which requires extensive cognitive efforts (Ariely, 2000; Coupey, 1994). With active participation, engagement levels are increased which also influences message acceptance (Berthon et al., 1996; Shih, 1998). Such control over the flow of web exploration has been shown to increase the pleasurability of the web experience (Ariely, 2000), often leading to more positive evaluation and responses from users.

Interactivity also constitutes a distinct aspect that makes the website more attractive. An attractive site makes users spend more time on the website, increasing the likelihood that users will read the positive message of the website. Consequently, the exposure will initially increase the number of positive thoughts toward the organization (Nordhielm, 2002). Through the process of attitude transfer (Mackenzie & Lutz, 1989), a favorable attitude toward a website may also be

transferred to the website provider (the organization). Similarly, Wu (1999) reported that perceived interactivity is related to attitude toward the website. Ghose and Dow (1998) and O'Keefe, O'Connor, and Kung (1998) observed that the more interactive the message, the more likely it is that a website will be considered as a top site.

Based on previous research, interactivity in web communication has been considered as an essential element for generating positive attitudes and behaviors in users. Interactivity can be described by control levels that users experience. Users experience greater levels of interactivity when they control their web exploration and information exchange process and outcomes.

Interactivity and Flow

A number of researchers have suggested that flow is a useful way to describe people's interactions with computers (Csikszentmihalyi, 1990; Hoffman & Novak, 1996; Smith & Sivakumar, 2004; Trevino & Webster, 1992). The concept of flow has been described in the communication field, along with increasing interest in web communication. The flow theory was extensively adopted to elaborate user engagement in web-based environments. Hoffman and Novak (1996) explained that in order to improve message conveyance, it is important to create opportunities for users to experience and control the flow.

Engagement Model

Theoretical Background for the Concept "Engagement"

Flow Theory. Flow theory (Csikszentmihalyi, 1990) describes a high degree of involvement where people are intrigued by the activity. "Flow theory includes the basic components of enjoyment, intrinsic motivation, focused attention, and goal-directed activities that provide feedback and a sense of control, yet cause the individual to lose track of time and their sense of self during the experience" (p. 49).

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The flow state is defined as the holistic sensation that people feel when they act with total involvement (Csikszentmihalyi, 1977). Flow is an optimal experience, one that is extremely enjoyable and one in which the individual experiences an intrinsic interest and a sense of time distortion during his or her engagement (Chen et al., 1999). This optimal experience occurs when one can solve the challenged task (Csikszentmihalyi, 1977). When a user is surfing the Internet, he or she perceives two environments: the physical environment and the virtual environment. The strength of this experience is a function of the extent to which a person feels present in the mediated environment rather than in his or her immediate physical environment. The flow state can be interpreted as being when the sequence of responses facilitated by computer interactivity is intrinsically enjoyable (Hoffman & Novak, 1996). In such an experience, users are very engaged in the action (Sicilia, Ruiz, & Muruera, 2005).

Play Theory. Stephenson (1967) demonstrated that the most important effect to be derived from much of mass communication is simply fun. He focused primarily on the subjective pleasure that people derive from mass media. Stephenson developed a tripartite conceptual interpretive scheme for the ludic effects of mass communications. In play theory, mass communications is not moral or ethical but aesthetic. Stephenson described the main process of mass communication as people's capacities to seek a high degree of simple pleasure in the mass media. Woszczynski, Roth, and Segars (2002) explained that, unlike flow theory in which the individual variable is not observable, the playful behavior is what the person is actually doing and is externally observable. The characteristics of play theory that can be applied in an Internet-based environment are voluntary, intrinsically rewarding, physically stimulating, and fantastical (Rieber, 1996). Singer (2001) concluded in her research that in a web environment each user only looks at the items that are important to him or her. Since the web is not a fixed medium,

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people can personalize the world view just by clicking. Play theory is appropriate for the web environment because of the characteristics of the web whose form is simultaneously fluid, global, and supremely individualistic.

Aesthetic Theory. Aesthetic experience is described as the state where people are engaged and immersed in an activity. People are not interrupted by external distractions and voluntarily participate in the activity. The simple pleasure, curiosity, joy, and interest are the factors that maintain the coherent and culminating experience from the activity that is personally rewarding (Jennings, 2000).

Engagement Modes for Using Information Technology

Montgomery, Sharafi, and Hedman (2004) introduced the concept of Engagement Modes for using information technology. The EM-model assumes that two factors, locus of control and focus of motivation, are the criteria for explaining how a subject (e.g., an Information Technology user) uses an object (e.g., an IT-application).

Depending on whether the locus of control matches or mismatches the reward provided by the activity, subjects will evaluate the object positively or negatively. When subjects' motivations are extrinsic, they are oriented toward attaining various external ends. Such subjects tend to want more control of the object. However, if the subjects lack the skill needed to attain the external goal and need to learn skills, Control (Locus) and Motivation (Focus) will be incongruous and cause a negative experience (Montgomery, Sharafi, & Hedman, 2004).

On the other hand, when the subjects' motivations are intrinsic, they are focused on the activity itself in different ways (Focus). Such subjects tend to want less control of the object. Since they likely depend on the specific activity, they may prefer to just follow directions rather than control their own activities or freely navigate. However, when the subjects have a lot of

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control over the object, the activity involving the object will provide little advantage to the subject. That is, there is little to be learned from the activity itself. Nevertheless, if the subject is focused on rewards inherent in the activity itself, locus and focus will mismatch and the result will be a negative evaluation (Montgomery et al., 2004).

Engagement as Process in Human-computer Interactions

O'Brien and Toms (2005) proposed the engagement model which views engaging interactions as being comprised of three distinct states: the user must become engaged, sustain the engagement, and eventually disengage from the system. They emphasized that users' experience with computer-mediated environments must involve the user cognitively, behaviorally, and affectively. The engagement model proposed the process of engagement from initiation and conclusion. The interface, context, and user are influential in the engagement process. The first process is the point of engagement when users become engaged. In order for engagement to occur, there must be eye catching and dynamic features that encourage the interaction, whether it is a tidbit of text that resonates with the user, prior knowledge, or intrinsic interests, or a visually appealing and inviting interface. The point of engagement may involve the content or design. The second process of engagement is the engagement phase, and users sustain that process until disengagement. The attention moves beyond the element that snares the user, to focusing on the task or content. This focus may be interchanging depending on screen elements, user characteristics and other aspects of context. Users must derive enjoyment from the system in order to sustain the interaction. It is the responsibility of the system to supply the user with adequate feedback and challenge to match his or her cognitive, motor, and affective needs; otherwise disengagement occurs. The last process is disengagement, whereby engagement is discontinued by "signing off," leaving the website, or an affective and cognitive disengagement.

The perceived control of navigating the system is essential in the discussion of disengagement and determines whether users would continue to use the system. Disengagement should not be caused by negative design attributes or boredom (O'Brien & Toms, 2005). Based on the engagement model, websites should be designed in a way to initiate and maintain engagement.

Previous Theoretical Concepts of Website Development

Two-factor Model

Zhang and Von Dran (2000) presented a two-factor model as a guideline for website design and evaluation that identified hygiene and motivator as the two most important factors in website design. Hygiene factors are functional and serviceable factors, such as hyperlinks. The absence of hygiene factors, such as broken links, causes user dissatisfaction. On the other hand, motivator factors are those that add value to the website by contributing to user satisfaction, such as multimedia in information-intense websites. Zhang and Von Dran (2000) indicated that understanding the contributing factors to user satisfaction and dissatisfaction with websites is crucial for both designing and evaluating websites. They insisted that hygiene factors have higher priority as a prerequisite for the motivator factors. In other words, basic necessary functions should be satisfied before applying rich and elaborate web features.

Conflicting Viewpoints on Web Development

Web design has been considered as an essential factor for a website's success, and two ideologically opposite views have developed as to what is meant by good design. The approaches differ fundamentally in terms of how to balance two interrelated but conflicting elements – usability and presentation (O' Connor, 2004). The functional school puts less emphasis on visual design and more focus on content. The main design issue for functionalists is usability, while they ignore beauty and finesse. Most functionalists counsel against the use of splash pages,

multimedia rich pages presented to the user on their initial access to a website. Functionalists are against techniques such as animation except where it directly adds to the content of the website (Nielson, 2002). On the other hand, the aesthetic school insists that the graphical and multimedia features of the Web should be used to enhance the visitor experience. While Nielsen (1993) maintained that users visit a website for its content and thus it makes little sense wasting time on its packaging, others argue that good graphic design enhances content and adds value. The Swiss-style can be seen as a more design-conscious version of the functional school. They think the form and function are seen not as separate issues but as two sides of the same coin (Zeldman, 2001). The branded-style uses more advanced Web technology and multimedia seamlessly in an effort to create an aura for the company and its projects. The latest one is pixel-style which is characterized by isometric graphics presented at a 45-degree angle and which tries to emulate a computer game rather than the real world. This style digressed radically from established and accepted norms in terms of user interface and human-computer interaction, and in most cases the emphasis seems to be on how the page looks rather than the information it contains or how the user will interact with it. Such departure may be caused by the web surfing behavior of young users who value sensory impact (Engholm, 2002). Despite these various perspectives on website development, the bottom line of all perspectives is that websites should be evaluated highly by users.

Evaluation Method for Media Effect

There are different approaches for measuring media effect on users. One of the commonly used approaches is the effect-labeled approach. As Tao and Bucy (2007) explained, "effect-labeled media attribute definitions assume that a set of intrinsic message or medium properties, including both message content and structural features, reliably vary along specific

psychological dimensions" (p. 398). This approach classifies media stimuli into different groups. For example, researchers divide respondents into three groups and expose them to different media message. The media attributes are manipulated to determine the media effect, such as user perceptions or viewer emotions.

Theoretical Structure

User Control As a Means of Promoting Interactivity

When changing the primary medium from print to the Internet, a specialized message plan is needed for the Internet environment. One of the most important factors we need to pay attention to when using the Internet is "user control." "User control" is related to how much power users have over the medium. Print media and television provide a fixed format of content made by journalists and producers respectively. There is a fixed line between message senders and message receivers. Only senders have the power to send information and control content. If audiences want to give feedback, they have to go through message senders, who make a decision whether to accept it. Audience of traditional media have little user control; the control they have is limited to avoiding the message (e.g., not to read a newspaper, not to watch a TV program) or choosing the message (e.g., to choose articles from a newspaper, to choose programs from a TV). However, the Internet gives users the power to contribute to the content. For example, on "YouTube," the ranking and hit numbers, which are determined by users, are the criteria for deciding which videos will be posted on the front page. The message planner should enhance "user control" over the medium. Thus, the subsequent question is how to create the levels of user control as a way of promoting interactivity. In order to give more "control" to users, the media interface should be designed to embrace all three factors: interactivity, flexibility, and participation.

Flexibility. Freedom of navigation is a unique characteristic of the Internet that traditional media lack. Web interface is based on hyperlinks, and hyperlinks allow users to choose the content they need. Depending on their own needs and interests, all users create different paths for finding information. Even though they finally reach the same page, every page they visit before that point differs from person to person. This fact also supports the website-experience concept that explains two visitors' web exploring of the same website cannot be identical (Venkatesh & Agarwal, 2006). Each user selectively chooses the information that he or she wants, thus each user personalizes his or her web exploring. This notion of nonlinearity enables users to individualize their exploring process depending on what they want. Flexibility is a key concept and closely related to the paths that users navigate in their web experience.

Participation. One of the most important dimensions for classifying websites is the opportunity for visitors to participate actively. For example, visitors in a movie theatre are usually passive and do not initiate activities voluntarily, whereas visitors in a theme park are usually more active, participating in a number of activities voluntarily. Likewise, websites can be classified according to how actively visitors can participate; they may be divided into active or passive depending on how actively users can interact with them (Yamaguchi, Hosomi, & Miyashita, 1997; McCrickard, Chewar, Somervell, & Ndiwalana, 2003). On active websites, users interact with the system and communicate with other visitors more frequently than those on passive websites (Goldberg, Safran, & Shapiro, 1992). For example, users of online-game sites participate in site activities more actively than those of personal-homepage sites.

Participation is one of the most important factors to increase effectiveness. For example, students who participate in a science experiment feel more interest in the experiment than students who simply watch it. In a promotion event, people who actually use the product tend to

remember the product better than people who simply watch how to use it. The level of participation is related to the level of involvement and also participants' will. By doing the activities, they usually feel more interest and also presenters (teachers and marketers) can reach their goals. For example, teachers help students to be interested in science and eventually to understand the science knowledge. Marketers help customers to remember their products and eventually to have positive cognition. Many researchers studied the methods of increasing participation level, and one of the ways they found was using games.

Milne and Morrison's study (2007) showed a positive effect of using a game in a classroom. In order to make biotechnology easier for teachers and students to understand, and to demystify and simplify PCR (polymerase chain reaction), scholars developed the PCR game. Teachers and students used PCR games and scholars received various positive feedback. Most of students enjoyed learning by playing computer games. Most students also believed they understood PCR and primers better after playing the PCR game.

Garber's (2004) study also showed that using games increased students' interest. She assigned students to make a new website for community art using the computer technology "MOO" (Multi-user domain, Objective-Oriented). This program "MOO" is designed based on the computer game environment. Students log onto the MOO site as if they had walked into a classroom and received the tasks for the day—somewhat like receiving a map for a treasure hunt. The students indicated they enjoyed the computer environment and found it fun. Students found that MOO promoted interactivity as well as interest.

Personalization.　One of the most important dimensions that users demand from websites is personalization. Web users browse through pages of personal interest and expect to have personalized outcomes depending on their interest and performance. Websites are expected

to provide personalized offerings and unique experiences to each user.

Web personalization generally refers to the process of varying web content for each individual (Korper & Ellis, 2001), and personalized web content refers to the content associated with the past experience of the user (Tam & Ho, 2006). Websites should fulfill two objectives to provide an individualized experience. The first objective of personalization is to control the content, presentation format, and timing of personalized messages to induce a favorable response. The second objective of personalization is to increase the likelihood of accepting the messages in the future by implanting the messages in the user's mind.

Personalization is also relevant to social cognition because it involves the study of how individuals conceive and process the stimuli. By personalizing users' web content to the tastes of individuals, users feel a high level of engagement. Previous research has shown that user behavior is shaped by the way humans process information and the properties of the task environment (Huber & Seiser, 2001). A personalization agent, such as controlling content and relating it to users' taste, can exert influence on users through the manipulation of web stimuli.

Table 2.1 User Control Elements

User Control		
Flexibility	Participation	Personalization
To navigate freely	To do the activity	To have various results from the activity
Paths	Steps	Outcomes

Table 2.1 shows the three concepts involved in user control. The message planner should enhance "user control" over the media. In order to give more "control" to users, the media interface should be designed to embrace all three elements, flexibility, participation, and personalization.

Decision Process

The decision process has been studied by many scholars, yet has not been described completely. Nevertheless, scholars generally agree that the decision process has three stages: perception, knowledge, and attitude.

Perception occurs when people are exposed to a stimulus. People recognize the stimulus and assign meaning to it. Perception induces knowledge, which is affected by individuals' sense of the information to which they are exposed. Knowledge is the sum of all information recognized or processed by a person. Knowledge is formed by the breadth of experiences and the strength of an individual's memory (Davidson, Yantis, Norwood, & Montano, 1985).

Attitude refers to what a person feels or believes and reflects how a person acts based on his or her beliefs. Attitudes are defined as summary evaluations of objects along a dimension ranging from negative to positive (Rucker & Petty, 2004). Eagly and Chaiken (1993) defined attitudes as psychological tendencies that are expressed by evaluating a particular entry with some degree of favor or disfavor. Similarly, Fazio (1995) posits that attitudes are associations in memory between an attitude object and evaluation. Attitudes are viewed as having both cognitive and affective components. More specifically, attitudes are influenced by cognitive components, such as beliefs or thoughts about an object, and are also affected by affective components, primarily emotional responses toward an object. More positive beliefs or thoughts and emotional responses result in more favorable attitudes. Thus, it is possible to assume that increased perceived pleasure of a website can contribute to a more favorable attitude toward the website. Furthermore, more positive emotional responses toward the website can lead to similar positive effects on attitudes toward the website provider (the organization).

User Control Model

The User Control Model explains the effect of high user control on the perception of an

organization. Based on the decision process theory, the User Control Model developed for this

study presents three progressive stages of user control: pleasant experience, greater

comprehension, and positive attitude. The first stage is the pleasant web experience, what

respondents feel about the website. The web experience includes how people feel about the user

control level of the website based on three elements of user control, flexibility, participation, and

personalization. It also includes the respondents' assessment of the website in the categories of

enjoyment, loyalty, message acceptance, and effectiveness. The second stage is greater

comprehension, how people comprehend the website content. Understanding as well as retention

of the content are the key factors in comprehension. The third stage is attitude towards the

organization: how the respondents feel about the organization and how they intend to behave (see

Table 2.2).

Table 2.2 Expected Outcomes from the High User Control Level Websites

More User Control	→	More Enjoyable Web Experience	→	Greater Comprehension	→	More Positive Attitude Toward the Organization (Emotion and Behavior)

CHAPTER 3

HYPOTHESES AND METHODOLOGY

Research Questions and Hypotheses

Figure 1 shows the conceptual framework that serves as the foundation for the user control model. In order to test the user control model, an experiment was designed with eight hypotheses.
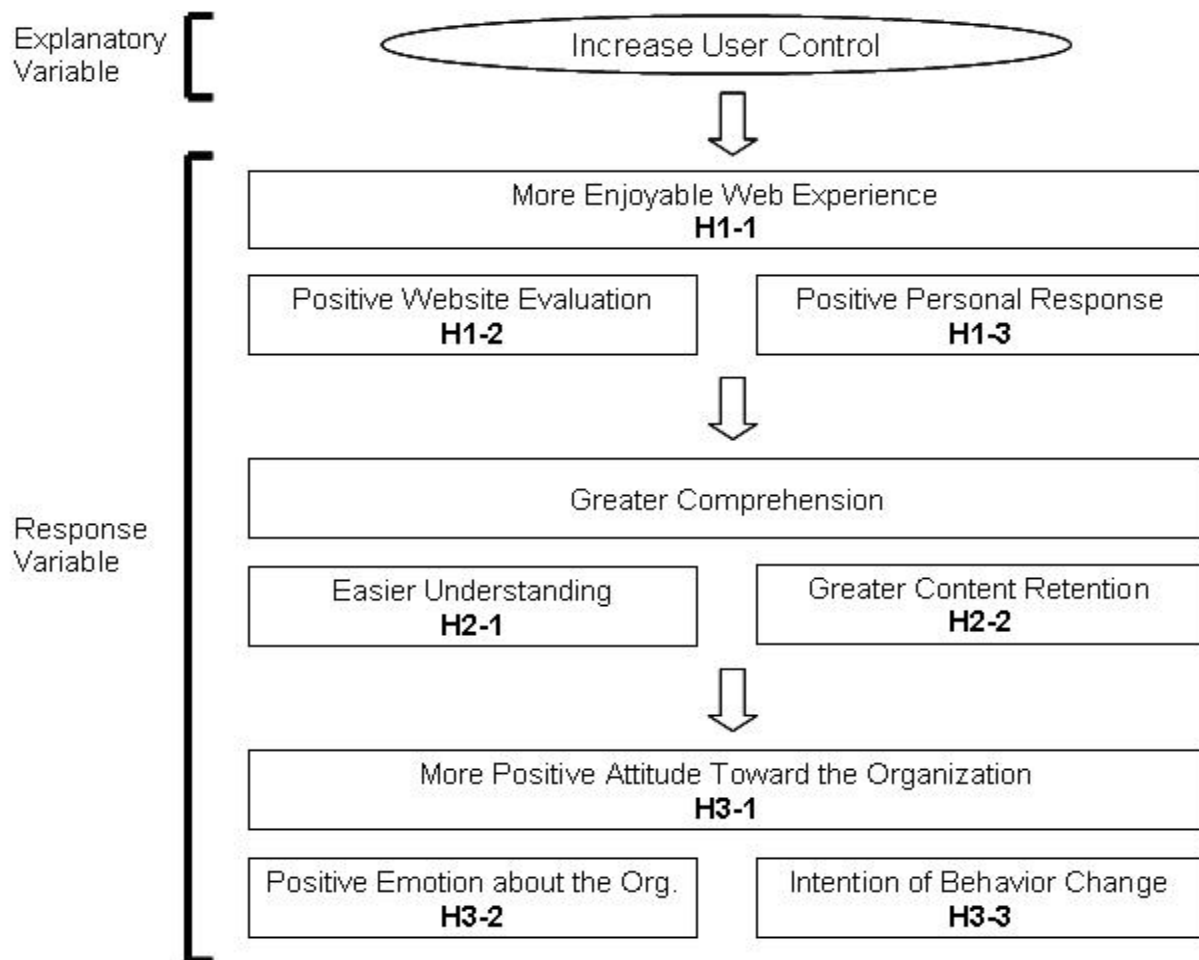

Figure 1. User Control Model

RQ 1. How does user control level affect **web experience**?

H 1-1. Higher levels of user control will lead to **more pleasant experiences** when exploring a website.

H 1-2. Higher levels of user control will lead to **more positive website evaluation**.

H 1-3. Higher levels of user control will lead to **more positive personal response**.

RQ 2. How does user control level affect **comprehension**?

H 2-1. Higher levels of user control will lead to **easier understanding** of website content.

H 2-2. Higher levels of user control will lead to **more retention** of website content.

RQ 3. How does user control level affect **attitude toward the message provider**?

H 3-1. Higher levels of user control will lead to a **more positive attitude** toward the message provider (the organization).

H 3-2. Higher levels of user control will lead to a **more positive feeling about the organization.**

H 3-3. Higher levels of user control will lead to **behavior change**.

Challenges of the Internet-based Research

Difficulty in Holding Users' Interest in an Unstructured Setting. The Internet is the most used medium among young people, yet it is a very challenging task for websites to change the behavior of users. In his recent 3-year-project, "Developing a virtual community to prevent teen substance abuse: lessons learned," Schoech (2007) found that the web experience is very hard to control and hardly affects subjects' behavior. One of the problems is that casual Internet usage is usually done with low concentration. The initial plan for Schoech's project was attracting teens wanting help with their substance abuse problem. However, in an unstructured setting, games, music, and stories are the only content that could attract and hold the teens'

interest. In a structured setting, such as a classroom, most media attract the students' interest. Nadkarni and Gupta (2007) found that although students' achievement is reflected through positive changes in student problem-solving behaviors, transfer to the regular classroom and out-of school settings has not been sustained. Text-based information content might hold teens' interest only if it was needed by the teens, for example, for a homework assignment. The question of how to hold users' interest online has not been effectively answered yet.

Time limitation.   Another challenge is evaluating complex multimedia web-based content. It was unrealistic for Schoech's (2007) project to make teens register, become active members, and repeatedly interact with the websites. The initial research question of his project, behavior change, was modified using attitudes, norms, perceived abilities, and intention. This modification also has a problem of teens answering haphazardly owing to their short attention span. Completing a 30-minute exercise might increase the knowledge, but it might be illogical to conclude that attitudes, norms, and perceived abilities can be changed without weeks of exposure.

Individual characteristics.   Similar to other human subjects research, Web-based research can be affected by numerous variables including individual characteristics that are difficult to control. Amichai-Hamburger, Fine, and Goldstein (2004) found that people who have a high need for closure prefer websites with fewer interactive features while people who have a low need for closure prefer websites containing more interactive features.

Ascertaining depth of use.   Ascertaining depth of use has always been difficult with any medium (Stempel & Stewart, 2000). Researchers can ask people how much time they spend on the media, but the answer does not match up well with answers to questions about knowledge. Similarly, click-through rates are not enough to explain what users remember or understand.

Treatments to Reduce the Difficulties Noted Above

In order to find the midpoint between an unstructured setting (casual web-surfing) and a structured setting (classroom), this study used the students' lab hour, which should prevent distractions because it is a part of their class routine.

Considering the difficulty in repeated visits and interaction with the website, this study used a public relations website introducing the organization's service plan, which did not require repeated visits.

In order to reduce the difference among individual characteristics, the subjects of this study were all college students in a college of journalism and mass communication.

In order to ascertain depth of use, the subjects were asked to complete true/false questions about the website content.

Experiment Procedure

Experiment Manipulation

Some factors related to user control included the users' ability to create their own avatars, participate in games, attempt online quizzes, participate in interactive Flash animation, and take part in an online poll. User control was determined based on those factors; it was considered that the more variety and complexity the websites give to Internet users, the more control users have. Based on preliminary analysis, three levels of categories were created to vary the variety and complexity that the websites provide to Internet users: high, medium, and low.

To manipulate the user control level, the three elements of user control, flexibility, participation, and personalization were considered.

Flexibility is determined by the various paths to navigate. By providing many paths that users can choose, users can freely decide the direction they want to explore.

Participation refers to the steps to be completed. By going through different steps, users

are encouraged to *try* rather than just read or watch.

Personalization is determined by the final outcomes that users can receive from the activities. By trying the activities that the websites provide, users can have their own outcome such as their own avatars or have the same outcomes with other users such as online poll opinions.

The paths to navigate through the activities (flexibility), the steps to complete the activities (participation), and the final outcomes that users can receive from the activities (personalization) were the elements considered in defining different levels.

High level

Table 3.1 Components of the High User Control Level Website

Flexibility	Various Paths	The activity provides various paths to navigate.
Participation	Various Steps	The activity is completed in more than one step.
Personalization	Various Outcomes	The outcomes vary from user to user. (Users have their "own" outcome.) (Completely different from others)

The high user control level provides various paths to navigate, multiple steps to complete, and outcomes that vary from person to person (see Table 3.1).

The complex flash module provides many different paths to navigate by choosing from the many options the module provides. By choosing options, the users navigate paths that are different from those chosen by others. The activity is completed in several steps by navigating and choosing the options. The outcome is also different from person to person depending on one's performance.

The high level website has a high user control level feature, a Flash module.

High User Control Level Website Design

In the high level website, a Flash module appears.

Flash Module.   The Flash module has more than one step and more than one path (see Figure 2). It also gives various outcomes depending on how users name the region.
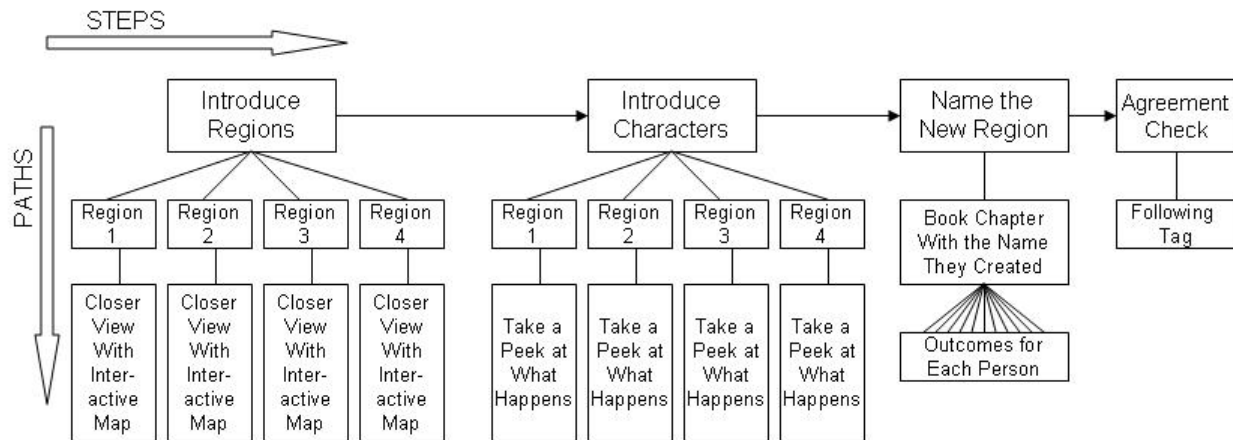
Figure 2. Flash Module Structure

Pictures of regions are displayed with a pan camera movement when users click the region name (see Figure 3). Closer view buttons are next to the region name that will zoom in on the region. The closer view provides an interactive map that responds to the mouse pointer. In other words, the mouse pointer acts as a camera lens, which can be directed wherever the users want to look.

Figure 3. "Introduction of the Regions" Section of the High User Control Level Website

When people click the region name, the characters for each region are displayed. The characters appear gradually, first as an outline and eventually in a full detail drawing (see Figure 4). The closer view button allows people to see a picture that shows what is happening in the region. It is a take-a-peek activity in which people can see inside the circle that can be moved by the mouse pointer (see Figure 5). People can move their mouse pointer to see every side of the picture.

Figure 4. "Introduction of the Characters" Section of the High User Control Level Website
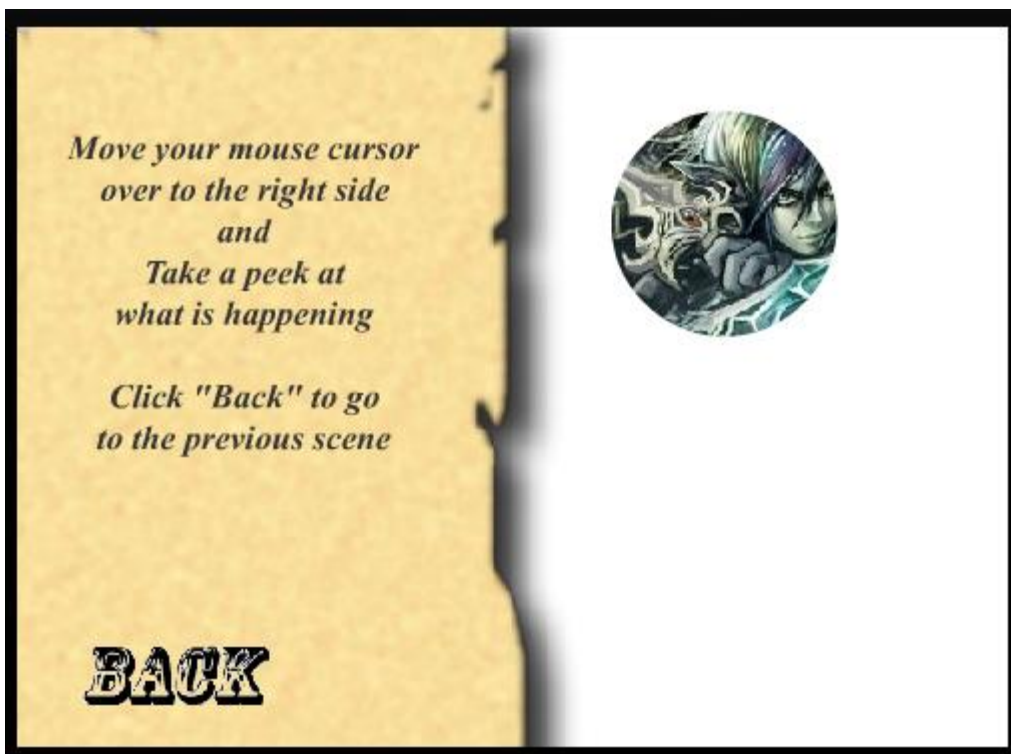
Figure 5. "Take a peek" Activity of the High User Control Level Website

People can name the fifth region. There is a box in which people can type whatever name they want and the name they type will appear in the book as Chapter 1. The Origin of "the name they put" (see Figure 6).
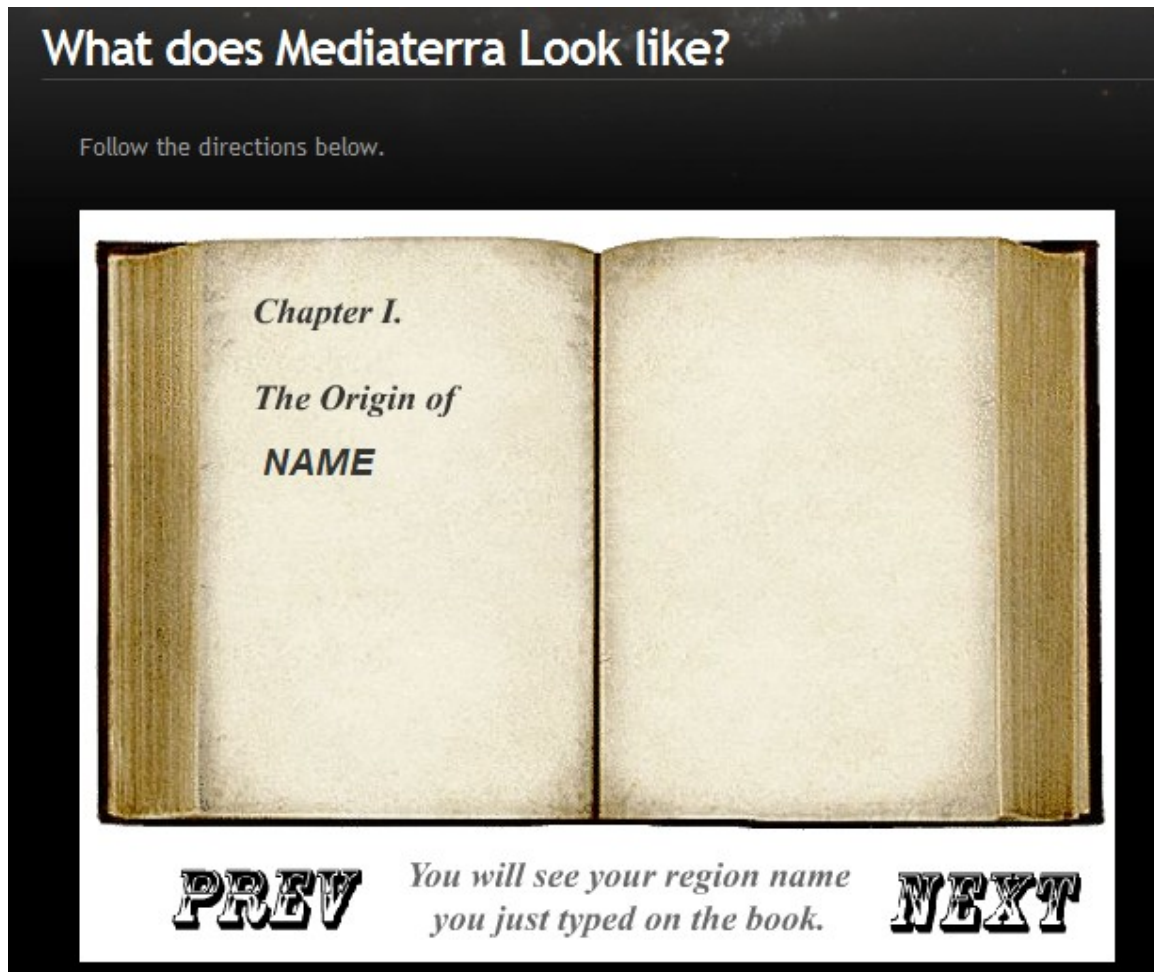
Figure 6. "Name the Region" Section of the High User Control Level Website

After they name the region, users are asked to click "yes" on a statement that says they will keep developing their imagination. After they read the statement and click "yes." The tag "storyteller" will follow their mouse pointer (see Figure 7).
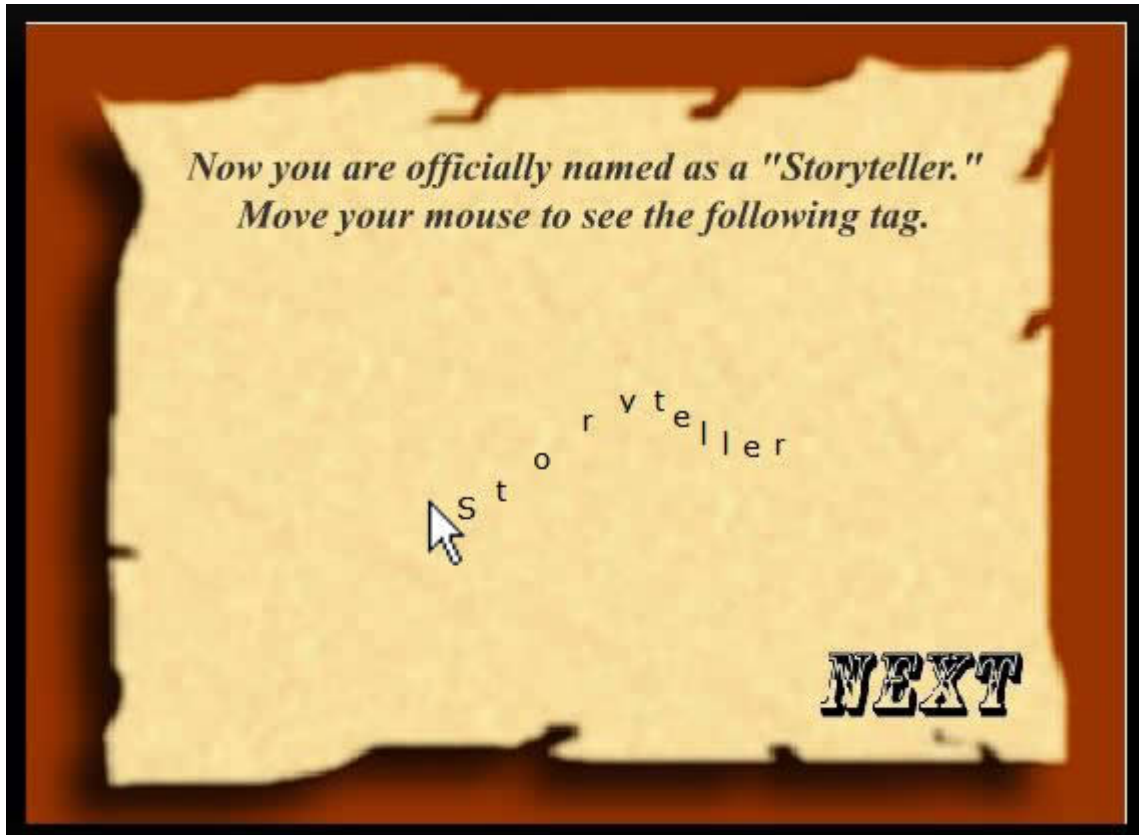
Figure 7. Following Tag of the High User Control Level Website

Interactive map scheme.　　The interactive map scheme is displayed. Each story appears when they click the button. The stories are scattered in the spider-web scheme, and users can click whichever story they want to read (see Figure 8).
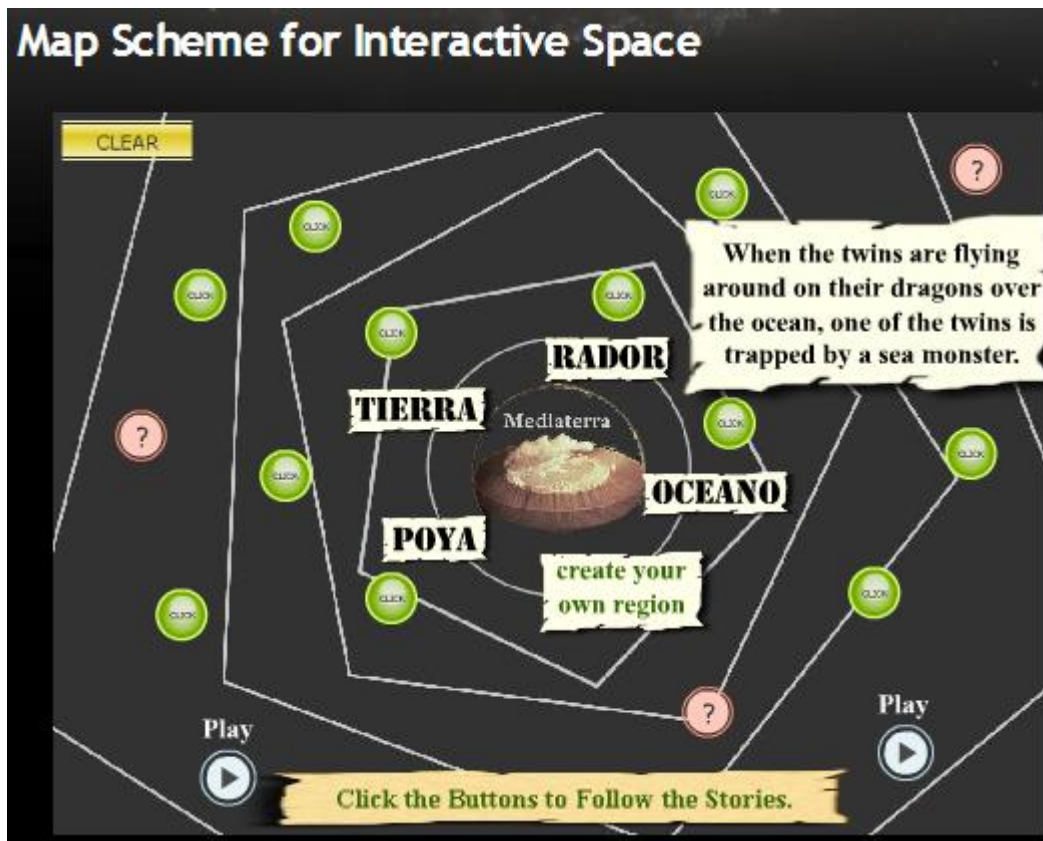
Figure 8. Map Scheme of the High User Control Level Website

Medium level

Table 3.2 Components of the Medium User Control Level Website

Flexibility	One Path	The activity provides one path to navigate.
Participation	Various Steps	The activity is completed in more than one step.
Personalization	Few Outcomes	The outcomes vary from user to user. (Same format of outcomes.)

The medium user control level provides one path to navigate, only a few steps to complete, and outcomes that vary from person to person (see Table 3.2).

For example, quizzes allow people to answer differently. Users will choose different answers for different questions. However, although the score varies from person to person, the final outcome is still a numeric assignment for everyone.

Quizzes have many questions (steps) for people to answer. However, the path is the same

for everyone — it is linear. Questions are shown in a pre-determined sequence for everyone. Quizzes are completed in more than one step but have only one path.

The medium level website has medium user control level features, a quiz and a crossword (see Figure 9 and Figure 10).

Figure 9. Quiz Structure
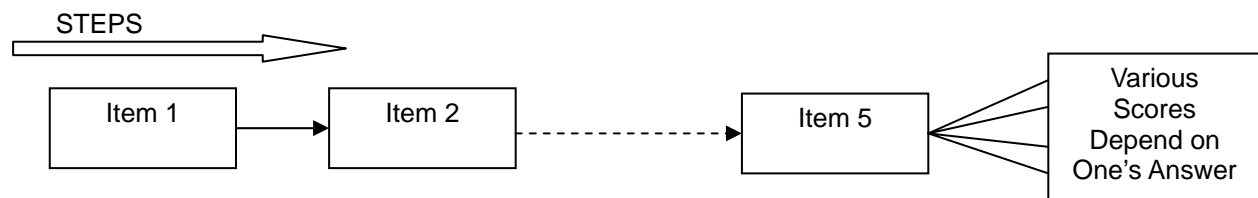
Figure 10. Crossword Structure

Medium User Control Level Website Design

In the medium level website, a quiz and a crossword appear.

Quiz. The Imagination Quiz has many steps from question #1 to question #7 (see Figure 11). But it has only one path. There are four possible results depending on the score (100-80, 80-60, 60-40, below 40).

Your Imagination Test

You will see your scores in %.
When you finish all seven items, click "RESULT" button on top or the bottom of the page.

Choose Yes or No accordingly.

Show all questions

1 / 7   =>

I believe there are many other creatures living in other planets.

A.   ?   yes

B.   ?   no

RESULT

Figure 11. Imagination Test of the Medium User Control Level Website

Crossword.   The Fantasy and Sci-fi movie crossword appears. The crossword has many steps from question #1 to question #6 (see Figure 12). It has one path. People can get various scores depending on their correct answers.

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Across: 1: Who is the most iconic villain in the movie "Star Wars," using the dark side of the Force to pursue the Jedi and the Rebel Alliance to the ends of the galaxy? (If the answer is more than two words, do not leave the space between words.)

Enter   Hint

Check

FINISH! GO TO PREV. PAGE

Figure 12. Fantasy and Sci-fi Movie Crosswords of the Medium User Control Level Website

Introduce Regions.   Regions' names and pictures are displayed as a gif image file that allows users to roll their mouse over on the region name and the frame will show the pictures (see Figure 13).

Figure 13. "Introduction of the Regions" Section of the Medium User Control Level Website

Interactive map scheme. The interactive map scheme is displayed. People can click the picture to see a bigger view that opens in a different tab or window.

Low level

Table 3.3 Components of the Low User Control Level Website

Flexibility	One Path	The activity provides one path to navigate.
Participation	One Step	The activity is completed in one step.
Personalization	One Outcome	The outcomes are the same for everyone. (The outcomes are not based on users' own performance.)

The low user control level provides one path to navigate, one step to complete, and an outcome that is the same for everyone (see Table 3.3).

For example, an online poll is completed in one step. Unlike quizzes, an online poll does

not provide different outcomes for the participants. A user might contribute to the poll result but in the end he or she does not get an individual outcome but only gets the collective result made by adding other people's opinions.

The low level website has a low user control level feature, an online poll.

Low User Control Level Website Design

In the low level website, an online poll appears (see Figure 14).
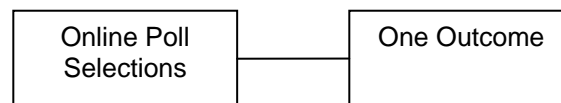
Figure 14. Online Poll Structure

Online Poll.   The Online poll asks "In which time period would you be most likely to set your story?" and three possible selections appear (see Figure 15). It has one step, one path, and one outcome.

Figure 15. Online Poll of the Low User Control Level Website

Introduce Regions.   Names and pictures of the regions are displayed as a fixed image that people cannot click or zoom in (see Figure 16).
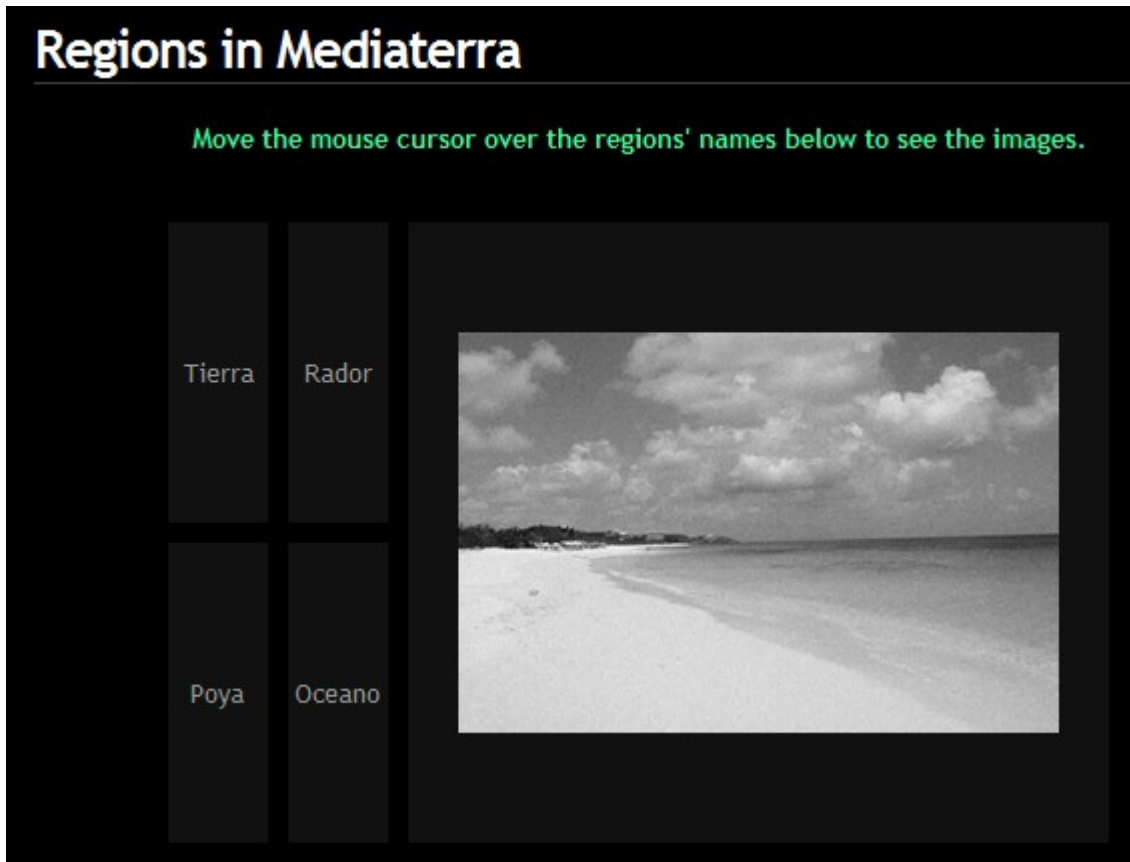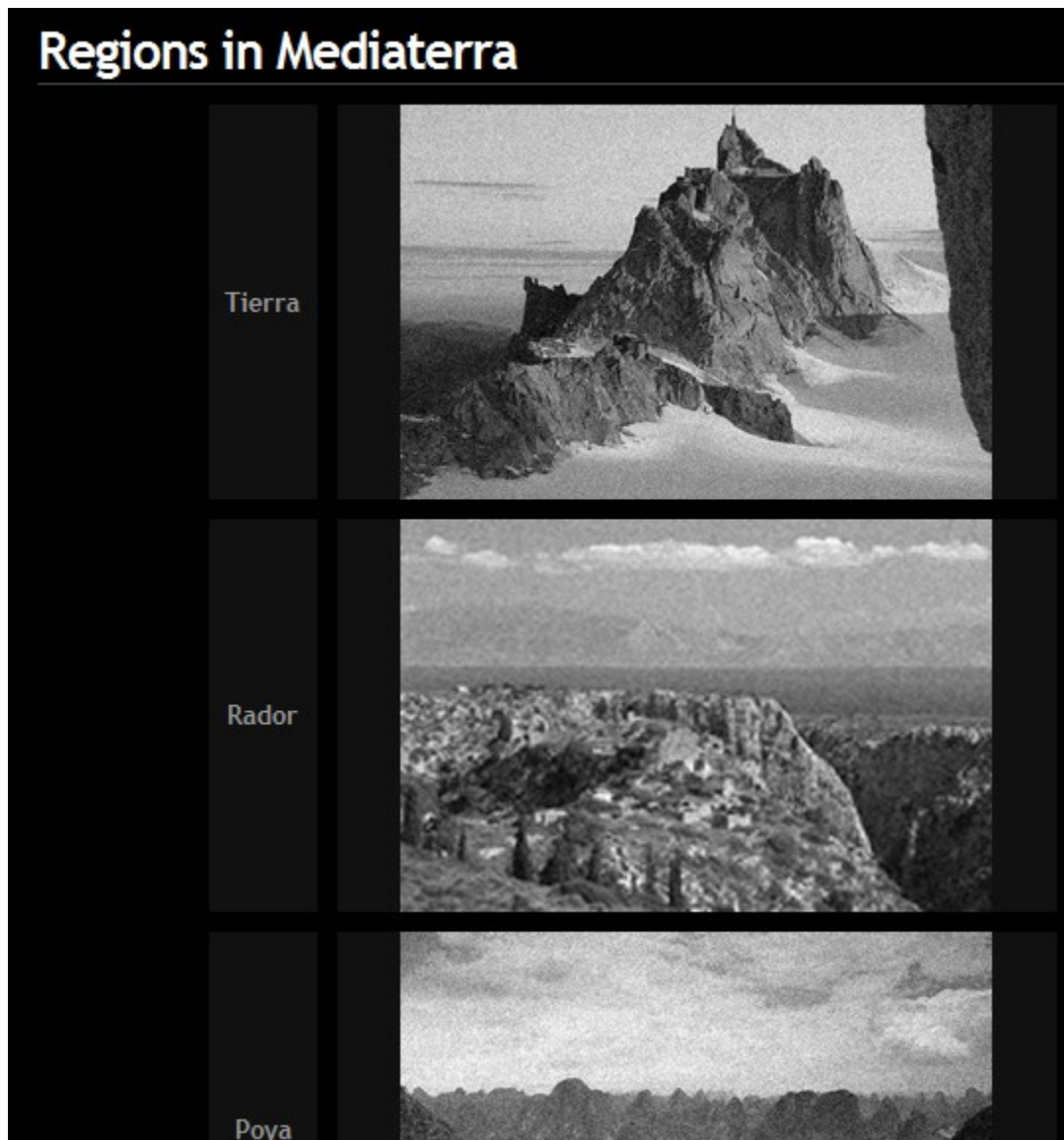
Figure 16. "Introduction of the Regions" Section of the Low User Control Level Website

Interactive map scheme. The spider-web map scheme is displayed as a fixed picture that people cannot click or zoom.

Sampling and Recruitment Procedure

Test subjects were recruited from a convenience sample of college students from the University of Georgia. The news and the public relations writing classes in the college of journalism and mass communication were used. Each class is given in a computer lab and has

about 15 students. From 12 classes, a total of 183 students completed the experiment. The total sample size used for data analysis was 183.

The percentage of female participants (77%, n = 141) was greater than that of males (23%, n = 42). The average age of participants was 20.2. The class standing of participants was as follows: 6% (n = 11) were first-year students, 23.9% (n = 44) were second-year students, 56.5% (n = 104) were third-year students, 10.9% (n = 20) were third-year students, and 2.2% (n = 4) were graduate students.

Study Procedure

The web experiment was conducted at selected computer laboratories on campus. Upon giving their consent to participate in the study, students were directed to a survey site with detailed instructions for the rest of the activity. A total of 12 classes (with 183 students) were randomly assigned to three different websites: 61 students for the high user control level website, 61 students for the medium user control level website, and 61 students for the low user control level website. They were given approximately 15 minutes to explore the website and answer the questionnaire about the web experience. The high, medium, and low user control websites were uploaded on the UGA myweb server.

The three computer labs, located on the second floor of the journalism building, were used during class periods. With the instructor's agreement, students enrolled in the course were asked to explore the assigned website and complete the survey questions during the first 15 minutes of the class time.

Survey

After exploring the assigned website, students were asked to click the link that led to the survey. The survey began by asking about interest in the website topic. The rest of the survey

questions were designed to measure the three dependent variables – pleasant experience, comprehension, and positive attitude.

In order to determine pleasant experience, this study asked about the web experience based on interactivity, flexibility, and participation.

In order to determine comprehension, this study asked about the message and information provided on the website.

In order to determine positive attitude, the survey asked the users about emotional appeal and behavioral intentions towards the organization of the website.

The survey questions were adapted from studies by Karat, Vergo, Pinhanes, Riecken, and Cofino (2002), Lustria (2007), and Bruning and Ledingham (2000). The survey questions were modified for the purpose of this study (see Appendix B for the survey questionnaire). The goal of this experiment was to measure how different user control levels affect communication, in the dimensions of a pleasant experience, the comprehension of the message, and a positive attitude toward the organization. In order to conduct the experiment, three websites were created by the researcher that represented three different user control levels by manipulating three user control factors, steps, paths, and results, discussed earlier in the methodology section. It was important to develop a message for the websites that would attract students in a mass communication education sequence. An imaginary organization "Storyteller" was developed. The organization's goal is motivating and encouraging students to write fantasy stories while being proud of their extraordinary imaginations and developing their great ideas. This message was designed with consideration of mass communication education and also is attractive enough to catch the students' attention (See Appendix C for the full content of websites).

Pilot Study

  A pilot study was conducted in order to gain feedback from participants regarding design features and website functionality. This process lasted two weeks and involved 18 participants. As a result of the pilot study, modifications were made to the websites before implementation of the experiment.

CHAPTER 4

FINDINGS

Table 4.1 Test Results of Each Hypothesis

Results		Research Questions and Hypotheses
	RQ1	How does user control level affect **web experience**?
Supported	H1-1	Higher levels of user control will lead to **more pleasant experiences** when exploring a website.
Supported	H1-2	Higher levels of user control will lead to **more positive website evaluation.**
Not Supported	H1-3	Higher levels of user control will lead to **more positive personal response**.
	RQ2	How does user control level affect **comprehension**?
Not Supported	H2-1	Higher levels of user control will lead to **easier understanding** of website content.
Supported	H2-2	Higher levels of user control will lead to **more retention** of website content.
	RQ3	How does user control level affect **attitude toward the message provider**?
Partially Supported	H3-1	Higher levels of user control will lead to a **more positive attitude** toward the message provider (the organization).
Supported	H3-2	Higher levels of user control will lead to a **more positive feeling about the organization.**
Not Supported	H3-3	Higher levels of user control will lead to **behavior change**.

Table 4.1 shows the test result of each hypothesis. Each hypothesis result is described in

the following section.

The respondents' interest in the website topic was considered as a covariate because

different levels of interest in the website topic may greatly affect the results. Even though interest

is not the designed independent variable manipulated for this study, it may greatly affect the response regardless of the study purpose. Controlling possible influential variables can increase the precision in detecting the effect of treatments.

This study employed ANOVA, MANOVA, and a principle component test. First, the data was properly screened by testing normal distribution and reliability and was qualified to be tested using ANOVA and MANOVA (see Appendix D). Second, all hypotheses were tested. ANOVA test was used for Hypothesis 1-1, 2-1, 2-2, and 3-1. MANOVA test was used for two sets of hypotheses: a set of hypotheses 1-2 and 1-3 and another set of hypotheses 3-2 and 3-3. Last, all research questions as a group were tested with MANOVA, checking for overall group differences. A principle component test was conducted to identify factors in this study.

Test Results of Hypothesis 1-1, 1-2, and 1-3

H 1-1. Higher levels of user control will lead to more pleasant experiences when exploring a website.

Hypothesis 1 was supported ($F(2, 175) = 14.537$, $p < .000$, partial $\eta^2 = .142$) with observed power .999. As expected, the high user control website received the highest score ($M = 97.07$, $SD = 13.78$), followed by the medium user control website ($M = 96.33$, $SD = 11.89$) and the low user control website ($M = 84.50$, $SD = 16.32$). This analysis indicates that a higher user control level leads to a more pleasant web experience in the categories of flexibility, participation, interaction, user control, enjoyment, loyalty, message acceptance, and effectiveness.

"**Web experience**" is divided into two sub-categories. The first is website evaluation, which includes interaction, flexibility, participation, control level, entertainment value, and effectiveness. The second is personal response, which includes message acceptance, loyalty, and subject matter. The two sub-categories were decided based on cluster analysis (see Appendix E

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for the Dendrogram). Since the two dependent variables, emotion and attitude toward the organization, were conceptually related, MANOVA was conducted for hypothesis testing in order to guard against the inflation of Type I errors caused by conducting multiple ANOVAs independently.

H1-2. Higher levels of user control will lead to more positive website evaluation.

Hypothesis 1-2 was supported (F(2, 175) = 20.783, p = .000, partial η^2 = .192) with observed power 1.000. As expected, the high user control website received the highest score (M = 85.89, SD = 10.30), followed by the medium user control website (M = 85.00, SD = 10.03) and the low user control website (M = 72.43, SD = 16.67).

H1-3. Higher levels of user control will lead to more positive personal response.

Hypothesis 1-3 was not supported (F(2, 175) = 0.74, p = .929, partial η^2 = .001) with observed power .061. The low user control website received the highest score (M = 11.61, SD = 3.90), followed by the medium user control website (M = 11.33, SD = 3.52) and the high user control website (M = 11.18, SD = 4.80).

MANOVA results for H1-2 and H1-3 detected significant differences among the three groups (Wilks Λ = .739, F(4, 354) = 14.432, p < .000, partial η^2 = .140) with observed power 1.000.

Test Results of Hypothesis 2-1 and 2-2

"Comprehension" was divided into two parts: perceived understanding (a survey item) and memory test (a true/false quiz).

H2-1. Higher levels of user control will lead to easier understanding of website content.

Hypothesis 2-1 was not supported by ANOVA results (F(2, 178) = .904, p = .407, partial η^2 = .010) with observed power .204. Respondents' perceived understanding was measured by

the survey item "The information on the website is easy to understand."

H2-2. Higher levels of user control will lead to more retention of website content.

Hypothesis 2-2 was supported (F(2, 178) = 10.308, *p* = .000, partial η^2 = .104) with observed power .986. The test's mean score for the high user control group was 3.79, followed by the medium user control group at 3.67 and the low user control group at 3.02. In other words, people who explored a high user control website remembered the website content most accurately, followed by the medium user control website and the low user control website. People did not have difficulty understanding the content, but the user control level did influence retention of the websites' contents.

Test Results of Hypothesis 3-1, 3-2, and 3-3

H3-1. Higher levels of user control will lead to a more positive attitude toward the message provider (the organization).

Hypothesis 3-1 was partially supported by ANOVA results (F(2, 180) = .737, *p* = .480, partial η^2 = .008) with observed power .174. The high user control website earned the highest score (*M* = 48.4754098, *SD* = 11.3087084) in attitude, but the low user control website (*M* = 48.2812500, *SD* = 13.1637655) received a higher score than the medium user control website (*M* = 46.5409836, *SD* = 7.7105421). ANOVA results detected no significant differences among the three groups.

The attitude variable has three sub-divisions, "emotion," "behavior," and "attitude toward the organization." Every survey item of these sub-divisions was tested separately. Out of the survey items in this study, all three items in "behavior" and one item in "attitude toward the organization" showed a mean score below 4 (neutral). If the mean score was below 4, a majority of people disagreed based on the scale set; on this scale 7 was "strongly agree," 6 was "agree," 5

was "somewhat agree," 4 was "neutral," 3 was "somewhat disagree," 2 was "disagree," and 1 was "strongly disagree." The one item in "attitude toward the organization" which had a mean score below 4 was "My sense of who I am (i.e., my personal identity) overlaps with my sense of what this organization presents." This item was compromised because it could be affected greatly by individual differences. Because of this risk, this item was deleted in further data analysis.

After dropping one item from "attitude toward the organization," emotion and attitude toward the organization was retested with behavior. Since the two dependent variables (emotion and attitude toward the organization) were conceptually related, MANOVA was conducted for hypothesis testing in order to guard against the inflation of Type I errors caused by conducting multiple ANOVAs independently.

H3-2. Higher levels of user control will lead to a more positive emotion toward the organization.

Hypothesis 3-2 was supported. For hypothesis 3-2, emotion and attitude toward the organization, the high user control level received the highest mean value ($M = 37.42$, $SD = 6.250$), followed by medium ($M = 36.10$, $SD = 5.641$), and low ($M = 35.52$, $SD = 9.286$).

H3-3. Higher levels of user control will lead to behavior change.

Hypothesis 3-3 was not supported. The mean values of all three survey items in behavior were lower than 4: item 1 ($M = 2.65$, $SD = 1.518$), item 2 ($M = 3.11$, $SD = 1.625$), and item 3 ($M = 2.51$, $SD = 1.508$). A mean value lower than 4 means there is no positive reaction detected.

These results show that the website positively affects "emotion" and "attitude toward the organization." Also, as expected in the hypothesis, the high user control level received the highest score, followed by medium, and low. However, the website did not affect "behavior" positively. The MANOVA results for hypothesis 3-1 and hypothesis 3-2 detected a significant

difference among the three groups (Wilks Λ = .937, F(4, 354) = 2.951, *p* = .020, partial η^2 = .032)

with observed power .789.

MANOVA for Three Groups

The MANOVA result indicated that the group differences (high, medium, and low user

control) in web experience (Hypothesis 1-1, 1-2, and 1-3), comprehension (Hypothesis 2-1 and

2-2), and attitude (Hypothesis 3-1, 3-2, and 3-3) were significant (Wilks Λ = .642, F (8, 346) =

10.712, p = .000, partial η^2 = .199) with observed power 1.000.

Principal Component Analysis

A principal component analysis provided statistical evidence to conclude that all three

dependant variables -- web-experience, comprehension, and attitude -- explained the one factor,

"message conveyance" (see Appendix D).

CHAPTER 5

DISCUSSION

Conclusions

The main concept of this study is user control, which was expected to lead to a pleasant web experience, improved comprehension, and a positive attitude toward the organization. User control was defined by three elements -- participation, flexibility, and personalization -- and these three elements were manipulated to apply different user control levels for each website.

Hypothesis 1-1 examined the relations between user control and a pleasant web experience. The results prove that a higher user control level leads to a more pleasant web experience. Pleasant web experience was divided into two sub-categories, web evaluation and personal response. Web evaluation is a functional assessment of websites (interaction, flexibility, participation, control level, entertainment value, and effectiveness), and personal response is the website's effect on individuals (message acceptance, loyalty, and subject matter). According to the result of hypothesis 1-2, the respondents also positively evaluated the website with high user control. However, the result of hypothesis 1-3 indicates that the user control level of the website does not affect personal response.

The results of the three hypotheses (H1-1, H1-2, and H1-3) show that high user control creates more satisfaction with the control level of the website by providing flexibility, participation, and personalization. In terms of navigation, the respondents felt that the website with high user control was easy to explore. In terms of participation, people felt more entertained

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and interested. In terms of personalization, people felt more interaction and appeal. In terms of message conveyance, the respondents answered that the high user control website functions effectively for the message conveyance. However, they answered that they do not necessarily support the organization's mission. Even though the survey results showed that the respondents did not hesitate to accept the message, the high user control website did not cause the respondents to take further action to support the mission.

Pleasant web experiences were measured with various aspects, including not only the degree of appeal but also the effectiveness of the website and the message acceptance level. There are countless elements that affect a web experience, yet this study extensively covered usability issues regarding message conveyance.

Hypothesis 2-1 and hypothesis 2-2 examined the relations between user control level and comprehension. It is important for people to understand the website content and also to retain it. Based on the results, the majority of the respondents said it was easy to understand the website contents, and no difference among the groups was detected. This result may have been caused by the fairly short and clear web contents of this study. However, there was a group difference in retention degree. As expected, people who explored the high user-control website remembered most of the website content correctly, followed by people who explored the medium user-control website and people who explored the low user-control website. People did not have difficulty in understanding the content, but there was a difference in retaining the website contents. Communicators have always sought the most effective way to make people remember the message being conveyed. Based on the results, high user control is one of the answers for improving information retention.

Hypothesis 3-1 measured the overall attitude towards the organization. There was no

significant difference among the three groups. The results of hypothesis 3-2, however, show that the high user control website positively affects emotion and attitude toward the organization. Also, as expected in the hypothesis, high user control level received the highest score, followed by the medium and low user control levels. However, the results of hypothesis 3-3 indicate that the website did not affect behavior positively and that the majority of the people did not agree to change their behavior.

In conclusion, a high user control level positively affected participants' pleasant web experiences, website evaluations, information retention, emotion toward the organization, and attitude toward the organization. However, a high user control level did not positively affect participants' personal response, content understanding, and behavior change. In other words, a high user control level succeeded in creating a positive evaluation of the website and the organization. However, a high user control level failed to change people's behaviors, such as supporting the mission and donating money.

Even though the results of the hypotheses fail to detect behavior change, the supported hypotheses may be evidence for preparing ground for possible behavior change. The combination of information retention and positive attitude has great potential to lead to behavior change.

As discovered by previous research, it is difficult to affect individuals' existing conceptions and behaviors via communication. Since behavior usually occurs after accumulating information, experience, and beliefs, it is rare to detect behavior change right after the message exposure. Even Schoech's (2007) three-and-a-half-year project, developing a virtual community to prevent teen substance abuse, did not successfully lead to the expected behavior from respondents. The complicated process that leads to behavior change has not been defined, but

scholars suggested few conditions that may trigger behavior modification. The adoption of any new message or behavior is driven by the degree to which users expect that the adoption (change) of such new behaviors will benefit them. There are three common factors that are predictive of users' intentions to participate in the behavior. First, performance expectancy is the degree to which a solution will enhance an intended user's performance. Second, effort expectancy is the effort it takes for users to change and participate in the new behavior. Third, social influence is the degree that important others—supervisors, etc.—will perceive that the intended users' participation in that behavior is positive (Mendelson et al., 2005).

Influence Process

Based on the influence process (Krosnick & Petty, 1995), it can be posited that greater information retention and positive attitudes resulting from high levels of user control are associated with positive behavior change with the passage of time. In other words, the influence process provides evidence that high user control levels could eventually affect behavior change by promoting greater information retention and a positive attitude.

In the influence process, knowledge is a structural property of attitudes. Knowledge is a function of the amount of information, and experiences linked to the attitude in memory and the strength of the associative links between the information or experiences and the attitude (Krosnick & Petty, 1995). It has been assumed that increases in knowledge are associated with greater influence of attitudes on behavior. Kallgren and Wood (1986) found that attitudes based on a large amount of information were more predictive of behavior than were attitudes based on a small amount of information. The results of this study demonstrate that user control is directly related to information retention. High levels of user control resulted in greater levels of information retention.

One long established but under-appreciated finding in the attitudes literature is that even when a person has a well-developed attitude that is activated at the time of behavior, that attitude may not always translate into behavior. A person must also clearly perceive that the attitude is a relevant guide to the behavior in question (Snyder, 1982; Snyder & Kendzierski, 1982). Thus, when confronted with a behavior related to an attitude object, a person must often consider how informative his or her attitude is to the specific behavior in question.

One property that may drive the influence process is the degree to which the content of knowledge on which the attitude is based is directly relevant to the goal of the behavior. Attitudes can differ in the nature of people's underlying dimensions of knowledge. Similarly, the goal of a particular behavior varies in its direct relevance to the different dimensions of knowledge underlying an attitude. When at least one dimension of knowledge underlying the attitude is directly relevant to the goal of a behavior, and that dimension of knowledge is evaluatively consistent with the overall attitude, a person is likely to judge that his or her attitude is a valid guide for the behavior (Fabrigar, Petty, Smith, & Crites, 2006). With a combination of information and a positive attitude, people can conceive the positive attitude as an informative guide to behavior. The results of this study showed that high user control positively affects both greater information retention and positive attitude. Based on the influence process, it is possible to posit that high user control would positively affect behavior with the passage of time.

Evidence of behavior change caused by interactive web features was found in previous empirical studies with a longer observation period than this study. Rains (2008) studied Internet exploration and the relationship among acquiring health information, individuals' motivation and their health management behavior. According to his study, positive and successful web experiences encouraged respondents' active involvement with a message provider. Tseng, Chiang,

and Hsu (2008) suggested that interactive processes in web-based learning platforms influenced students' attitude and perceptions toward the platform as well as promoting acceptance behavior.

Previous research supports possible behavior change as a result of high user control levels. In fact, we can infer from previous research that high user control levels could eventually affect behavior change by promoting greater information retention and more positive attitudes.

Implications

This study attempted to answer the question, "What are the most effective ways to convey the public relations message in a web-based environment?" Previous studies have shown that interactivity in web communication enhances website attraction which leads to positive thoughts and attitudes toward the website provider. Thus, interactivity is an essential element for successful web communication, and user control has been considered one method of enhancing interactivity. However, while these studies suggest user control as an important element in achieving interactivity, they lack an explicit focus on structuring user control.

By proposing the user control model and testing the effectiveness of the model, this study showed that user control is a key component for successful message conveyance in a web-environment. By increasing user control, users become more active in the process and deeply engaged with the experience. With the user control model, this study sought to shed more light on the importance of developing systematic standards and applicable methods for interactive web communication.

There are two meaningful points in this study that contrast with those of other studies. First, the experiment of this study was designed to strictly control possible distractions for assessing user control. In order to measure the pure effect of differences in interactive web features, it is crucial to control other possible influential variables, such as individual

characteristics and environmental settings. The websites used in this study were not existing websites but created websites, carefully designed to control web elements including message and contents display. The website theme, fantasy storytelling, was also carefully selected for the respondents, journalism and mass communication majors. Individual differences were also controlled by selecting majors within a single college. The experimental environment, a computer lab, was also carefully selected to maintain an appropriate balance between facilitating casual exploring and preventing distractions.

The Importance of Setting Explicit Methods for Increasing Interactivity

Second, this study presented explicit methods for increasing interactivity. This study focused on translating broad suggestions for achieving successful message conveyance in web communication into explicit and systematic methods. The purpose of proposing the user control model is to achieve interactivity in web communication. The main concepts of web communication used in this study were translated into applicable techniques. Since many frequently used concepts of web-based environments, including interactivity and flexibility, are vague and abstract concepts, it is difficult to define, examine, or measure them. This study presents the technical applications for interactive web features with clearly defined criteria. In order to provide clear standards, this study translates these concepts into the application methods of web features. Flexibility was applied as paths, participation was applied as steps, and personalization was applied as outcomes. This study proposes measurable systematic standards to improve abstract web concepts including interaction, flexibility, and participation. By determining these systematic standards and proposing applicable features, this study provides clear guidelines for web features regarding successful public relations message conveyance.

This study did not set out to solve the debate surrounding web communication; rather it

suggested methods for increasing interactivity to researchers to aid their investigation into the structure of web communication.

As the number of projects embracing web technology continues to grow, theoretical and applied discoveries in the communication field grow as well. However, even the most robust technology and empirically validated theories can only provide the foundation of web communication. It is important to note the benefits of the web technology revolution are supposed to enable researchers and practitioners to use these tools and make them more valuable than the sum of their parts. Therefore, it is insufficient merely to put these tools in the hands of such groups. Simply making these tools available does nothing to ensure that they will actually be used effectively. With the same technology, the benefit can vary from nothing to a great amount depending on how efficiently the technology is used (Barolli & Koyama, 2005).

It is always difficult to determine evaluation criteria for practical applications such as web features. However, without evaluation criteria, the true effect of the treatment is hard to determine; thus, it is hard to find a better way to achieve an organization's communication goals. That is why a systematic measurement tool is necessary for developing better web applications. Increasing interactivity and increasing usability are very broad terms that need to be explained explicitly. Explaining "how," not with abstract concepts but with specific instructions, is the most crucial part of this research. In order to figure out the pure effect of a certain method, carefully designed websites for the specific research purpose should be tested in addition to testing existing websites.

Interactive Websites for Achieving Public Relations Goals

Interactive websites are considered essential tools for achieving public relations goals, and the findings of this study showed that user control is an essential key for promoting

interactivity on websites. Building relationships through an interactive website will ultimately serve to improve the corporate image of any organization and align its corporate policy with public needs. It is important to understand the value of websites and to utilize them to connect with the public.

Despite variations in definition of public relations, it has been agreed that public relations is strategic communication between an organization and its publics. This strategic communication can be viewed as the building of relationships and the management of communication between organizations and individuals. Cooley (1999) suggested that the principal function of public relations has been, and continues to be, building relationships and managing communication. She also mentioned that every organization should sustain its messages over time and reach people around the world in spite of financial limitation. The Internet is the cheapest medium for loading messages and providing accessibility around the world if we do not consider exposure rates. Public relations professionals should know how to utilize the Internet to distribute a message, to communicate with publics, and eventually to manage relationships with publics. Therefore, it is critical to evaluate the effect of website usage.

A large number of previous studies indicate that interactivity is the key concept of achieving the goal of public relations professionals: building beneficial relationships between clients and audiences. Public relations professionals should embrace interactivity in their media strategies, and this study suggests that increasing interactivity would be achieved by applying the user control concept.

Public relations practitioners, both managers and technicians, should consider their target public during the creation of their web message plan. Even though there are scholars who study systematic standards for increasing interactivity, they are applied differently depending on the

specific objectives of public relations practitioners. The web message plan should be based on empirical research with careful evaluation before the actual implementation. It is also important to have the latest knowledge of technology as well. Public relations practitioners are not expected to be professional designers but they are expected to know what works and what does not work for every possible technique. Public relations practitioners and companies must be willing to actively adopt technologies to embrace the resources as part of their professional activities.

Public-centered Approach and User-centered Approach

This study on user control is closely connected to the basic concept of public relations, the management of publics connected with an organization. The first priority of public relations is to understand a public's needs and provide the right message for it. The public-centered (public-oriented) approach is crucial to achieve the communicators' goal. The concept of "user control" that was originated from the user-centered approach is also the perspective of understanding the public in their point of view. Who is the public? What can we do to effectively communicate with the public?

In the public relations perspective, communication is not considered with an asymmetrical, top-down process that is driven by an organization; rather publics are considered as active groups that also initiate communication. According to Grunig's situational theory (Grunig & Repper, 1992), publics are defined as groups of individuals who realize that there is a common issue, who feel that their collective efforts can influence the issue, and who in turn participate in collective action to influence the outcome. In other words, collective problem recognition within a group of people may be linked to collective involvement and action.

Similarly, users of the Internet are active groups who dynamically express themselves and

contribute media content. Internet users also actively discuss various issues and form public opinions. Both Internet users and publics have power to mobilize public opinion. The process of influencing public opinion is a bottom-up, grassroots endeavor. Voluntary participation in a bottom-up evolution is a critical attribute of the public and Internet users (David, 2004).

This study presents an alternative method of analyzing interactive features not with its form but with its structure. Interactive features in a web environment are usually sorted according to their format or the tools used to create them. For example, if the interactive feature were games created using the software Flash, people would likely categorize the features under the same category "Flash game." Also, due to the advanced capabilities of Flash software, Flash games are usually considered having high interactivity. However, this study suggested that it is crucial to evaluate levels of interactivity based on a feature's structure and not simply its format. Even though a Flash game may have been created using advanced techniques, it may lack flexibility and personalization components. Consequently, it may have a low level of user control and may not be highly interactive. Conversely, an interactive feature created using only basic techniques like hyperlinks ca be designed having flexibility, participation, personalization components and become a highly interactive feature with a high level of user control. The user control model proposed and tested in this study presents a new perspective regarding the framework of interactive features. Using the user control model as a heuristic, this study provides an alternative method for evaluating interactive features not based on tools or format but based on design and structure. Such an approach sheds light on different ways to study and design interactivity in web environments.

Summary

In summary, this study presented two implications for public relations scholars: the

importance of defining web interactive features and the importance of investigating systematic standards and explicit methods for increasing interactivity. By defining the structure of the web's interactive features, this study presented systematic standards and explicit methods for interactive websites which induce explicit evaluation criteria.

Likewise, this study presented two implications for public relations practitioners: the importance of developing interactive websites with high user control and the importance of applying a user-centered approach. Further, this study introduced the user control concepts of flexibility, participation, and personalization, and application methods for developing interactive websites for strategic communication with publics. The user-centered approach presented in this study is connected with a public-centered approach that facilitates the achievement of the public relations goal of building positive relationships with publics.

Ultimately, this study proposed an initial understanding of the role of user control in web communication. This study's findings suggested that user control provides a clear method for enhancing interactivity, effectiveness, and engagement with web communication. By extensively investigating commonly used web concepts, this study placed strong emphasis on the need to develop systematic standards and applicable methods for introducing user control concept into web communication.

Limitations and Future Research

Limitations

In order to measure the pure effect of user control, this study controlled many variables. The website used was specifically created for the purpose of promotion and mainly aimed at students majoring in journalism and public relations. The website content was also fairly easy and short for the respondents. In order to broaden the reach of the study, the standards presented

here should be applied for other public relations purposes, not only for promotion but also for internal relations, customer relations, and public relations campaigns. Furthermore, various respondents other than students should be studied. By focusing only on college students, this study provides results for a limited range of age and educational background. The results may not apply to respondents other than college students. Inclusion of a wider range of demographics would strengthen future research. For future research, studies similar to this one can be implemented for different purposes with different target audiences.

Future Research

How much degree of user control is appropriate? Some may argue that giving control to users is equal to losing control. However, providing the "feeling of control" does not mean giving up message providers' roles. Control is a relative term. In spite of user selection, in the end, the company reserves the right to select or refuse the final contents. The company can also censor and delete the users' postings on its website. Even in contributory media environments, such as Wiki and YouTube, the media professionals who create the system can determine the rules, the access and, in some cases, the outcome (Lordan, 2006). Consequently, high degrees of user control do not necessarily mean loss of control. Then, there is a subsequent question: How much control is the most effective?

The relationship between user control and communication effectiveness may not always be positive. While increasing user control also increases communication effectiveness, after a certain point, the user control may begin functioning as a distraction factor and the effectiveness may start decreasing as the user control increases. Geissler, Zinkhan, and Watson (2006) studied the amount and type of information that should be included on a homepage to facilitate communication effectiveness. Undoubtedly, the various elements included on a homepage play a

pivotal role in either enticing users into the site or driving them away. However, the relationship between complexity and effect is not always positive. Increasing complexity also increases communication effectiveness, but after a certain point, the effect starts decreasing as the complexity increases. User control would function the same as complexity. The relationship between communication effectiveness and user control should be studied to determine the highest point at which the levels of user control yield the greatest level of communication effectiveness.

Contributory Media Study with Maximum User Control. Putting information on a website does not mean that web characteristics are being used properly. The website should be carefully designed for the purpose. It is important to understand users' expectations and the usable media characteristics that you can apply. One user expectation for the web is the "feeling of control" since the web is not a vertical medium like TV or radio but a horizontal medium (Tremayne, 2004).

In order to provide a "feeling of control," communicators need to understand the technology. Technology determines the pattern of media consumption. The interactivity comes from the way we physically use the web. Unlike traditional media, new media such as websites and podcasts demand interactivity. For these new media to work, users must cause something to happen – click from screen to screen, select, mix, drag or even create content for themselves. Web users anticipate and prefer greater input during the communication process. This expectation for interactivity is especially great for many young users, who have been raised in an environment of greater media control and who expect that they will have a greater degree of input into the media (Lordan, 2006).

Contributory media provide the greatest degree of control. Contributory media have

rapidly emerged with YouTube and Wikipedia. These applications invite amateurs to shape what the site has to offer by allowing unknown contributors to create the information. Today's users may demand not just interactivity features such as hyperlinks but a great level of interactivity such as contributory media (Lordan, 2006).

There are three different ways to interact: user-web, user-user, and user-document. This study focuses on user-web interaction. In future studies, researchers can embrace all three ways of interaction by developing web applications such as Wiki and YouTube that allow people's contributions.

In addition to the aforementioned ideas for future research, the following two approaches should be considered for a more in-depth study.

Need for an Interdisciplinary Approach. The web is studied in every field, including computer science, communication, education, and management, just to name a few. Since the medium is shared by every field, scholars need to extensively adopt different approaches from other fields. These interdisciplinary approaches would bring a synergistic effect to scholarship. For example, education theory helps public relations researchers understand learning processes regarding message conveyance. Computer science researchers can help public relations researchers to study a particular communication pattern by developing the module. Pursuing interdisciplinary approach creates greater possibilities for web communication to achieve goals by illuminating the pitfalls and successes in other fields.

Need for a Recursive Approach. It is clear that the Internet and web-based communications represent an increasingly competitive environment. In order for public relations practitioners to remain competitive, they need to constantly identify factors that attract users. This involves considering changing user tastes and evolving public trends. On-going education

of clients on the relative value of the web for different purposes is also necessary to maintain

such a competitive stance. In addition to studying the values of the web itself as a tool, research

on message acceptance should be conducted as well. Researchers need to confirm that the target

public has indeed received, understood and found the message persuasive. Without confirmatory

research, though, there is no way a public relations practitioner can claim strategic value on

behalf of any client (Tremayne, 2004). The constant assessment of user acceptance and

satisfaction enables public relations practitioners to remain at the forefront of their business at

every moment.

REFERENCES

Amichai-Hamburger, Y., Fine, A., & Goldstein, A. (2004). The impact of Internet interactivity and need for closure on consumer preference. *Computers in Human Behavior, 20*(1), 103-117.

Ariely, Dan (2000), "Controlling the Informacion Flow: Effects on Consumers' Decision Making and *Vieferences," Joumal of Consumer Research, 27*(2), 233-248.

Barolli, L., & Koyama, A. (2005). Cooperative agents in Web-based distance learning. In: C. Howard, J. V. Boettcher, L. Justice, K. Schenk, P. L. Rogers, & G. A. Berg (Eds.), *Encyclopedia of Distance Learning.* Idea Group (pp. 430–439).

Berthon, P., Pitt, L., & Watson, R. T. (1996). Re-surfing W3: Research Perspectives on Marketing Communication and Buyer Behavior on the Worldwide Web. *International Journal of Advertising. 15*(9), 287-301.

Bruning, S. D., & Ledingham, J. A. (2000). Perceptions of relationship and evaluations of satisfaction: an exploration of interaction. *Public Relations Review, 26*(1), 85-95.

Capriotti, P., & Moreno, Á. (2007). Corporate citizenship and public relations: The importance and interactivity of social responsibility issues on corporate websites. *Public Relations Review, 33*(1), 84-91.

Chen, H., Wigand, R., & Nilan, M. S. (1999). Optimal experience of web activities, *Computer in Human Behavior, 15*(5), 585-608.

Cooley, T. (1999). Interactive Communication – Public relations on the web. *Public Relations Quarterly, 15*(2), 41-42

Coupey, E. (1994), Restructuring: Constructive Processing of Information Displays in Consumer Choice. *Journal of Consumer Research, 21*(1), 83-89.

Csikszentmihalyi, M. (1977). *Beyond Boredom and Anxiety,* San Francisco: Jossey-Bass.

Csikszentmihalyi, M. (1990). *Flow: The Psychology of Optimal Experience.* New York: Harper & Row.

David, P. (2004). Extending symmetry: Toward a convergence of professionalism, practice, and pragmatics in public relations. *Journal of Public Relations Research, 16*(2), 185-211.

Davidson, A. R., Yantis, S., Norwood, M., & Montano, D. E. (1985). Amount of information about the attitude object and attitude– behavior consistency. *Journal of Personality and Social Psychology, 49,* 1184–1198.

Downes, E. J., & McMillan, S. J. (2000). Defining interactivity: A qualitative identification of key dimensions. *New Media & Society, 2*(2), 157-179.

Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes.* Fort Worth, TX: Harcourt Brace Jovanovich.

Engholm, I. (2002). Digital style history: The development of graphical design on the Internet. *Digital Creativity, 13*(4), 193-211.

Esrock, S. L., & Leighty, G. B. (1998). Social responsibility and corporate web pages: Self-presentation or agenda-setting? *Public Relations Review, 24*(3), 305-319.

Esrock, S. L., & Leichty, G. B. (1999). Corporate World Wide Web pages: Serving the news media and other publics. *Journalism & Mass Communication Quarterly, 76*(3), 456-467.

Esrock, S. L., & Leighty, G. B. (2000). Organization of corporate web pages: Publics and functions. *Public Relations Review, 26*(3), 327-344.

Fabrigar, L. R., Petty, R. E., Smith, S. M., & Crites, S. L. J. (2006). Understanding knowledge

    effects on attitude-behavior consistency: The role of relevance, complexity, and amount of

    knowledge. *Journal of Personality and Social Psychology, 90*(4), 556-577.

Fazio, R. H. (1995). Attitudes as object-evaluation associations: Determinants, consequences,

    and correlates of attitude accessibility. In R. E. Petty & J. A. Krosnick (Eds.), *Attitude*

    strength: Antecedents and consequences (pp. 247–282). Mahwah, NJ: Erlbaum.

Garber, E. (2004). MOO: Using a computer gaming environment to teach about community arts.

    Art Education, 10, 40-47.

Geissler, G. L., Zinkhan, G. M., & Watson, R. T. (2006). The influence of home page

    complexity on consumer attention, attitudes, and purchase intent. *Journal of Advertising,*

    35(2), 69-80.

Ghose, S., & Dou, W. (1998). Interactive functions and their impacts on the appeal of internet

    presence sites. *Journal of Advertising Research, 38*(2), 29-43.

Goldberg, Y., Safran, M., & Shapiro, E. (1992). Active mail? A framework for implementing

    groupware, CSCW '92, October 1992 (Toronto: Canada), pp. 75-83.

Gould, J. D., Boies, S. J., & Lewis, C. (1991). Making Usable, Useful, Productivity: Enhancing

    Computer Applications. *Communications of the ACM, 34*(1), 74-85.

Grunig, J. E., & Repper, F. C. (1992). Strategic management, publics, and issues, In J. E. Grunig

    (Ed.), *Excellence in public relations and communication management* (pp. 117-158).

    Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Ha, L., & James, L. (1998). Interactivity reexamined: A baseline analysis of early business web

    sites. *Journal of Broadcasting and Electronic Media, 42*(4), 457-474.

Hill, L. N., & White, C. (2000). Public relations practitioners' perception of the world wide web

    as a communication tool. *Public Relations Review, 26*(1), 31-51.

Hoffman, D. L., & Novak, T. P. (1996). Marketing in hypermedia computer-mediated

    environments: Conceptual foundations. *Journal of Marketing, 60*, 50-68.

Huber, O., & Seiser, G. (2001). Accounting and convincing: The effect of two types of

    justification on the decision process. *Journal of Behavioral Decision Making, 14*(1), 69-85.

Jennings, M. (2000). *Theory and models for creating engaging and immersive*

    ecommerce websites. In Proceedings of the 2000 ACM SIGCPR Conference on Computer

    Personnel Research, Evanston, Illinois.

Kallgren, C. A., & Wood, W. (1986). Access to attitude-relevant information in memory as a

    determinant of attitude-behavior consistency. *Journal of Experimental Social Psychology,*

    22, 328–338.

Karat, C., Karat, J., Vergo, J., Pinhanez, C., Riecken, D., & Cofino, T. (2002). That's

    entertainment! Designing streaming multimedia web experience. *International Journal of*

    Human-Computer Interaction, 14(3&4), 369-284.

Kent, M. L., & Taylor, M. (1998). Building dialogue relationships through the World Wide Web.

    Public Relations Review, 24(3), 321-334.

Kent, M. L., Taylor, M., & White, W. J. (2003). The relationship between web site design and

    organizational responsiveness to stakeholders. *Public Relations Review, 29,* 63-77.

Klein, L. R. (2003). Creating Virtual Product Experiences: The Role *of Telepresence. Joumal of Interaaive Marketing,* 17(1), 41-55.

Koufaris, M. (2002). Applying the Technology Acceptance Model and Flow Theory to Online Consumer Behavior. *Information Systems Research, 13*(2), 205-223.

Korper, S., & Ellis, J. (2001). Thinking ahead in e-commerce. *Executive Excellence, 18*(7), 19.

Koufaris, M., Kambil, A., and LaBarbera P. A. (2001). Consumer Behavior in Web-Based Commerce: An Empirical Study. *International Journal of Electronic Commerce, 6*(2), 115-138.

Krosnick, J. A., & Petty, R. E. (1995). Attitude strength: An overview. In R. E. Petty & J. A. Krosnick (Eds.), *Attitude strength: Antecedents and consequences* (pp. 1–24). Mahwah, NJ: Erlbaum.

Lordan, E. J. (2006). Interactivity: The latest trend in effective communications. *Public Relations Quarterly, 51*(3), 27-29.

Lustria, M. A. (2007). Can interactivity make a difference? Effects of interactivity on the comprehension of and attitudes toward online health content. *Journal of the American Society for Information Science and Technology, 58*(6), 766-776.

Mackenzie, C. (2002). The need for a design lexicon: Examining minimalist, performance-centered, and user-centered design. *Technical Communication, 49*(4), 405-410.

Macias, W. (2003). A beginning look at the effects of interactivity, product involvement and web experience on comprehension: Brand web sites as interactive advertising. *Journal of Current Issues and Research in Advertising, 25*(2), 31-44.

MacKenzie, S. B., & Lutz, R. L. (1989). An Empirical Examination of the Structural

    Antecedents of Attitude Toward the Ad in an Advertising Pretesting Context. *Journal of*

    Marketing, 53(April), 48-65.

McCrickard, D. S., Chewar, C. M., Somervell, J. P., & Ndiwalana, A. (2003). A model for

    notification systems evaluation—assessing user goals for multitasking activity. *ACM*

    Transactions on Computer-Human Interaction (TO-CHI), 10(4), 321-338.

Mendelson, A. L., Coleman, R., & Kurpius, D. D., (2005). Civic usability in Internet journalism

    classes. *Journalism and Mass Communication Educator,* 202-216.

Milne, C., & Morrison, A. (2007). Demystifying biotechnology: The PCR game. *Teaching*

    Science, 53, 19-23.

Montgomery, H., Sharafi, P., & Hedman, L. R. (2004). Engaging in activities involving

    information technology: Dimensions, modes, and flow. *Human Factors, 46*(2), 334-348.

Nadkarni, S., & Gupta, R. (2007). A task-based model of perceived website complexity. *MIS*

    Quarterly, 31(2), 501-524.

Nielsen, J. (1993). *Usability engineering*. San Diego, Academic Press.

Nielsen, J. (2002). *Homepage Usability: 50 WebsitesDeconstructed*. Indianapolis, New

    Riders.Nielsen, J. and Tahir (2001). Building Websites with depth. *Webtechniques* (2):

    (online).

Nordhielm, C. L. (2002). The Influence of Level of Processing on Advertising Repetition Effects.

    Journal of Consumer Research, 29(December), 371-382.

Novak, T. P., Hoffman, D. L., & Yung, Y. F. (2000). Measuring the Flow Construct in Online

    Environments: A Structural Modeling Approach. *Marketing Science, 19*(1), 22-44.

O'Brien, H. L., Toms, E. G. (2005). *Engagement as process in human-computer interactions*. NSERC Research, Halifax, NS: Dalhousie University.

O'Connor, P. (2004). Conflicting viewpoints of web design. *Journal of Travel & Tourism Marketing. 17*(2), 225-230.

O'Keefe, R. M., O'Connor, G., & Kung, H. (1998). Early Adopters of the Web as a Retail Medium: Small Company Winners and Losers. *European Journal of Marketing, 32*(7/8), 629-643.

Peterman, M. L., Rohem, H. A., & Haugtvedt, C. P. (1999). An Exploratory Attribution Analysis of Attitudes Toward the WWW as a Produce Information Source, *Advances in Consumer Research, 26*, 75-79.

Rafaeli, S. (1988). In Hawkins R. P., Wiemann J. M. and Pingree S.(Eds.), *Interactivity: From media to communication*. Newbury Park, CA: Sage Publications.

Rains, S. A. (2008). Seeking health information in the information age: the role of Internet self-efficacy. *Western Journal of Communication, 72*(1), 1-18.

Rieber, L. P. (1996). Seriously considering play. *Educational Technology, Research & Development, 44*(2), 45-58.

Rucker, D. D., & Petty, R. E. (2004). When resistance is futile: Consequences of failed counter-arguing for attitude certainty. *Journal of Personality and Social Psychology, 86,* 219–235.

Ryan, M. (2003). Public relations and the web: Organizational problems, gender, and institutional type. *Public Relations Review, 29*(3), 335-349.

Schoech, D. (2007). Developing a virtual community to prevent teen substance abuse: lesson

    learned. *Journal of Technology in Human Service, 25*(3). 81-100.

Schultz, T. (2000). Mass media and the concept of interactivity: An exploratory study of online

    forums and reader email. *Media Culture & Society, 22*, 205-221.

Sheehan, K. B., & Doherty, C. (2001). Re-weaving the Web: Integrating Print and Online

    Communications.   *Journal of Interactive Advertising, 15*(2), 47-59.

Shih, C. (1998). Conceptualizing Consumer Experiences in Cyberspace. *European Journal of*

    Marketing, 32(7/8), 655-665.

Shneiderman, B. (1998). *Designing the user interface: Strategies for effective human-computer*

    interaction. Reading, MA: Addison Wesley Longman.

Sicilia, M., Ruiz, S., & Munuera, J. L. (2005). Effects of interactivity in a website. *Journal of*

    Advertising, 34(3), 31-45.

Singer, J. B. (2001). The metro wide web: Changes in newspapers' gatekeeping role online.

    Journalism & Mass Communication Quarterly, 78(1), 65-80.

Smith, D., & Sivakumar, K. (2004). Flow and Internet Shopping Behavior: A Conceptual Model

    and Research Propositions. *Journal of Business Research, 57*(10), 1199-1208.

Snyder, M. (1982). When believing means doing: Creating links between attitudes and behavior.

    In M. P. Zanna, E. T. Higgins, & C. P. Herman (Eds.), *Consistency in social behavior: The*

    Ontario symposium (Vol. 2, pp. 105–130). Hillsdale, NJ: Erlbaum.

Snyder, M., & Kendzierski, D. (1982). Acting on one's attitudes: Procedure for linking attitude

    to behavior. *Journal of Experimental Social Psychology, 18,* 165–183.

Stempel, G. H., & Stewart, R. K. (2000). The Internet provides both opportunities and challenges for mass communication researchers. *Journalism and Mass Communication Quarterly, 77*(3), 541-548.

Stephenson, W. (1967). *The Play Theory of Mass Communication*. Chicago: University of Chicago Press.

Steuer, J. (1992). Defining virtual reality: Dimensions determining telepresence. *Journal of Communication, 42*(4), 73-93.

Stuart, H., & Jones, C. (2004). Corporate branding in market space. *Corporate Reputation Review, 7*(1), 84-93.

Sullivan, J. (1999). What are the functions of corporate home pages? *Journal of World Business, 34*(2), 193-210.

Tam, K. Y., & Ho, S. Y. (2006). Understanding the impact of web personalization on user information processing and decision outcomes. *MIS Quarterly, 30*(4), 865-890.

Tao, C., & Bucy, E. P. (2007). Conceptualizing media stimuli in experimental research: Psychological versus attribute-based definitions. *Human Communication Research, 33*(4), 397-426.

Taylor, M., Kent, M. L., & White, W. J. (2001). How activist organizations are using the internet to build relationships. *Public Relations Review, 27*(3), 263-284.

Tremayne, M. (2004). The web of context: Applying network theory to the use of hyperlinks in journalism on the web. *Journalism and Mass Communication Quarterly, 81*(2), 237-253.

Trevino, L. K., & Webster, J. (1992). Flow in Computer-Mediated Communications. *Communication Research, 19*(5), 411-426.

Tseng, K. H., Chiang, F. K., & Hsu, W. H. (2008). Interactive processes and learning attitudes in a web-based problem-based learning (PBL) platform, *Computer in Human Behavior*, *24*, 940-955.

Venkaatesh, V., & Agarwal, R. (2006). Turning visitors into customers: A usability-centric perspective on purchase behavior in electronic channels. *Management Science, 52*(3), 367-382.

Venturi, G., Troost, J., & Jokela, T. (2006). People, organization, and process: An inquiry into the adoption of user-centered design in industry. *International Journal of Human-Computer Interaction, 21*(2), 219-238.

Warnick, B. (2007). *Rhetoric online. persuasion and politics on the world wide web.* New York: Peter Lang.

Webster, J., & Hayes H. (1997). Audience Engagement in Multimedia Presentations. *The DATA BASE for Advances in Information Systems, 28*(2), 63-77.

Webster, J., & Martocchio, J. J. (1992). Microcomputer Playfulness: Development of a Measure with Workplace Implications. *MIS Quarterly, 16*(2), 201-226.

White, C., & Raman, N. (1999). The world wide web as a public relations medium: The use of research, planning, and evaluation in web site development. *Public Relations Review, 25*(4), 405-419.

Woszczynski, A. B., Roth, P. L., & Segars, A. H. (2002). Exploring the theoretical foundations of playfulness in computer interactions. *Computers in Human Behavior, 18*, 369-388.

Wu, G. (1999). In Roberts M. S. (Ed.), *Perceived interactivity and attitude toward website*. Gainesville: University of Florida.

Yamaguchi, T., Hosomi, I., & Miyashita, T. (1997). Webstage: An active media enhanced World Wide Web Browser. In the Proceeding of CHI '97, March 1997 (Atlanta: USA), pp. 391-398.

Zeldman, J. (2001). *Taking your talent to the Web. A guide for the transitional designer,* Indianapolis, New Riders.

Zhang, Ping., & Dran, G. M. (2000). Satisfiers and dissatisfiers: A two-factor model for website design and evaluation. *Journal of the American Society for Information Science, 51*(14), 1253-1268.

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APPENDIX A

CONSENT AGREEMENT FORM

Dear Students (Respondent),

I, Stephanie Ahn, am inviting you participate in a research project to study "User Control in Websites." Along with this letter is a short description about this study. This study is conducted by Stephanie Ahn (sue0014@uga.edu, 706 224 2095) and the advisor of this study is Dr. Bryan Reber (reber@uga.edu, 706 542 3178). We ask that you read this form and ask any questions you may have before agreeing to be in the study. Extra credit you will receive after participating in this experiment depends on the faculty members rules.

Purpose: We want to learn about the effective ways of successful message conveyance in the Internet environment.

Procedure: Website Exploring → Survey

As part of the study, we would like to ask you to participate in an experiment. You will be randomly assigned to a Website and asked to explore it using a computer in the lab. After you finish exploring, you will see a link at the very last page that leads you to the online-survey. You will be asked to answer the questions about the web experience. The total duration of the time would be about 30 minutes.

Risks: There is no current and future risk that might occur as a result of participation in research.

Benefits: By participating in the experiment, you may experience different website features. The research outcome based on your participation may help to find the effective way to successfully convey message through Internet.

Anonymity: Your answers to our questions and behaviors (modify for study) during this study will not have your name on it, so we won't know what answers you give.

You don't have to participate in this study or you can stop doing the study at anytime without

penalty or loss of benefit to which you are otherwise entitled.

If you want to stop doing the study, tell Stephanie Ahn. If you choose to stop before we are

finished, any answers you already gave will be destroyed.

If you have questions about the study, contact:
Researcher's Name: Stephanie Ahn
University of Georgia
Grady College of Journalism & Mass Communication
120 Hooper Street Journalism Building at Baldwin St. on Sanford Dr,
Athens, GA 30602.
Telephone: (706) 224 2095
Email: sue0014@uga.edu

Faculty Advisor's Name: Bryan Reber
University of Georgia
Grady College of Journalism & Mass Communication
120 Hooper Street Journalism Building at Baldwin St. on Sanford Dr,
Athens, GA 30602.
Telephone: (706) 542-3178
Email: reber@uga.edu

Additional questions or problems regarding your rights as a research participant should be
addressed to The Chairperson, Institutional Review Board, University of Georgia, 612 Boyd
Graduate Studies Research Center,
Athens, Georgia 30602-7411
Telephone: (706) 542-3199
Email: IRB@uga.edu

Agreement:
I agree to participate in the research study described above.

Name: _____

Signature: _____

Date: _____

APPENDIX B

SURVEY QUESTIONNAIRE

Interest of the Website Topic

Scale: 1=Strongly disagree, 2=Disagree, 3=Somewhat disagree, 4=Neutral, 5=Somewhat agree,
6=Agree, 7=Strongly agree

	Strongly Disagree			Neutral			Strongly Agree
1. I am interested in fantasy stories.	1	2	3	4	5	6	7
2. I am likely to read fantasy stories.	1	2	3	4	5	6	7
3. I am likely to write fantasy stories.	1	2	3	4	5	6	7

Comprehension

Scale: 1=Strongly disagree, 2=Disagree, 3=Somewhat disagree, 4=Neutral, 5=Somewhat agree,
6=Agree, 7=Strongly agree

	Strongly Disagree			Neutral			Strongly Agree
1. The information on the website is easy to understand.	1	2	3	4	5	6	7

True and False Quiz

1. The "Storyteller" will make animations after collecting many stories.   True   False

2. The animations will be movie length.   True   False

3. There are five regions in Mediaterra so far.   True   False

4. The users will decide the planet's name.   True   False

5. Students can upload their stories but not their drawings.   <u>True</u>   <u>False</u>

Web Experience

Flexibility

Scale: 1=Strongly disagree, 2=Disagree, 3=Somewhat disagree, 4=Neutral, 5=Somewhat agree,
      6=Agree, 7=Strongly agree

	Strongly Disagree			Neutral			Strongly Agree
1. The website is easy to explore.	1	2	3	4	5	6	7
2. The website gives me enough freedom to navigate.	1	2	3	4	5	6	7
3. I think it is easy to find information that I want from this website.	1	2	3	4	5	6	7

Participation

Scale: 1=Strongly disagree, 2=Disagree, 3=Somewhat disagree, 4=Neutral, 5=Somewhat agree,
      6=Agree, 7=Strongly agree

	Strongly Disagree			Neutral			Strongly Agree
1. The Web experience was an interesting for me.	1	2	3	4	5	6	7
2. The Web experience was entertaining for me.	1	2	3	4	5	6	7
3. The website was very interactive.	1	2	3	4	5	6	7
4. I am satisfied with the level of interactivity in this Web experience.	1	2	3	4	5	6	7

Overall Web Experience – User Control, Enjoyment, Acceptance

Scale: 1=Strongly disagree, 2=Disagree, 3=Somewhat disagree, 4=Neutral, 5=Somewhat agree, 6=Agree, 7=Strongly agree

	Strongly Disagree			Neutral			Strongly Agree
1. I am comfortable with my level of control over this website.	1	2	3	4	5	6	7
2. The subject matter of the Web experience was appealing to me.	1	2	3	4	5	6	7
3. I think there is not anything I can do in this website.	1	2	3	4	5	6	7
4. I feel hesitant to support the mission of the "Storyteller" organization – to motivate and encourage students to use their imaginations to write fantasy stories.	1	2	3	4	5	6	7

Scale: 1=Completely unlikely, 2=Unlikely, 3=Somewhat unlikely, 4=Neutral, 5=Somewhat likely, 6=likely, 7=Completely likely

	Completely Unlikely			Neutral			Completely Likely
1. How likely are you to visit this website again?	1	2	3	4	5	6	7
2. How likely are you to accept the mission of the "Storyteller" organization -- to motivate and encourage students to use their imaginations to write fantasy stories?	1	2	3	4	5	6	7

Effectiveness

Scale: 1=Strongly disagree, 2=Disagree, 3=Somewhat disagree, 4=Neutral, 5=Somewhat agree, 6=Agree, 7=Strongly agree

	Strongly Disagree			Neutral			Strongly Agree
1. I think this website gives me enough control	1	2	3	4	5	6	7
2. I think the website works effectively.	1	2	3	4	5	6	7
3. I think the website clearly explains the "Storyteller" mission and project.	1	2	3	4	5	6	7
4. I think the website motivates and encourages students to write a fantasy story.	1	2	3	4	5	6	7
5. I think the website promotes interest in the "Storyteller."	1	2	3	4	5	6	7

Attitude

Emotional Appeal

Scale: 1=Strongly disagree, 2=Disagree, 3=Somewhat disagree, 4=Neutral, 5=Somewhat agree, 6=Agree, 7=Strongly agree

	Strongly Disagree			Neutral			Strongly Agree
1. I think the "Storyteller" is worthy of support.	1	2	3	4	5	6	7
2. I think the organization has a good purpose.	1	2	3	4	5	6	7
3. I admire and respect the organization.	1	2	3	4	5	6	7
4. I trust this organization.	1	2	3	4	5	6	7
5. I think this organization will succeed.	1	2	3	4	5	6	7

Behavior Intentions

Scale: 1=Completely unlikely, 2=Unlikely, 3=Somewhat unlikely, 4=Neutral, 5=Somewhat likely, 6=likely, 7=Completely likely

	Completely Unlikely			Neutral			Completely Likely
1. How likely are you to become a Storyteller member?	1	2	3	4	5	6	7
2. How likely is it that you will talk about this organization to your friends?	1	2	3	4	5	6	7
3. If you had money to donate, how likely would you be to support this organization?	1	2	3	4	5	6	7

Attitude Towards the Organization

Scale: 1=Strongly disagree, 2=Disagree, 3=Somewhat disagree, 4=Neutral, 5=Somewhat agree, 6=Agree, 7=Strongly agree

	Strongly Disagree			Neutral			Strongly Agree
1. I have very positive feelings toward this organization.	1	2	3	4	5	6	7
2. My sense of who I am (i.e., my personal identity) overlaps with my sense of what this organization presents.	1	2	3	4	5	6	7

Scale: 1=Completely unfavorably, 2=Unfavorably, 3=Somewhat unfavorably, 4=Neutral, 5=Somewhat favorably, 6=favorably, 7=Completely favorably

	Completely Unfavorably			Neutral			Completely Favorably
1. Overall, how do you evaluate this organization?	1	2	3	4	5	6	7

Demographics

This demographic information is for descriptive purpose only.

    1. Gender?

        1) Male   2) Female

    2. College Year?

        1) Freshmen   2) Sophomore   3) Junior

        4) Senior   5) Graduate

    3. Age?   _____ years old

    4. Major?   _____

APPENDIX C

WEBSITE CONTENT

Introduction of Storyteller Organization

Journalism and mass communication instructors are constantly looking for ways to help their students become better writers in preparation for a writing intensive progression. While students often strive for objectivity in their writing, they should also be creative writers. The online experience you are about to participate in has been designed to foster such creative writing.

<u>STORYTELLER</u>

The "Storyteller" organization is non-profit organization whose mission is to motivate and encourage students to write a fantasy story.

The Greeting Note

We are always fascinated by amazing stories such as *Harry Potter* and *Lord of the Rings*. We were once called potential writers when we were young. However, after a certain age, we were probably discouraged from this kind of writing by people who said fantasy is unrealistic and useless. If you do not want to be a writer, you are not likely encouraged to talk about your imaginary world. However, there are great stories based entirely on writers' fantasy, and great stories are not necessarily written by trained writers. It is sad that there are many students who have fantastic ideas for a story but do not have a chance to share. That is why we have created "Storyteller," an interactive cyber-place where everybody can listen to other people's fantasy and imagination and also tell your own.

The "Storyteller" organization encourages students to keep imagining and not to stop writing stories. Be proud of your extraordinary imagination and keep developing

your great ideas. The "Storyteller" website will also help people find hidden, talented writers as well. The website gives students a very rough draft of the story background and allows many people to contribute to continue the story.

Basically, the rough draft explains the place (Mediaterra) which belongs to neither the god world nor the human world -- where everything is possible. The website will provide imaginary regions and a few characters, but these are only a starting line for users to create their own regions, characters and stories. They can also upload their drawings as well, to complement their stories. Students can contribute a few sentences or many paragraphs to continue the stories. After collecting a decent amount of contributions from many people, some exciting parts of the story will be put on the online poll. After a vote is taken, the most popular part of the story will be made as a Flash or 3D animation. The animation will last few minutes, and will be updated every two or three months based on another vote.
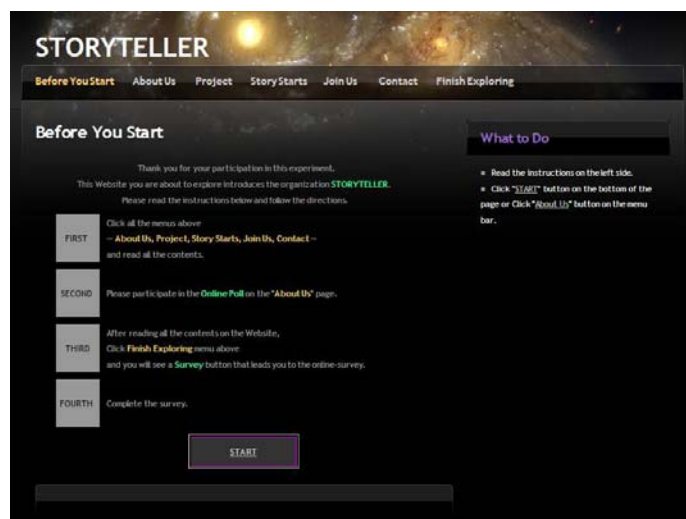
The Main Page of the High

User Control Website
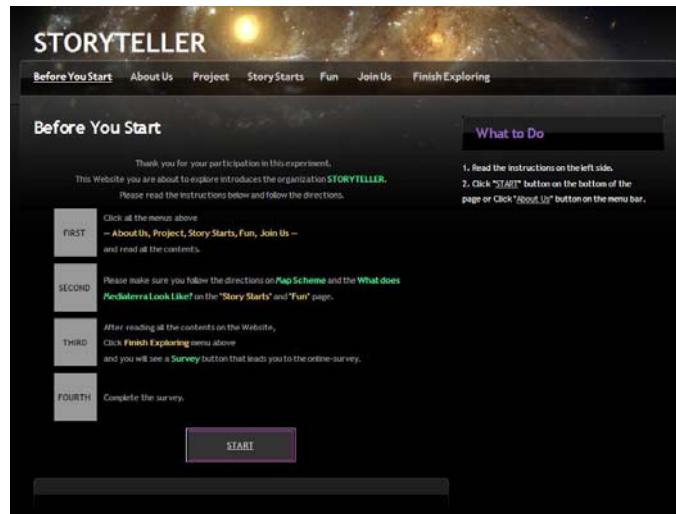
The Main Page of the Medium

User Control Website
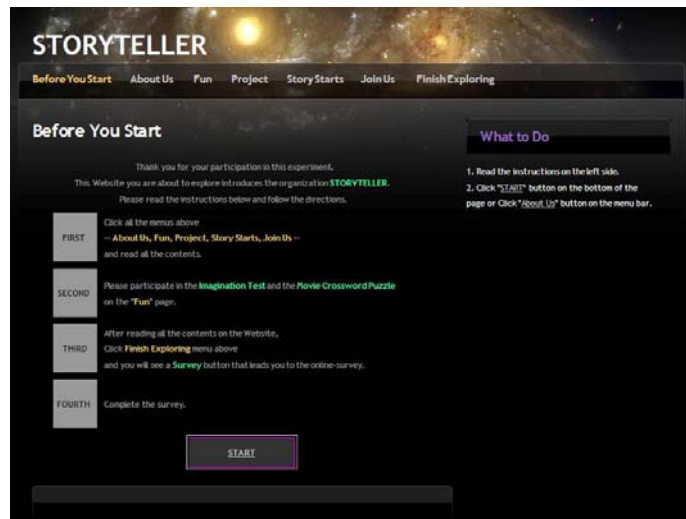
The Main Page of the Low

User Control Website

RELIABILITY, KURTOSIS, AND PRINCIPLE COMPONENT ANALYSIS RESULTS

Web Experience

Reliability and Kurtosis Statistics

Cronbach's Alpha	Kurtosis	Kurtosis Std. Error
.916	3.677	.356

Attitude

Reliability and Kurtosis Statistics

Cronbach's Alpha	Kurtosis	Kurtosis Std. Error
.910	1.318	.355

Principle Component Analysis Results

	Eigenvectors			
	Principle 1	Principle 2	Principle 3	Principle 4
Web Experience	0.588771	-.202584	0.120374	-.773187
Attitude	0.525608	-.435315	0.440922	0.582946
Comprehension	0.516264	0.114071	-.815238	0.236319
Quiz Score	0.332501	0.869740	0.355648	0.080682

DENDROGRAM

Dendrogram of Web Experience Survey Items (1-18)

PC1 vs. PC2 with 3-clusters