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PERCEPTIONS OF VALUE: AN ANALYSIS OF NEW JERSEY'S
PUBLIC AND PRIVATE FOUR-YEAR COLLEGES AND UNIVERSITIES TO
DETERMINE IF ADHERENCE TO RECOGNIZED DESIGN PRINCIPLES
INCREASES THE PERCEIVED VALUE OF THEIR INSTITUTION

by
Kathryn M. Ponzi

A Thesis

Submitted in partial fulfillment of the requirements of the
Master of Arts Degree
of
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at
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Approved by

Advisor

Date Approved

7/17/07

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ABSTRACT

Kathryn Marie Ponzi

PERCEPTIONS OF VALUE: AN ANALYSIS OF NEW JERSEY'S
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2006/07

Dr. Joseph Basso

Master of Arts in Public Relations

The purpose of this study was to determine how closely four-year New Jersey colleges and universities, both public and private, adhere to general standards for home page layout and design. This study also looked to determine if adherence to proper design standards increase the perceived quality of the institution. Field experiment participants rated the home pages of six institutions chosen by the researcher in her content analysis. Using Likert-type questions, 23 students rated the home pages of the colleges and universities, yielding results supporting the initial claim: the more closely an institution adheres to certain home page design standards, the more highly qualified it will be perceived.

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CHAPTER 1

Introduction

Today, the Internet is used as a primary means of research in which students are taking full advantage of to choose a college or university. Studies over the past few years have shown that visiting the Web sites of colleges and universities in the United States is a vital step in the decision making process of college-bound students. As Neal A. Raisman states, “Web sites have become a primary marketing tool for colleges and universities” (Raisman, 2002, para. 2). Reports have shown that the Internet ranks second only to campus visits as the most important source for researching colleges (Abrahamson 2000).

College and university Web sites are more than just online brochures.

Abrahamson (2000) explains:

Brochures are linear and static: They tell our story our way, in the same sequence every time to everyone who reads them. Web sites are fluid, interactive, customizable: Audiences create their own communication, sampling as much or as little as desired in a sequence they determine. There's a significant dividend: In print, audience segmentation requires multiple brochures. The Web is a 'one-stop shop,' where visitors choose the aisle they'll explore. (para. 9)

Most college and university Web sites provide a wealth of information about the institution, allowing certain audiences to retrieve information that is relevant to them.

Although these Web sites do provide much knowledge about their institutions, the way in which that information is presented is also important, which leads to the primary concerns of this study: Do college and university Web sites adhere to certain important graphic and Web design standards; and, does this adherence influence the visitor's perception of the quality of the institution?

Previous studies have focused on the content of the Web site or the navigation system of the entire Web site. This study will examine the home pages of the Web sites since home pages are widely considered a guide to how the Web site will be organized (Esrock & Leichty, 2000). The home page of a Web site is the first thing visitors see. It is what visitors will use to create their first impression of the institution. However, this study will also investigate several site links, for the purpose of discovering the ease of use of the site.

Background

For many people, the Internet acts as a trustworthy news source, a more efficient and easier way of shopping, and a constant supply of general information. The Internet's availability is widespread. Today, people can access the Internet in their homes, at their workplaces, at Internet cafes, and even at certain fast food restaurants. The use of this medium is growing fast and continues to grow each year. People of all ages surf the Internet for various purposes, but a major Internet user group includes U.S. college students.

Robyn Greenspan notes, "The Internet is a way of life for U.S. college students" (Greenspan, 2003, para. 1). She mentioned that a collaborative study conducted in 2002 by Harris Interactive, a research company, and 360 Youth, a marketing company, found

that 88 percent of college students own a computer. Even more impressive is that “about 93 percent of college students in the USA access the Internet in a given month, and the number of student users is expected to grow from 15.2 million in 2003 to 16.4 million in 2007” (Greenspan, 2003, para. 1). A large portion of this generation is familiar with the Internet as it has grown up with the technology and uses it on a daily basis. This generation of students uses the Internet for a variety of reasons ranging from shopping to searching for potential colleges and universities. Traditionally, college-bound students have looked to sources such as guidebooks, parents, school counselors, brochures, and other printed materials to assist them in their decision in choosing a post-secondary institution. However, a study conducted by Lipman Hearne found that “students actively use college Web sites to identify and evaluate institutions they might attend. Survey respondents rate college sites as most important when identifying initial college choices and selecting colleges to which they will apply” (Lipman Hearne, 2001, p. 2).

As that study found, college and university Web sites play a crucial role in the decision making of college-bound students. Therefore, not only are the information and its credibility important, but so is how that information is presented in the Web site’s design. Studies show that appearance influences the user’s experience when visiting a site. Again Lipman Hearne’s study uncovered:

Students equate the quality of a college Web site with the quality of the institution itself. A dull Web site suggests a less than dynamic institution, and an inconsistent Web site signals that the college may not be well organized. (p. 3)

Colleges and universities across the United States use Web sites for several purposes. These include:

- Attracting and informing potential students and their parents

- Providing information and services to faculty and staff, current students, and alumni and donors
- Informing any interested of happenings at the college or university

Unfortunately, “Most college and university Web sites are poorly designed,” and as a result, “reflect badly on their institution” (Raisman, 2002, para. 1).

Therefore, colleges and universities should do their best to adhere to general standards for graphic design, readability, proper layout, and ease of use (navigation) when designing their home pages and Web sites in order to present their institutions as best as possible (Mechitov et al., 2001; Raisman, 2003). Also, on the home page, they must be sure to provide the most essential information to their audiences in an organized manner. “Every college Web site should provide accurate and complete information, and should have a design that makes the information easy to understand and technology that makes it easy to find” (Raisman, 2002, para. 3).

Many graphic and Web design books have been written giving advice on how to create the best and most effective Web sites. But what constitutes as an effective Web site? In terms of this study, effectiveness means adhering to certain design principles including graphic design, readability, layout, and navigation.

Graphic design is defined as “visual communication, using elements such as color, images, typography, and layout” (Van Duyne, Landay & Hong, 2003, p. 678). In the case of this study, graphic design will mainly refer to the use of color and images. Some Web sites have too many pictures that crowd the page, prohibiting the visitor from reading the page content. Readability involves how easily the reader can understand the copy presented on the page. To evaluate readability, the researcher will examine the

terminology used in text on the page. Sometimes, colleges, universities, or any types of businesses use jargon in their Web sites that most visitors are unfamiliar with, and can therefore not understand. Layout involves how the page is organized, and also, how the information on the page is presented to the reader. Layout looks at the size and placement of pictures, dominance of items on the page, the balance of the page's content, the use of white space, font and color usage, alignment of text, and the contrast of items on the page. Navigation refers to how easily Web site visitors are able to find information they are seeking. To evaluate navigation, the researcher will choose a piece of information she wants to find, then measure how long it takes to find the information. The researcher will also evaluate how complicated or easy the navigation process is by counting how many mouse clicks it takes to find the information. As Sarah Horton and Patrick Lynch write in their book, *Web Style Guide*, "The goal is to be consistent and predictable; your users should feel comfortable exploring your site and confident that they can find what they need" (p. 16).

By adhering to these standards when creating their home pages and Web sites, colleges and universities can promote themselves as an organized institution. This can help build trust with their visitors, especially prospective students. "A site that looks sloppily built, with poor visual design and low editorial standards, will not inspire confidence" (Horton & Lynch, 1999, p. 17). Therefore, after applying these certain standards, a perception of higher quality of the institution may exist in the eyes of the Web site visitor.

Statement of Problem

Many colleges and universities, and Web page creators in general, do not adhere to layout and design standards when creating their home pages and Web sites. This can possibly dissuade potential students and those interested from reading the information provided in the home page, and from exploring the rest of the Web site. Research has shown most college and university Web sites are poorly designed and reflect poorly on their hosting institutions, and poor image is not something higher education institutions want at a time of shrinking academic budgets and increasing competition (Raisman, 2003). It has even been suggested that prospective students who find a Web site disappointing associate their e-experience with the quality and functioning of the institution itself and may terminate all inquiries about the college (Abrahamson, 2000).

Purpose

The purpose of this study is to determine how closely four-year New Jersey colleges and universities, both public and private, adhere to general standards for graphic design, readability, proper layout, and ease of use (navigation) in designing their home pages. This study will then look to determine if adherence to the proper design standards increases the perceived quality of the institution. This study will attempt to prove the hypothesis that a college or university will be perceived as of higher quality the more closely it adheres to certain design standards when creating its Web site. This study will address two main research questions:

1. Do four-year private and public colleges and universities located in New Jersey adhere to general standards for graphic design, readability, proper layout, and ease of use (navigation) when creating their home pages?

2. Does the adherence to proper design standards increase the perceived quality of the institution?

Assumptions

The researcher made the following assumptions in conducting this research:

1. The Web and graphic design experts interviewed answered the questions knowledgeably, accurately, and honestly.
2. The compiled list of Web design standards accurately measures Web site effectiveness.
3. The field test participants surveyed answered the questions and rated each Web site honestly and as objectively as possible based on the provided criteria.

Delimitations

Due to time and money constraints, this study is not comprehensive. In the content analysis, this study will examine only the home pages, not the entire Web sites, of four-year public and private colleges and universities located in New Jersey. These schools do not include community colleges or specialized schools, such as seminaries and dentistry schools. The researcher also eliminated those colleges and universities that do not offer graduate programs and those that were sex specific.

This study looks to determine the users' perceptions of institutions based on their Web sites and adherence to layout and design principles. However, as Chung and Lee (2006) discuss, many layout and design "attributes are interrelated and interactive, which makes it difficult to calculate the effect of one attribute on an entire web site" or home page (p.139). Therefore, although the researcher will be able to determine Web site

success in terms of its adherence to layout and design principles, she may not be able to single out one attribute, if one exists, that affects the other attributes, thus deeming the site unsuccessful in the eyes of the user.

Finally, some degree of subjectivity is present in this study as the researcher compiled the list of layout and design principles she thought most important. Data will be collected through a content analysis of the home pages of the selected New Jersey schools, personal interviews with Web and graphic design experts, and a field test determining the perceived quality of the school based on its home page.

Definition of Terms

Alignment - the position of the text on a page in relation to the margin: right-aligned, left-aligned, centered, or justified.

Background color - the color displayed behind the text or graphics on a home page.

Balance - items placed on a page and their relationship to one another.

Body Copy - the typewritten information provided on the home page. The main text in the body of an article.

Body Type - the font used for the main text (body copy).

Contrast - using design aspects of different sizes, shades, colors and shapes in a home page to keep the reader's attention.

Dominance - a large element on a page that catches the reader's eye and stand out from the other elements.

Eye Direction - the path a reader's eye naturally follows over a page.

Graphic Design - the use of pictures and clipart on a page.

Headlines - the titles of body copy on a page.

Home page - the front page of a Web site.

Internet - a large computer network linking smaller computer networks worldwide (www.dictionary.com).

Legibility - the physical clarity of the page.

Navigation – how a visitor gets around the Web site.

Readability - the ease with which the reader comprehends the provided information and message.

Rules - lines that separate and break up text.

Sans Serif - a font that does not have the small strokes on the top and bottom of each letter.

Serif - a font that has small strokes on the top and bottom of each letter.

Web site - a connected group of pages on the World Wide Web regarded as a single entity, usually maintained by one person or organization and devoted to one single topic or several closely related topics (www.dictionary.com).

White Space - the empty space where no text or graphic appears.

World Wide Web (the Web) - a system of extensively interlinked hypertext documents: a branch of the Internet (www.dictionary.com).

Significance of the Study

Colleges and universities, not only located in New Jersey, but those throughout the United States, can use the results found in this study to better evaluate their home pages and Web sites. They can use the design standards provided in this study to determine if their home pages and Web sites are effective in terms of readability, proper layout, ease of use, and use of graphic design. As stated earlier, college and university

Web sites play an important role in the decision making of college-bound students when choosing an institution to attend. If a college-bound student finds a certain Web site disappointing or unappealing, that student may associate their Web site experience with the quality of the institution, and may then become uninterested in the institution altogether (Abrahamson, 2000).

However, once the college or university applies the appropriate standards in their Web design, potential students, current students, faculty and staff, and alumni and donors can all benefit from a more clear, easy to use, visually aesthetic, and organized Web site. Abrahamson makes a point when he states, “At the click of a mouse, Web users can jump from your site to a competitor’s and draw immediate comparisons” (Abrahamson, 2000, para. 17). Thus, designing home pages and Web sites that follow certain principles is important in successfully and positively impacting a college or university Web site visitor.

CHAPTER 2

Review of the Literature

In order to research for this study completely, the researcher studied the literature on a variety of related topics. This chapter will include information concerning several sub-topics the researcher found relevant to the study. These sub-topics include general information about the Internet, college students and their use of the Internet, information concerning college and university Web sites, theories of Web site design and perception, important graphic and Web design principles, and how to test Web sites and their usability.

The Internet and the World Wide Web

The terms, the Internet and the World Wide Web, are related but not synonymous. The Internet is a large network of different networks that connects computers globally. The World Wide Web, on the other hand, provides one way to access information over the medium of the Internet. The Web is a subsection of the Internet that has browsers such as Mozilla Firefox and Internet Explorer that allow users to find information. Despite the differences, these two technological advances prove to be quite useful as can be seen by their growing popularity.

Poock and Lefond (2001) cite Brown (2000) who suggests that the Internet has impacted society similarly to how electricity did, but has developed and is developing much more rapidly. As of August 2006, 299,093,237 people resided in the United States.

Of these people were 207,161,706 Internet users, which made up 69.3 percent of the population at the time. From 2000 to 2006, the percentage of Internet users in the United States increased by 117.3 percent.

To put the magnitude of the growth of the Internet into perspective, Bell and Tang (1998) cite a senior official of Internet giant Netscape, who noted that in the quest to reach 50 million users, it took radio 38 years, television 13 years, but just five years for the Internet. (Poock & Lefond, 2001, p. 15)

Over half of the United States population uses the Internet. Research shows that this number of users will only continue to rise as the availability of the Internet also grows.

According to an article found on CNN.com, Netcraft, an Internet monitoring company that has tracked Web growth since 1995 found that as of October 2006, 100 million Web sites now exist on the Internet. When Netcraft began tracking Web site growth in 1995, only 18,000 Web sites existed. In May of 2004, the total Web site count reached 50 million. Thus, the growth of the Internet in terms of the World Wide Web is apparent as it took only 30 months for the number of Web sites to increase by 50 million. The availability of the Internet is widespread as the medium can be found in homes, workplaces, Internet cafes, etc. Americans access the Internet to explore Web sites in which they can read the news, conduct scholarly research, shop, play games, and find virtually any information they seek. As Professor Rebecca Grinter of Georgia Tech's College of Computing states:

The Web has gone from being a very straightforward thing where you put some text and perhaps some images, to being this incredibly powerful medium in and of itself. You can engage so much more dynamically, and so many more

people are doing so many more things.
(<http://cnn.technology.com>)

Due to the explosion of this medium, businesses, industries, and many other types of organizations have turned to the Internet as a way to publicize themselves. More and more people rely on organizational Web sites, instead of the more traditional print publications, to obtain information about an organization. An advantage to having a Web presence as opposed to solely a print presence can be explained by Doug Ruschman, the Xavier University Webmaster:

The print world is fairly static. The brochure you get today is still the same brochure tomorrow. The Web allows for easier updating and more relevant information to what is happening now. (personal communication, December 12, 2006)

Thus, having a Web presence allows organizations to easily update information without having to reprint and resend thousands of brochures. Higher educational institutions such as colleges and universities are one type of organization that has made a major presence on the Internet with Web sites. According to the 2007 edition of the *College Board's College Handbook*, 1,907 colleges and universities in the United States currently have Web sites.

Having a Web site allows colleges and universities to market themselves to multiple audiences at the same time through the same medium. As Abrahamson (2003) explained, "In print, audience segmentation requires multiple brochures. The Web is a 'one-stop shop,' where visitors choose the aisle they'll explore" (para. 15). Because a Web site is considered a "one-stop shop," institutions must be sure to tailor their sites to every audience they want to target.

Silverman (2006) found in her study of 261 colleges and universities in the United States that these institutions generally target six main audiences. These include alumni and friends (donors), current students, prospective students, faculty and staff, visitors and the community, and parents.

In her study, alumni and friends were actually the most commonly found audience. Eighty-four percent of the colleges and universities in her sample addressed this audience. Colleges and universities target alumni and friends to inform them of any alumni events, to keep them aware of happenings on campus, to provide Alumni Association information, and also to ask for donations.

The second most commonly addressed audience was current students, found on 81 percent of the 261 college and university Web sites. Colleges and universities must pay them attention as they make up the current student body and are the main reason for the college or university to exist. Web sites generally provide information about academic degrees and programs, financial aid, student organizations, information technology, campus housing, dining services, library resources, academic and campus event calendars, the bookstore, health services and insurance, career services office, student life, and the registrar's office.

The study found that 73 percent of the college and university Web sites sampled targeted the prospective student audience. This is also an important group to target because, without them, the chance for the institution's success in the future is small. Information concerning admission to undergraduate and graduate programs, academic programs and degrees, financial aid, campus housing, dining services, campus tours and

visits, facts about the university, application information, and the cost of attending the institution is generally provided for this audience.

Faculty and staff were the fourth most commonly listed audience found on 56 percent of the Web sites. This group may access the Web site to find information about information technology, employee benefits, faculty-staff organizations, campus news, university policies and procedures, academic programs and degrees, library resources, teaching resources, and the campus phone/e-mail directory.

Visitors and the community, also defined as those situated around the institution, were found on 37 percent of the Web sites in Silverman's study. Institutions focused on this audience group to inform them of general information about the college or university, and to keep them aware of what is happening on campus. Most Web sites provide campus maps, calendars of university events, directions to the campus, facts about the institution, and information about the campus' surrounding area, athletics, campus tours, and campus news.

The final audience targeted by colleges and universities are parents and family, found on 27 percent of the Web sites. Parents or family members may visit an institution's Web site to find facts about the institution, a calendar of events, campus news, and information on campus tours, academic programs and degrees, athletics, and admission to the institution.

Despite the findings that alumni and donors are the most targeted group, current and potential, or college-bound, students are two other groups that colleges and universities must focus on. People of all ages access the Internet, but one of the Internet's main user groups includes those between the ages of 16 and 25 (Greenspan,

2003). This age group mainly consists of college-bound students and current college students. A major reason for this is because this age group grew up with the Internet and uses it daily. Again, those in this age group access the Internet for various purposes, such as writing E-mails, researching, and shopping.

As discussed earlier, students already enrolled in colleges and universities log on to the Internet and their college or universities' Web sites for many reasons. Robyn Greenspan (2003) found through research that 88 percent of college students own a computer. She also discussed a study conducted by research company, Harris Interactive, and marketing company, 360 Youth, which found that "about 93 percent of college students in the USA access the Internet in a given month, and the number of student users is expected to grow from 15.2 million in 2003 to 16.4 million in 2007" (para. 1).

College-bound students use the Internet and its World Wide Web to aid them in making one of the most important decisions in their lives: choosing a college or university to attend. Before the explosion of the Internet, college-bound students used other resources to research potential colleges and universities. They mainly used print publications such as brochures or booklets that they could request of an institution of interest. Though colleges and universities may still supply those printed publications, they have also embraced the Internet by providing that information and more on their Web sites. Although now, colleges and universities lose some control using the Internet as a main source of contacting and influencing prospective students. As Doug Ruschman, Webmaster for Xavier University, explained:

In the "old days" students would first receive a brochure about the college, read it and then schedule a time to visit with their family. Now, before letting a college know that they are

interested, prospective students search on-line...Then, if they like what they have found, they request more information or perhaps even apply on-line. In fact, nationally, more students are applying for admission as their first point of contact during the admission process. This is tearing down traditional recruitment models and scaring some admission offices. These “stealth” applicants are getting the information they need on their own. Colleges feel a little helpless because they are not getting to share with prospective students what they traditionally would include Viewbooks, special presentations and talking to them by phone. (personal communication, December 12, 2006)

In fact, next to actually visiting the college or university, visiting the institution’s Web site plays the most important role in the college-bound student’s decision in choosing where to pursue higher education. A study conducted by Lipman Hearne (2001) found that “students actively use college Web sites to identify and evaluate institutions they might attend” and that they “rate college sites as most important when identifying initial college choices and selecting colleges to which they will apply” (p. 2).

Theories of Web Site Design and Home Page Perception

Just as a picture of a landscape provides information about the immediate and inferred aspects of the landscape (i.e., about its structure and exploration possibilities), a home page, likewise, represents the underlying Web site. (Singh, Dalal & Spears, 2005, para. 37)

Some consider a Web site a window to the world for many organizations, allowing people to look in and see exactly what that organization is about (Tarafdar & Zhang 2006, para. 1). When people visit a Web site, the first thing they most likely view is the home page of that Web site. A home page is therefore “critical because not only is it seen 10 to 1,000+ times more than any other page, but it must also provide an

exceptional customer experience to seduce visitors to continue” (Van Duyne, Landay & Hong, 2003, p. 229). When visiting a site for the first time, viewers are basically “judging a book by its cover.” In this case, the organization is the book, and the home page is the cover. Most likely, if the home page does not appeal to the visitor aesthetically, the visitor will be turned off to that Web site, and in turn, be turned off to that organization.

Like any business that uses its home page and Web site to sell products, colleges and universities use their home pages and Web sites to sell their institutions to visitors. A college or university home page quickly summarizes what it has to offer its visitors. It is at the home page where colleges and universities make their first impressions on new visitors. Several studies have looked at how and why people perceive Web sites and their home pages in certain ways.

One study examined how home pages try to create a sense of trust and credibility with their visitors. “The research by Basso et al. (2001) support the notion that home page guidelines and designs are extremely important, because without a favorable first impression, the rest of the web site almost becomes irrelevant” (Brown et al., 2006, p. 257). As mentioned earlier, organizations including higher education institutions therefore use their home pages and entire Web sites to create first impressions, and also to maintain their images. Brown et al. (2006) refers to four types of web credibility. These include presumed, surface, reputed, and earned credibility. Presumed credibility is based on a general assumption the person has about an organization. Reputed credibility is based on third-party endorsements. Surface credibility is created when a person first sees an organization’s Web site. This type “originates from visual design, easy navigation, and pertinent content originating from credible sources” (p. 257). Finally,

earned credibility is created after a person visits a site several times. Attributes of easy interactions, personalized site information, and responsive service all help to create earned credibility. Surface credibility and earned credibility are the most relevant to this study as they are the ones formed by looking at an organization's Web site.

Another study conducted by Winter, Saunders, & Hart (2003) addresses how a Web site's home page acts as an electrical storefront. They also compare the purpose of a physical storefront to the purpose of an electronic storefront. For example, they explain how businesses and organizations use their physical storefronts to "convey an impression of the firm by displaying cues about what goes on in the organization" (Winter et al., 2003, para. 10). Winter et al. explain how even the building, its architecture, and the objects placed in storefront windows act as symbols that carry meanings about the organizations. "They inform potential customers about the organization, contribute to forming impressions, and invite viewers to take a closer look to buy" (para. 10).

The authors discuss how a physical storefront of a business or organization resembles an electronic storefront (home page) of a business or organization's Web site. They explain:

Web sites are on-stage work areas where a performance is given to an actual or implied audience of potential customers, employees, suppliers, partners, and regulators. The selected text, images and colors, as well as the structure of the arrangements (e.g., the layout of information, or the configuration of hyperlink paths) creates impressions not only about the product or service offered, but also about the characteristics of the organizations that provide them. (Winter et al., 2003, para. 13)

Both physical and electronic storefronts stem from Erving Goffman's theory of Impression Management. This theory states that people or organizations present themselves in certain ways in attempt to control their audiences' perceptions of them. Organizations use their home pages to create positive impressions of themselves upon their visitors.

Another theory that these researchers used in their study is Schema Theory, which was introduced by Piaget but developed by R.C. Anderson. Winter, Saunders & Hart cite Gioia (1986) when they suggest that Schema Theory helps people form impressions of other people or organizations because "when faced with incomplete information, observers activate relevant mental models called schemas from which missing information is filled in" (para. 4). When people see something they are unfamiliar with or don't quite understand, they employ mental patterns (schemas), or information they are all ready familiar with from past experiences. Therefore, they can better comprehend what they are seeing. Unfortunately, these schemas may not always be accurate, allowing viewers to create false impressions. Thus, businesses and organizations design and use their physical storefronts and/or electronic storefronts (home pages) as ways to influence the perceptions and trigger the schemas of their "window shoppers."

The study conducted by Winter, Saunders, & Hart (2003) did find that people do in fact form perceptions about organizations based on their Web sites. In their study, the researchers asked participants to rate certain organizations' Web sites to determine if these participants formed any perceptions of the organizations based on their sites. The researchers also noted that the participants stated they had very little information about the organizations whose Web sites they were rating. They found that more than 95

percent of the participants formed perceptions of the organizations concerning their creativity and innovativeness. More than 90 percent of the participants formed perceptions of the organizations' customer-orientation, competence, conservatism, leading edge orientation, and concern for customers. They also found:

Participants agreed that Websites with few graphics or poor layout created a perception of a conservative company. In contrast, sites with good graphics and lots of information about a firm created a perception of a competent company. (para. 31)

These results show that the theory of Impression Management and Schema Theory play a large role in a visitor's perception of an organization based on their Web site design.

These results show that organizations do make impressions on their Web site visitors; and those visitors, though unfamiliar with the organizations, can still form impressions of the organizations based on their sites.

Another theory considered when building Web sites is Berlyne's theory of stimulus complexity. Berlyne roughly defines complexity as "the amount of variety or diversity in a stimulus pattern" (Berlyne, 1960, p.38). In this theory, Berlyne suggests that those home pages and Web sites within a moderate range of complexity are the most effective among their viewers. Geissler, Zinkhan & Watson (2006) conducted a study examining the influence of home page complexity on users. These researchers found that an increase of elements such as the number of links, the number of graphics, and the length of the home page increased the perceived complexity of the home page. After analyzing their results, they suggest that "the old adage 'everything in moderation' is a useful guideline to consider for the design of effective home pages" (Conclusion, para. 9).

Singh, Dalal & Spears (2005) also conducted a study involving the complexity of home pages. They also used Berlyne's theory of complexity as the basis of their study.

They found:

...for optimal effectiveness to be achieved, a home page must surpass a certain, minimal level of complexity but not be too complex. Thus, home page complexity influences how people feel about an ad and the advertised company (i.e., their attitude toward each), as well as their purchase intent.” (para. 38)

These studies show the importance of home page complexity, and how too little or too much can possibly dissuade a visitor from further exploring the Web site.

To create an attractive and usable Web site, not only must Web designers understand how potential visitors may perceive their Web site, they must be able to utilize layout and design elements in such a way that allows visitors to view their Web site favorably. The next section will discuss important layout and design principles that many Web designers consider when creating sites.

Design Principles

The Web is no longer a rambunctious toddler, touching and tasting and trying out every new thing within reach. The Web is maturing, and the problems faced by today's Web developers are the same ones faced by an industry as it matures: More and more people are starting to care about factors like value, convenience, and ease of use over the novelty of the technology itself. (Van Duyne, Landay & Hong, 2003, p. 3)

Though the content of college and university Web sites is obviously important, the way in which Web designers present that content has also been argued to be just as important, if not more. A study by Lipman Hearne (2001) found that “Although students

rated content as more important than visual appeal, when asked what they liked and disliked about the site, many respondents focused on visual aspects such as layout, color, design, and images.”

Factors such as graphic design, readability, proper layout, and ease of use (navigation) all have certain rules that should be followed to create an organized and clearly presented Web site. As discussed earlier, creating such an impression on audiences, such as potential students, is important for maintaining and upholding a desired image. Studies have found that clearly presented and organized Web sites instill a feeling of confidence within the visitor. Perhaps, as discussed earlier, visitors begin to trust the organization because they feel that the organization has cared enough to construct a Web site tailored to their needs. As past research and studies have shown, the layout and design of home pages have an effect on the viewers. These viewers can then form impressions about an organization based solely upon its home page and subsequent Web site pages. Therefore, by adhering to the following layout and design principles, organizations can hopefully build effective home pages and form positive impressions upon their viewers. The following principles are among the most important for designing Web sites and are ones that many successful Web designers have implemented and have written about in Web design guidebooks.

Graphic Design

Graphic design is defined as “visual communication, using elements such as color, images, typography, and layout” (Van Duyne, Landay & Hong, 2003, p. 678). Although, for the purpose of this study, graphic design will mainly refer to the use of color and images on a Web site.

In order to fully understand how colors and images can be used effectively when designing Web sites, it is important to first understand the building blocks of these elements. The most basic component of a computer screen is a pixel, which represents one dot of light. The number of pixels on a computer screen range from 50 to 100 per inch. Many Web designers use 72 ppi (pixels per inch) as a standard. When combined, the pixels form the image that the viewer sees on the computer screen. The number of pixels present on a screen determines the screen's resolution. More pixels on a screen create finer and more vivid images. Fewer pixels result in grainier images that may be harder for viewers to see.

Each pixel can also be a different color.

Computer screens...are lighted from behind in combinations of red, green, and blue lights (RGB)...Each pixel is formed by shining three beams of light on the same spot to form a color. Different colors are formed by varying the intensity of each beam.” (Frost & Strauss, 2002, p. 76)

To create these different colors, designers choose between 256 different intensities of red, green, and blue light. Unfortunately, because the different intensity levels are not standardized among all computers, colors will not look the same on every computer (Frost & Strauss, 2002). Sixteen million different colors exist that Web designers can use when creating a Web site. However, of these 16 million colors, only 216 display identically on Windows and Macintosh computers. They are referred to as Web-safe colors. Web designers, however, do not always want to be limited by only using these Web-safe colors. Therefore, Web designers must choose which format they want to use: Windows or Macintosh. Most Web designers decide to use colors based on the Windows

format because it is much more common than the Macintosh format (Frost & Strauss, 2002).

Despite the computer format, a designer should consider how many and which colors to use when designing a Web site. Web designers employ colors for various page elements such as body copy, headlines, subheads, links, rules, and backgrounds. Colors are important because people tend to make positive or negative associations with them (Thomson, 2006, p. 50). For example, people tend to associate the color red with negativity and the color green with money. D'Angelo and Little conducted a study examining layout and design principles of Web sites and found that successful Web sites employ no more than four colors per page. This excludes logos and other images. Maintaining consistency with color is also important as it can help create recognition for the Web site and the organization.

When creating a background, most designers recommend using white, gray, or a light pastel color (Tollet, Williams & Rohr, 2002; D'Angelo & Little, 1998). These background colors allow for viewers to easily read whatever text may be on the page. Some Web sites use a dark background with a light text. Although this may be different and therefore attract attention, designers find that it becomes boring if used too much (Tollet, Williams & Rohr, 2002). Having contrast among items and colors on a page is another tip to keep in mind when designing a Web page. However, it is also important that these colors and the colors of the images do not clash, making the page unattractive.

Many designers stress the importance of keeping a Web site simple, especially in respect to the number of images used. "Graphics should not be used gratuitously as 'eye candy' – a Web page is not a Christmas tree" (Frost & Strauss, 2002, p. 25). D'Angelo

and Little also found in their study that it is important to use, at most, three images per page. If more are used, the complexity of the page may increase and therefore turn viewers off to the site. Another problem that could arise with images is their download time. If the image file is large and the computer that the user is using runs more slowly, the page may take longer to download. Long download time has the potential to frustrate users and dissuade them from continuing to explore the site in fear that every page will take as long to download. For example, in a study examining college-bound students and their perceptions of college and university Web sites, Poock and Lefond (2001) found that students become frustrated when they are forced to wait for graphics or pictures to download.

Readability, Legibility, and Typography

In her book, Cuddy defines readability as, “the ease with which the reader comprehends the provided information and message,” and legibility as, “the physical clarity of the page.” Achieving readability proves difficult without first achieving legibility. Another factor that aids in attaining both readability and legibility is typography. Typography “is the balance and interplay of the letterforms on the page, a verbal and visual equation that helps the reader understand the form and absorb the substance of the page content” (Horton & Lynch, 1999, p. 79). Typography includes font type, font size, font style, line length, and alignment.

Text presented on a computer screen is more difficult to read than text presented in print because paper offers a higher resolution than does a computer screen. In fact, people read text on a computer screen 25 percent slower than they read printed text

(Reiss, 2000). Due to this difference, different rules exist for creating good typography, readability, and legibility for Web sites.

In Web site design, as well as print design, some fonts are more easily read than others. The two most popular serif fonts to use on the Web are Times New Roman and Georgia, and the two most popular sans serif fonts are Arial and Verdana (Horton & Lynch, 1999; Frost & Strauss, 2002). Georgia and Verdana were created specifically for the Web because they have a higher x-height (the height of a lowercase “x”), which allows for more legibility. Serif fonts were created and used in print because the dashes on the ends of the letters helped readers distinguish the letters from one another. Therefore, many Web designers use serif for the body copy to increase legibility. However, there has been debate over whether serif or sans serif is more legible for body copy. Because print is a high resolution medium, human eyes can easily separate the dashes of serif fonts. However, computer screens do not offer as high a resolution, which sometimes causes the dashes of serif fonts to blur together, decreasing the legibility for readers. Therefore, many designers are switching to sans serif fonts for their body copy because it offers a “cleaner” look. For headlines, most designers have always and continue to use sans serif fonts.

Web designers also suggest keeping typography simple by using a maximum of two fonts for the entire site. Also, it is important to keep the font types, sizes, and styles consistent throughout the site (Frost & Strauss, 2002).

Legibility is also determined by the size of the font. The most common font size is 12 points, which is what this chapter is being typed in. It is recommended not to go above 24 points for anything used on the Web.

There are also different styles in which a font can be presented. These include boldface, italics, underline, and all caps. Boldface is useful for grabbing a reader's attention, but should not be used for whole paragraphs as it may cause words to blur together. According to Frost and Strauss (2002) in their book, *Building Effective Web Sites*, italics should be avoided altogether as the slanted letters appear very grainy on computer screens. Also, according to these authors, underlining should only be used to distinguish between normal text and links. All caps should be avoided because the variation of the letter height creates more legibility. When using lowercase, ascenders (e.g., t, l, d, h, f), letters that go above the x-height, and descenders (e.g., j, p, y), letters that drop below the baseline, are used. These help the reader distinguish between letters, and therefore read the words more easily. Using all capital letters makes each letter the same height, eliminating ascenders and descenders. This forms blocks of words and therefore decreases legibility for the reader (Frost & Strauss, 2002, p. 28).

The length of the lines on a Web site also helps determine the quality of legibility. Horton and Lynch suggest in their book, *Web Style Guide: Basic Design Principles for Creating Web Sites*:

At normal reading distances the eye's span of acute focus is only about three inches wide, so designers try to keep dense passages of text in columns not much wider than that comfortable eye span. (Horton & Lynch, 1999, p. 85)

Any lines wider than three inches may cause readers to strain their eyes or lose track of which line they are on when moving back to the left margin. Long paragraphs may also cause readers to get bored or lost in all of the text. Designers suggest keeping sentences and paragraphs short so readers can skim the provided information quickly (Johnson,

2003; Van Duyne, Landay & Hong, 2003). Designers also suggest implementing bulleted lists because “they draw people’s attention, allow readers to skim, highlight information quickly, and identify the most important information (Van Duyne, Landay & Hong, 2003, p. 295).

Alignment also helps in increasing legibility when it is used correctly. Left-aligned, centered, right-aligned, and justified are four main types of alignment. Left-aligned is the best option for organizing text on a Web site. It evenly aligns the text on the left margin, leaving the right margin irregular. Centered alignment leaves both the left and right margins irregular, which makes reading difficult. Right-aligned involves evenly aligning the text on the right margin, while creating an irregular left margin. This is also not the best option because it causes the reader’s eye to look harder for the next line. Finally, justified alignment hyphenates and adjusts the spacing between words, making both the left and right margins even and predictable. This often creates problems that need manual adjustment, which can be tiresome for the designer.

Navigation and Usability

The term navigation refers to how users get around a Web site. Yates cited Chadwick (2001) in defining the term usability:

[It] refers to how easy the web site is for everyone to use, and incorporates design layout patterns that may be ‘learned’ by users who then may explore the site and derive value from its contents.” (Yates, 2005, para. 10)

Usability studies have been conducted in the past and have found similar results. These studies discovered that users are goal-oriented, impatient, and want to find the desired information as quickly as possible (Sandvig & Bajwa, 2004). Thus, navigation and

usability are important in maintaining the interests of the Web site users. If a site is too difficult to navigate or use and the site cannot fulfill the needs of the users, they may become frustrated and decide to visit another site. Likewise, Taylor and England found in their study of Web site navigational design issues:

...in order to attract and retain customers via the internet, an organisation needs to make their web site as straightforward and appealing to use as possible otherwise potential customers may simply go to another organisation's web site. (Taylor & England, 2006, p. 78)

Web designers of organizations should be sure to make their sites consistent and their navigation predictable in order to instill confidence in users. This will increase the level of comfort users have in navigating the site (Horton & Lynch, 1999). As Yates (2005) commented, "a usable site 'leads' users through the site rather than 'pushing' them towards the information" (para. 12). The navigational system should be organized so that users feel in control of the Web site and not the other way around.

According to Taylor and England, there are five types of navigational options.

They include:

- Navigation bars – structured collections of navigational text, images or animations;
- Individual hyperlinks – connecting two individual Web pages in a web site using navigational text, images, or animations;
- Image maps – images containing a number of hyperlinks;
- Drop down menus/collapsible menus – structured collections of navigational text, images or animations where all choices are not permanently visible; and

- Search options – data entry fields that allow search text to be entered in order to locate content in the whole web site or sections of the web site.

(Taylor & England, 2006, p. 78)

Web designers can use any combination of these navigational options on a home page to encourage users to explore their sites.

Also, designers have three main locations on a home page to place these navigational options. One type is the “top-running” navigation bar, which runs across the top of the page (Van Duyne, Landay & Hong, 2003, p 551). The second is the “side-running” navigation bar, which, as the name also implies, runs along the side of the page. These types are usually situated on the left side of a home page (p. 551). Although on rare occasion, they are found on the right side. The third type is the “top-and-left” navigation bar, which has two bars: one along the top and one along the left side (p. 551).

Several studies have been conducted examining the navigability and ease of use of college and university Web sites. One such study conducted by Pooch and Lefond (2001) of how college-bound students perceive college and university Web sites found that participants felt frustrated when they needed to delve deeper than three levels to get the information they sought. They also found that drop down menus helped in finding desired information more quickly and efficiently. Finally, they discovered that although the search option was popular among the participants, it rarely helped in finding the desired or even useful information. Another study conducted by Sandvig and Bajwa (2004) also found the ineffectiveness of the search option on college and university Web sites.

Jakob Nielsen (1999), a Web design analyst, believes that a successful navigational system involves informing users “where they are, where they’ve been, and where they can go” (Johnson, 2003, p. 83). Often, users click on links and are unaware of where they are in comparison to where they have been or where they can go. Therefore, Web designers should leave their users “bread crumbs,” which refers to a “bar at the top of a Web page showing the trail of pages that a customer took from the homepage to the current page” (Van Duyne, Landay & Hong, 2003, p. 566). This allows users to see where they have been and where they currently are in the Web site.

Another way to allow users to easily navigate a Web site is for designers to know their Web sites’ audiences and target them on the home page. As previously discussed, organizations including colleges and universities have specific target audiences. Therefore, having specific links for each audience on the home page is key in easing their navigation through the site.

“Chunking” information also assists in the navigability and usability of a Web site. “Chunking” refers to an organizational method that groups related information together on a page (Horton & Lynch, 1999). This allows users to more easily locate the desired information, and also any other related information. Rather than forcing users to carefully scrutinize the entire page in search of the information they seek, “chunking” allows them to scan the page, quickly finding the desired and any other related information.

Layout

Layout can be defined as ‘the physical positioning of graphic and text elements on a web page’ (Reiss, 2000, p. 13). Effectively laying out a page involves organizing all of

the elements on the page and presenting them in a way that users can easily follow and understand. An unorganized or aesthetically unappealing home page may dissuade users from exploring the rest of the Web site and may cause them to form a negative impression of the organization. As K.C. Hunter, Web designer for Fieldstone Mortgage expressed in an interview, “Layout is a huge factor in the user’s experience and perception of the company. If your layout is cluttered, cumbersome, difficult to navigate, then the user will have the same impression of your company” (personal communication, December 3, 2006).

One way to clearly organize a home page is to create a visual hierarchy of the presented information.

Readers first see pages as large masses of shape and color, with foreground elements contrasted against the background field. Only secondarily do they begin to pick out specific information, first from graphics if they are present, and only then do they start parsing the harder medium of text and begin to read individual words and phrases.” (Horton & Lynch, 1999, p. 53-54)

Designers must use the principle of contrast in order to control the eye direction of users and draw them to the critical information. A gray page, or a page that has no contrast or is all text, is not visually exciting for users. It is important to create strong visual contrast between the items on a page to create excitement and to instill a desire in users to read the page’s content. Graphics, “chunks” of information, navigation bars, text boxes of different colors, and varying font types, sizes, styles, and colors are all ways to create contrast. Using white space is an essential way to create visual contrast. White space is an area on a page where no text or graphics appear. Without employing the use of white space, a gray page is created. White space is mainly used for the margins and for the

gutters, which is the space between columns of text. But, it can be used on any area to relieve the page from the text and/or graphics.

Consistency is another important principle, though it doesn't just apply to one Web page. All of the pages of a Web site should be consistent in the layout and use of colors, fonts, navigational methods, logos, etc. Consistency helps enforce the identity of the organization within users (Horton & Lynch, 1999).

A consistent approach to layout...allows readers to adapt quickly to your design and predict with confidence the location of the information and navigation controls across the pages of your site. (Horton & Lynch, 1999, p. 56)

One important rule designers adhere to when creating a home page is the “above the fold” principle. Originating from the newspaper business, this term refers to placing the most important information above the fold (on the top half) of the newspaper. On home pages and Web sites, “above the fold” means placing the most critical information on the top half of the page, or what users can see without having to scroll down. This is usually the top four inches of the page (Horton & Lynch, 1999). Frost and Strauss (2002) cite Nielson (2000) in stating that only 10 percent of users actually scroll down below the fold. One difficulty in designing for the “above the fold” principle is that site screens can vary in size. A home page may display more information if the screen is larger, or it may display less information if the screen is smaller. If the screen is smaller, important information, originally placed above the fold, may be cut off.

Organizations, including colleges and universities, should take all of these layout and design principles seriously when designing their home pages and Web sites. As a Lipman Hearne study examining college-bound students and their perceptions of college and university Web sites found:

Students equate the quality of a college Web site with the quality of the institution itself. A dull Web site suggests a less than dynamic institution, and an inconsistent Web site signals that the college may not be well organized. (Lipman Hearne, 2001, p. 3)

The Bucknell University Webmaster, Roberta Simms, stated, “Viewers make rapid judgments about Web sites. If any element is out of balance (color, contrast, pictures, etc.), viewers instinctively recognize. They either leave the site or lose trust in the site” (personal communication, December 7, 2006). Based on the research discussed above, college and university Web site audiences, especially prospective students, form impressions of the institutions based on their experiences with those institutions’ home pages and Web sites.

CHAPTER 3

Research Design

The sample for this study consisted of both public and private four-year colleges and universities located in New Jersey. Schools such as seminaries and dentistry schools were not included in the sample. The researcher wanted only to incorporate schools providing general education to students. Also, schools that did not provide some type of graduate program were eliminated from the sample.

Interviews were conducted, in which participants were chosen based on their knowledge of Web and graphic design. Then, the researcher conducted a content analysis of the selected Web sites. Finally, a field experiment was held using graduate and undergraduate college students to determine if the level of adherence to certain Web and graphic design standards affected the perceived quality of an institution. The information acquired from the field experiment questionnaires was then compared to the information found by the researcher in her content analysis.

Quantitative Research

A content analysis was conducted to assess how closely New Jersey four-year colleges and universities adhere to certain standards for Web and graphic design when creating their home pages and Web sites. The sample of the content analysis included twenty-three institutions. The public institutions used in the sample include: The College of New Jersey, Kean University, Montclair University, New Jersey City

University, New Jersey Institute of Technology, Ramapo College of New Jersey, The Richard Stockton College of New Jersey, Rowan University, Rutgers University (Camden, Newark, and New Brunswick), Thomas Edison State College, and William Patterson University. The private institutions used in the sample include: Caldwell College, Centenary College, Drew University, Fairleigh Dickinson College, Felician College, Georgian Court College, Monmouth County College, Princeton University, Rider University, Seton Hall University, St. Peter's College, and Stevens Institute of Technology. The researcher compiled a list of Web site design standards through research of past studies, Web site design books, and personal interviews with Web and graphic design experts. The design standards looked at certain Web page features such as readability, layout, navigation, and use of graphic design. The adherence or lack of adherence to such principles showed objectivity, which helped the researcher to choose which home pages the field experiment participants will rate. The researcher also rated each home page based on 11 different Likert-type questions to allow the researcher to determine her opinion of the home page and to later compare this opinion with those of the field experiment participants. This research method proved essential to this study as the purpose was to analyze Web sites to determine the ability of colleges and universities in following certain design standards. Due to time constraints, only the home page and certain links of each Web site were examined.

The researcher also conducted a field experiment to determine if adherence to proper design standards increases the perceived quality of the college or university in question. Twenty-three Rowan University graduate and undergraduate college students participated in this experiment, in which they examined a sample of Web sites previously

evaluated by the researcher in the content analysis. Each participant completed a questionnaire designed to evaluate the Web site's layout and design, content of the home page, and navigation. The questionnaire consisted mainly of 11 Likert-type statements, asking the participant to agree or disagree with each statement on a scale from one to nine. It also asked for the average number of clicks needed to find the institution's tuition rate and the participant's favorite and least favorite aspect of the home page. The researcher chose six Web sites with varying degrees of adherence to certain design standards: two excellent, two average and two poor. These sites were chosen based on the objective results found in the researcher's content analysis. "Testing the site for usability and impact is essential to ensure that this important communications channel meets student needs as well as institutional objectives" (Lipman Hearne).

Qualitative Research

Personal interviews were conducted as preliminary research in order to gain knowledge concerning important Web design standards. These interviews were conducted via E-mail with four Web and graphic design experts. The term "experts" is defined as individuals who use their Web and graphic design knowledge frequently as a part of their profession. One participant worked as the Web designer for a company called Fieldstone Mortgage. Three of the other participants were Webmasters for Bucknell University, the University of Michigan, and Xavier University, which just won the Best University Website award from the Web Marketing Association. Also interviewed was a Publication Layout & Design professor at Rowan University. The researcher used the information gathered from the interviews, along with information from books and scholarly studies, to compile the list of standards used in the content

analysis, and to gain more background knowledge about the overall subject. The questions varied depending on the participant. Interview questions asked to the Fieldstone Mortgage Web designer included:

1. What is your educational and professional background?
2. How do you think the Internet has impacted businesses and other organizations such as colleges and universities?
3. Does your company still use print publications, or do you mainly use your Web site for informing and influencing your audiences
4. Do you believe that layout and design principles (e.g. use of pictures, colors, contrast, alignment) are important when designing a Web site? Why or why not?
5. Do you believe that the layout and design of a Web site influences the viewer's perception of that site's organization?
6. When designing a Web site, what layout and design principles do you find to be most important?
7. What do you believe is the significance of a Web site's home page?
8. What color guidelines do you follow when creating a Web site? What do you think are the best colors to use?

When interviewing the three university Webmasters, most of questions remained the same; however, the researcher did add a few more. These included:

1. How do you think visitors perceive your Web site?
2. What audience(s) do you believe to be most important to your Web site?

3. How important do you believe a college or university Web site is in the college-bound student's decision process when choosing a college or university?
4. What do you believe are the most important elements to have on a college or university's home page? (e.g. application information, campus news, other such links)

When interviewing the Rowan University professor, the researcher used a combination of the questions provided above.

Procedure

The researcher distributed 30 field experiment questionnaire packets throughout the month of March 2007 to Rowan University graduate and undergraduate students. These packets contained an introductory page with the researcher's purpose as well as six questionnaires, one for each institution. Only 23 questionnaires were completed and returned.

Below is the protocol used by the researcher in conducting the content analysis. The Likert-type questions were also used in the field experiment questionnaires completed by the students.

Content Analysis Protocol for Evaluating NJ College and University Home Pages

Graphic Design

1. Does the page use four colors or fewer? (excluding logos and images)
2. How many colors exist on the page?
3. Do the Web site's pages load in eight seconds or less?
4. Does the page have three images or fewer?
5. Do the images load?
6. Does the background allow for easily reading the text?
7. What color is the background?

Readability, Legibility, and Typography

1. Is serif or sans serif used for the headlines?
2. Is serif or sans serif used for the body copy?
3. Does the page use two fonts or fewer?
4. How many font styles are used on the page? Are they used consistently?
5. Are all caps used for chunks of text on the page?
6. Are the lines of text, at most, three inches wide?
7. Are paragraphs kept short and simple?
8. Is the body copy left-aligned? If no, how is it aligned?

Navigation and Usability

1. What type of navigation system does the page employ?
2. Where is the navigation bar located on the page?
3. Does it take three levels or fewer to obtain desired information (i.e. finding tuition rates)?
4. Does the Web site offer a “bread crumb” trail?
5. Does the page address all six main audiences?
6. Does the page “chunk” information together?

Layout

1. Does contrast exist among the page elements?
2. Does consistency in color exist among the Web site’s pages?
3. Are buttons, bars, and other navigational aids consistently placed on each page?
4. Does the page present the most important information “above the fold?”
5. Is the page organized and presented clearly?
6. Do you believe the organization to be credible?

1. The page is very well contrasted.
Strongly disagree 1 2 3 4 5 6 7 8 9 Strongly agree
2. The paragraphs are kept short and simple.
Strongly disagree 1 2 3 4 5 6 7 8 9 Strongly agree
3. The page and its information is organized and presented clearly.
Strongly disagree 1 2 3 4 5 6 7 8 9 Strongly agree
4. Based on the home page, the institution presents itself as a credible organization.
Strongly disagree 1 2 3 4 5 6 7 8 9 Strongly agree
5. I find it easy to get this Web site to do what I want to do.
Strongly disagree 1 2 3 4 5 6 7 8 9 Strongly agree
6. The amount of information presented on screen is adequate.
Strongly disagree 1 2 3 4 5 6 7 8 9 Strongly agree
7. Obtaining desired information is easy and clear.
Strongly disagree 1 2 3 4 5 6 7 8 9 Strongly agree
8. The layout of the pages made tasks easy to accomplish and information easy to find.
Strongly disagree 1 2 3 4 5 6 7 8 9 Strongly agree
9. The Web site used a readable and visually appealing font and format.
Strongly disagree 1 2 3 4 5 6 7 8 9 Strongly agree
10. The Web site presented color in a visually appealing way.
Strongly disagree 1 2 3 4 5 6 7 8 9 Strongly agree
11. Overall, using the Web site was a satisfying experience.
Strongly disagree 1 2 3 4 5 6 7 8 9 Strongly agree

(Arney, 2006, p.66-67)

CHAPTER 4

Results

The following are the results from the content analysis conducted by the researcher, as well as the results from the field experiment questionnaires distributed by the researcher. Out of 30 questionnaires, only 23 were completed and returned.

Below are the results of the content analysis conducted by the researcher. The results are categorized by each college or university.

The College of New Jersey

This institution perfectly adhered to the principles of graphic design; readability, legibility, and typography; navigation and usability; and layout. The home page used a white background. Both sans serif and serif were used for the headlines, while only sans serif was used for the body copy. TCNJ employed the use of all types of navigation systems except image maps. The navigation bar was located on the top and left of the page. It also targeted all major audiences. This home page received the highest average rating of the public institutions. It was given a rating of 7.9 out of nine from the Likert-type questions, meaning the researcher thought very perceived this site has having an excellent home page.

The researcher chose this institution's home page as one of six home pages for students to evaluate in the field experiment questionnaire. This home page stood as one of the two excellent examples based on its adherence to the tested principles. Students

gave this home page an overall average rating, based on the Likert-type questions, of 6.9 out of nine. This was the highest rating given out of all six rated institutions.

Kean University

This institution adhered to 11 out of the 20 tested principles. The home page did not use four colors or fewer (excluding logos and images), but used five. However, it did meet the recommended background color requirements by using white and light blue. Serif and novelty fonts were used for the headlines, while sans serif was used by the body copy. Kean did not use the dropdown or image map navigation systems and its navigation bars were vertically and horizontally centered on the page. It did not target the audiences of parents and visitors/community. Based on the Likert-type questions, the researcher gave this institution an overall rating of 3.6. This is the lowest score given out of all 23 of the examined college and university home pages.

The researcher chose this institution's home page as one of six home pages for students to evaluate in the field experiment questionnaire. This home page stood as one of the two poor examples based on its adherence to the tested principles. Students gave this home page an overall average rating of 4.8 out of nine, based on the Likert-type questions. This was the lowest rating given out of all six rated institutions.

Montclair University

Montclair University adhered to 17 out of the 20 tested principles. It had more than three images on its page, which is not recommended. The home page used more than the recommended three images, and used a mixture of dark red, yellow and white for the background. Sans serif was used both for the headlines and body copy. Montclair used all

navigation systems but the dropdown menu and search option. The navigation bars were located on the top and left of the page. It targeted all audiences except the visitors/community. The researcher gave this institution an overall rating of 7.8 based on the Likert-type questions.

Ramapo College of New Jersey

Ramapo College of New Jersey followed 16 out of the 20 recommended design rules. It used five images, instead of the suggested three. Gray, dark red and black colored the background of this page. Sans serif was used both the headlines and body copy. Ramapo employed all navigation systems and the navigation bars were placed on the left on horizontal center. It also targeted all major audiences on the home page. The researcher gave this institution an overall rating of 6.4 as a result of averaging all of the Likert-type question ratings.

Richard Stockton College of New Jersey

Richard Stockton College of New Jersey also adhered to 16 out of the 20 tested principles. The home page used a very light red background and used sans serif for both the headlines and body copy. Richard Stockton used all navigation systems and placed its navigation bars on the top and left of the page. It failed to target two of the six major audiences. These include parents and prospective students. Richard Stockton received an overall average rating of 5.5 out of nine on the Likert-type questions.

Rowan University

Rowan University adhered to 15 out of the 20 tested principles. With a white background, Rowan used sans serif font for both the headlines and body copy. It utilized

all navigation systems but the dropdown menu. Navigation bars were placed on the right and the bottom center. The researcher gave this institution a 6.2 overall average rating based on the Likert-type questions.

New Jersey City University

New Jersey City University followed 15 of the 20 recommended principles. The home page displayed seven colors, three more than the suggested four, and used four images, one more than the suggested maximum number of three. New Jersey City used a white and gray background and used sans serif for both the headlines and body copy. All navigation systems were used; and, the home page displayed the navigation bars on the top and left. The institution did not target two audiences, parents and visitors/community. New Jersey City received an overall average rating of 5 out of nine on the Likert-type questions.

New Jersey Institute of Technology

The New Jersey Institute of Technology adhered to 18 of the 20 tested principles. With a tan and dark red background, the institute used sans serif for both the headlines and body copy. The dropdown menu and image maps were two navigations systems not present on the home page. The navigation bars were located on the top and right of the page. Finally, the home page failed to target the main audience of the prospective students. NJIT received an overall average rating of 7.2 based on the Likert-type question ratings.

The researcher chose this institution's home page as one of six home pages for students to evaluate in the field experiment questionnaire. This home page stood as one

of the two excellent examples based on its adherence to the tested principles. Students gave this home page an overall average rating of 6.8 out of nine, based on the Likert-type questions. This was the second highest rating given out the six chosen institutions.

Rutgers University

Rutgers University also adhered to 18 out of the 20 tested principles. White and red colored the background of this home page. Sans serif fonts were used for both the headlines and body copy. For the navigation systems, all were employed except the dropdown menu and the search option. Navigation bars were located on the top and right of the page. Rutgers only clearly targeted faculty/staff and alumni/friends. It had a link for students, but did not specify whether this was for current students or prospective students. The researcher gave Rutgers a rating of 6.3 out of nine on the Likert-type questions.

Thomas Edison State College

Thomas Edison State College followed 18 of the 20 recommended principles. With a white background, the institution used serif fonts for the headlines and sans serif fonts for the body copy. The search option and image maps were the only two navigation systems not used. Thomas Edison State placed the navigation bars on the top and left of the page. The home page was missing three of the six target audiences. These include faculty/staff, parents and visitors/community. This institution received an overall average rating of 3.7 based on the Likert-type questions.

William Patterson University

William Patterson University adhered to 16 out of the 20 tested principles. Blue and gold colored the background of this home page, which used sans serif for both the headlines and body copy. This home page was the only one that used all caps for chunks of text. Image maps were the only type of navigation system not employed. This institution placed its navigation bars on the top and left of the page, and was missing all target audience links except faculty/staff. The researcher gave this institution's home page an overall average rating of 6.9 based on the Likert-type questions.

Caldwell College

Caldwell College followed 16 of the 20 recommended principles. Caldwell had more than three images on its page, which is not recommended. The home page had a white, black and red background, and used sans serif for both the headlines and body copy. The home page did not use the navigation system of the dropdown menu, and placed its navigation bars on the top and left of the page. It was missing three main target audience links. These include parents, prospective students and visitors/community. Caldwell received an overall average rating of 6.1 on the Likert-type questions.

Centenary College

Centenary College adhered to 16 of the 20 recommended principles. With a gray, blue and white background, this home page used serif fonts for the headlines and sans serif fonts for the body copy. The dropdown menu was the only type of navigation system not used. Navigation bars were placed on the top and left of the page. This home page did not address all six main audiences as it failed to target visitors/community.

However, the institution did address this audience later after clicking on another link. The researcher gave this institution's home page an overall average rating of 7.2 based on the Likert-type questions.

The researcher chose this institution's home page as one of six home pages for students to evaluate in the field experiment questionnaire. This home page stood as one of the two average examples based on its adherence to the tested principles. Students gave this home page an overall average rating of 6.2 out of nine, based on the Likert-type questions. This was the fourth highest rating given out the six chosen institutions.

Drew University

Drew University adhered to 15 out of the 20 tested principles. Drew had one too many colors in the design of its page by using five, instead of the recommended four. This home page used white and gray to color the background, and used sans serif for both the headlines and the body copy. The dropdown menu and image maps were two navigation systems not employed by this institution. The home page placed its navigation bars on the top and across the middle of the page. This institution failed to target the audience of faculty/staff. Drew University received an overall average rating of 7 out of the total nine points on the Likert-type questions.

The researcher chose this institution's home page as one of six home pages for students to evaluate in the field experiment questionnaire. This home page stood as one of the two average examples based on its adherence to the tested principles. Students gave this home page an overall average rating of 6.3 out of nine, based on the Likert-type questions. This was the third highest rating given out the six chosen institutions.

Fairleigh Dickinson University

Fairleigh Dickinson University followed 19 out of the 20 tested principles. FDU had more than three images on its page, which is not recommended. White and dark red colored the background of this home page, while san serif fonts were used for both the headlines and body copy. FDU's home page employed all types of navigation systems and also targeted all six main audiences. Navigation bars were located on the top and left of the page. Fairleigh Dickinson achieved a total average score of 6.6 on the Likert-type questions.

Felician College

Felician College adhered to 14 out of the 20 suggested principles. Felician had more than three images on its page, which is not recommended, and also used five instead of the suggested four colors. The home page utilized white and green for its background, while both the headlines and body copy used sans serif fonts. The home page designer did not use short and simple paragraphs and did not provide users with a search option. The navigation bar was placed at the top of the page. This page failed to target all six audiences. It did not address parents and visitors/community. The researcher gave Felician an overall average score of 4.9 based on the Likert-type questions.

The researcher chose this institution's home page as one of six home pages for students to evaluate in the field experiment questionnaire. This home page stood as one of the two poor examples based on its adherence to the tested principles. Students gave this home page an overall average rating of 4.9 out of nine, based on the Likert-type questions. This was the second lowest rating given out the six chosen institutions.

Georgian Court College

Georgian Court College adhered to 16 out of the 20 recommended principles. Georgian Court had more than three images on its page, which is not recommended. Gold, blue and white colored the background of this home page, while both the headlines and body copy used sans serif fonts. The only navigation system not used was the search option. Navigation bars were placed on the top and left of the page. The only audience not targeted was that of visitors/community. Georgian Court achieved a total average score of 7.8 out of nine on the Likert-type questions.

Monmouth County College

Monmouth County College followed 15 out of the 20 tested principles. Monmouth had more than three images on its page, which is not recommended. This home page has a white background and uses sans serif for both the headlines and body copy. All types of navigation systems were used and the navigation bars were placed on the top and in the vertical center of the page. The home page targeted all six main audiences. The researcher gave Monmouth an overall average rating of 7.5 on the Likert-type questions.

Princeton University

Princeton University adhered to 16 out of the 20 principles tested by the researcher. Princeton had more than three images on its page, which is not recommended. With an orange, yellow and white background, this home page used sans serif fonts for both the headlines and body copy. All types of navigation systems were used and the navigation bars were located on the top and left of the page. This institution failed to

target the visitors/community audience. Princeton received a total average score of 7.4 on the Likert-type questions.

Rider University

Rider University adhered to 18 out of the 20 tested principles. However, it did use more than three images on its page, which is not recommended. The home page used red and white as background colors, and used both sans serif and serif fonts for the headlines. For the body copy, sans serif fonts were used. All types of navigation systems were employed and the navigation bars were found on the top and left of the page. Rider targeted all six main audiences on its home page. The researcher awarded Rider's home page with an overall average rating of 8.3 on the Likert-type questions. This is the highest score awarded out of all 23 tested college and university home pages.

Seton Hall University

Seton Hall University followed 15 of the 20 recommended principles. It had more than three images on its page, which is not recommended. This home page used a mixture of blue, white and a large picture to construct the background. It used sans serif fonts for both the headlines and body copy. The dropdown menu was the only navigation system not employed, while the navigation bars were placed on the top and left of the page. It failed to target four main audiences, only addressing alumni and prospective students. Seton Hall received an average rating of 5.6 out of nine on the Likert-type questions.

St. Peter's College

St. Peter's College adhered to 17 of the 20 principles tested by the researcher. It had more than three images on its page, which is not recommended. Blue and white

colored the background, while sans serif fonts were used both for the headlines and body copy. All navigation systems were used with one navigation bar placed vertically on the top and the other lying horizontally across the middle of the page. St. Peter's addressed all six target audiences. The researcher gave this college a total average score of 6.5 on the Likert-type questions.

Stevens Institute of Technology

The Stevens Institute of Technology followed 14 out of the 20 tested principles. This home page used six colors instead of the recommended four, and also failed to adhere to one principle by using more than three images. White, black and red made up the background of this page while sans serif fonts were used for both the headlines and body copy. Stevens Institute used all navigation systems except the search option. Its navigation bars were found on the top and left of the page. This home page also failed to address the target audience, visitors/community. Stevens Institute received an overall average rating of 5.1 out of nine on the Likert-type questions.

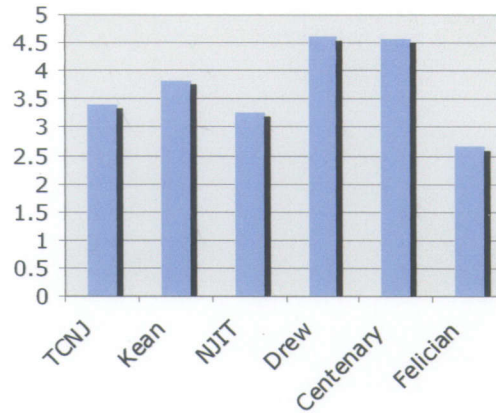
Below are the results of the field experiment questionnaires.

1. Please indicate the number of clicks it took you to find the college or university's tuition rates.

Figure 1 shows that Drew University required the most number of clicks to find tuition rates with an average of 4.6 clicks. Felician College required the least with 2.6

clicks. The other colleges or universities averaged around three clicks. Research shows that Web site users lose interest after three clicks.

Figure 1
The Average Number of Clicks Needed to Locate Tuition Rate

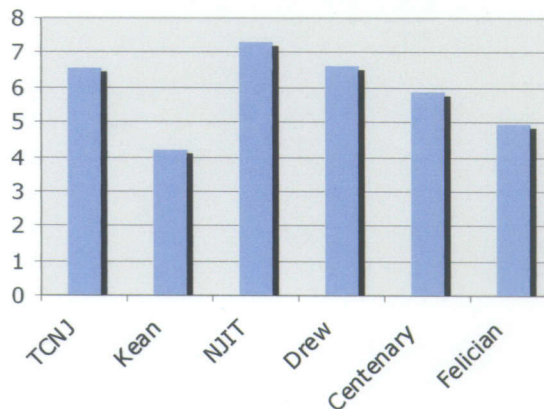


2. The home page is very well contrasted.

Strongly disagree 1 2 3 4 5 6 7 8 9 Strongly agree

Figure 2 shows that participants believed New Jersey Institute of Technology (NJIT) had the best home page contrast with an average rating of 7.3. Kean University had the lowest rating with 4.2.

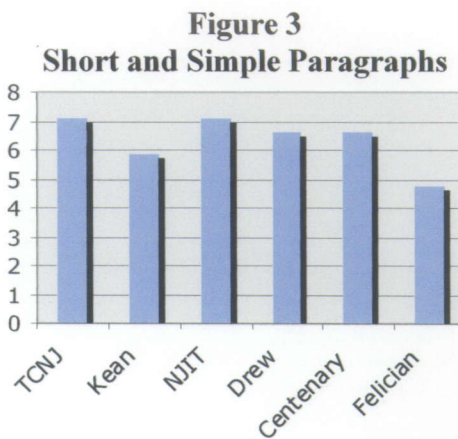
Figure 2
Contrast of Home Page



3. The paragraphs are kept short and simple.

Strongly disagree 1 2 3 4 5 6 7 8 9 Strongly agree

Figure 3 shows that The College of New Jersey (TCNJ) and the New Jersey Institute of Technology (NJIT) received the same rating of 7.1, meaning participants fairly strongly agreed that the home pages' paragraphs were kept short and simple. Felician College received the lowest rating of 4.8.

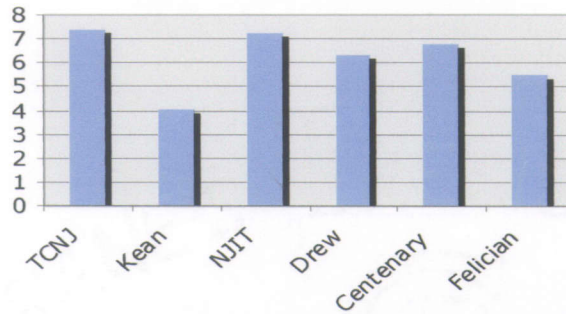


4. The home page and its information are organized and presented clearly.

Strongly disagree 1 2 3 4 5 6 7 8 9 Strongly agree

Figure 4 shows that TCNJ received the highest average rating of 7.4, meaning that most participants believed its home page to be pretty well organized and clear in the presentation of its information. Kean University received the lowest average rating of 4, which means that most participants believed the site to be fairly unorganized and unclear in the presentation of its information.

Figure 4
Home Page Organization

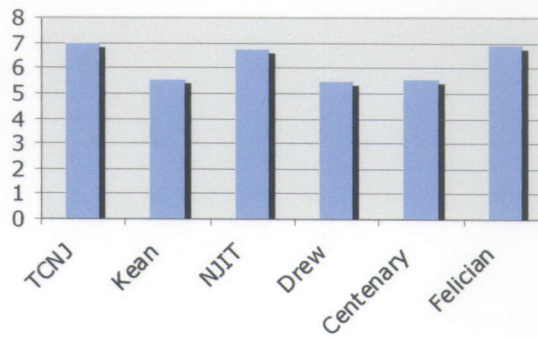


5. I find it easy to get this Web site to do what I want to do. (Finding tuition rates)

Strongly disagree 1 2 3 4 5 6 7 8 9 Strongly agree

Figure 5 indicates that TCNJ had the highest average for functionality and ease of navigation with a rating of 7, while Drew University had the lowest average with a rating of 5.4.

Figure 5
Functionality and Ease of Navigation

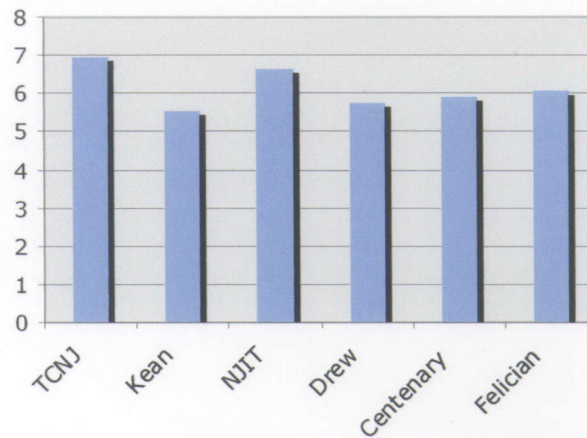


6. The amount of information presented on home page is adequate.

Strongly disagree 1 2 3 4 5 6 7 8 9 Strongly agree

Figure 6 shows that TCNJ received the highest rating with a 6.9, meaning that participants felt that the Web site provided a fairly adequate amount of information. Kean University received the lowest rating with a 5.6.

Figure 6
Adequate Amount of Information on Home Page

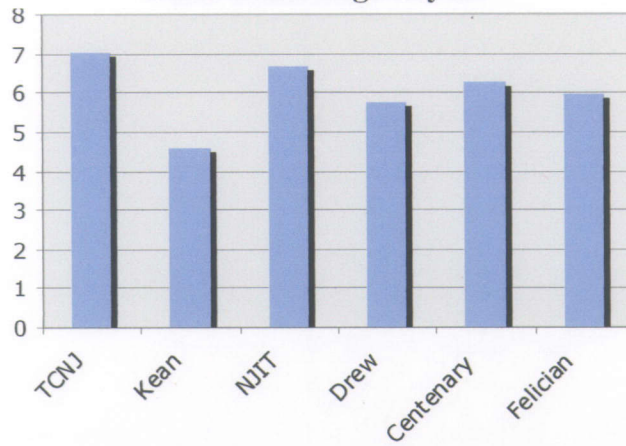


7. The layout of the pages made tasks easy to accomplish and information easy to find.

Strongly disagree 1 2 3 4 5 6 7 8 9 Strongly agree

Figure 7 indicates that TCNJ had the best average rating among participants for its clear and easy to use home page layout. It received a rating of 7. Kean University received the lowest rating of a 4.6, meaning most participants did not believe its home page layout to be clear and easy to use.

Figure 7
Clear Home Page Layout

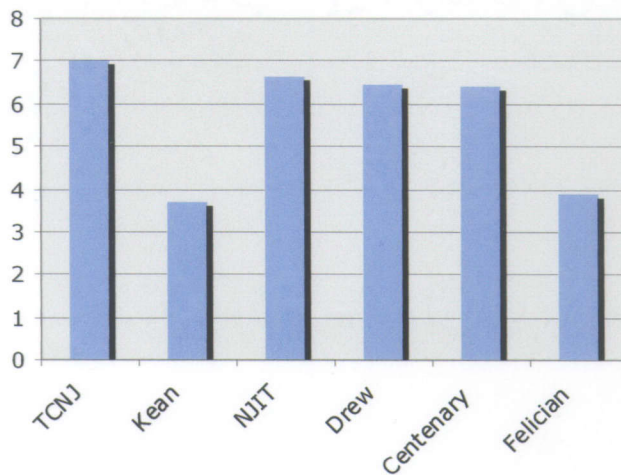


8. The home page used a readable and visually appealing font and format.

Strongly disagree 1 2 3 4 5 6 7 8 9 Strongly agree

Figure 8 shows that TCNJ received the highest average rating of 7 for its home page's use of readable and visually appealing font and format. Kean University received the lowest average score of 3.7 with Felician College following close behind with a score of 3.9.

Figure 8
Readable and Appealing Home page Font/Format

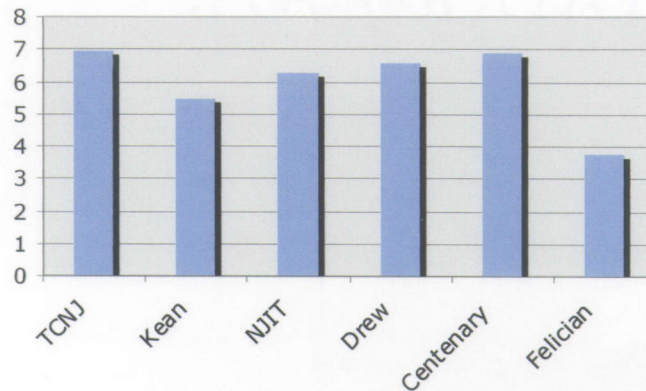


9. The graphics (pictures or illustrations) are attractive and appealing.

Strongly disagree 1 2 3 4 5 6 7 8 9 Strongly agree

Figure 9 indicates that participants rated TCNJ most highly in regards to its home page's use of attractive and appealing graphics. It received a score of 7. Centenary College followed close behind with a rating of 6.9. The lowest average rating was given to Felician College, who, according to the participants, did not employ attractive and appealing graphics on its home page.

Figure 9
Attractive Graphics

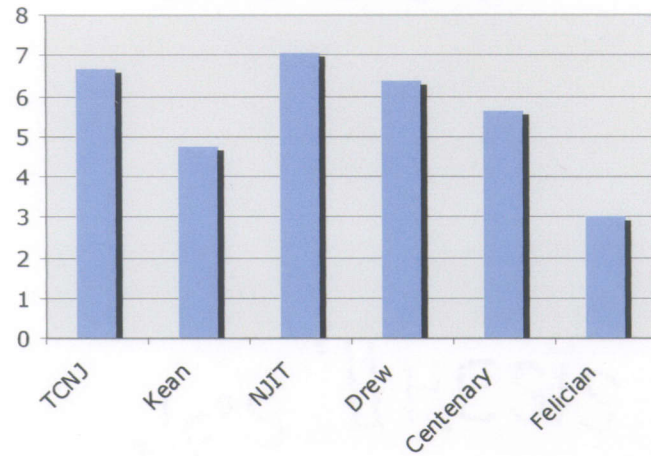


10. The home page presented color in a visually appealing way.

Strongly disagree 1 2 3 4 5 6 7 8 9 Strongly agree

Figure 10 shows that NJIT received the highest average rating of 7 for presenting color in a visually appealing way on its home page. Felician College received the lowest rating of 3.7 as participants did not believe its home page used visually appealing color.

Figure 10
Appealing Home Page Color

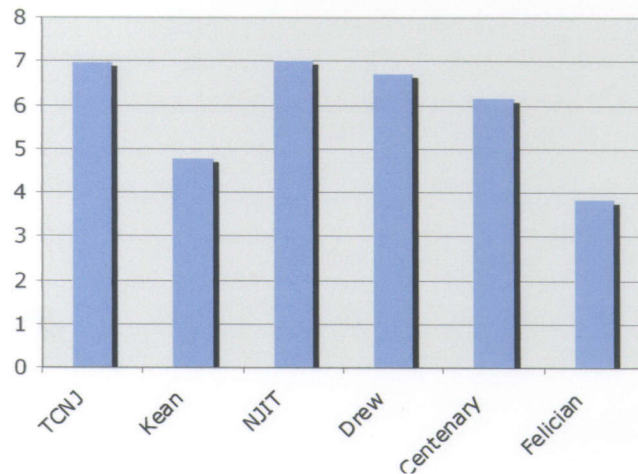


11. Based on the home page, the institution presents itself as a credible organization.

Strongly disagree 1 2 3 4 5 6 7 8 9 Strongly agree

Figure 11 indicates the perception of credibility based on the college or university's home page. For participants, NJIT and TCNJ, based on their home pages, were seen as the most credible ones with an average rating of 7. The least credible institution, based on its home page, was Felician College with an average rating of 3.8.

Figure 11
Credible Organization

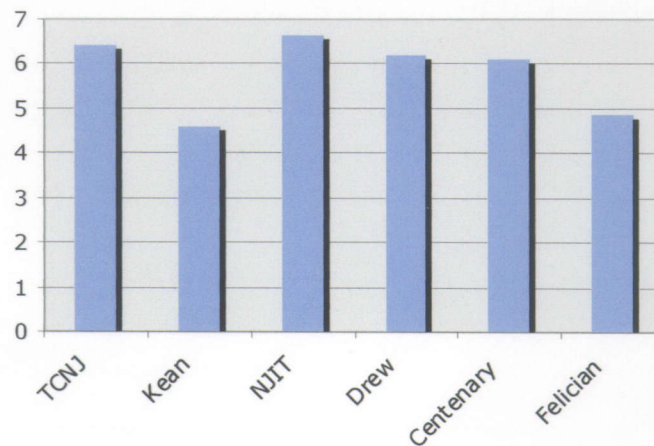


12. Overall, using the Web site was a satisfying experience.

Strongly disagree 1 2 3 4 5 6 7 8 9 Strongly agree

Figure 12 shows that NJIT received the highest average rating for an overall satisfying Web site experience with a score of 6.7. TCNJ also had a high rating of 6.4. Participants had the least satisfying experience with Kean University's Web site, which received an average rating of 4.6. Felician College also received one of the lowest rating with a score of 4.9.

Figure 12
Satisfying Web Site Experience



13. Please describe your favorite aspect of this home page.

For The College of New Jersey's Web site, the most popular favorite aspects among participants included the home page's photographs and its clean look due to an organized and clear layout.

For Kean University, most participants enjoyed the photographs and the links that led users to different college and university Web sites.

For the New Jersey Institute of Technology, the most popular favorite aspects were its clean layout and its use of the color red. Some participants also commented on its functionality and ease of navigation.

For Drew University, the photographs were the most favorite aspect of the home page.

For Centenary College, the majority of the participants enjoyed the photographs the most. Some also commented on the clean layout and look of the page.

For Felician College, most participants enjoyed the functionality and easy navigation of the home page. Several participants also reported the dropdown menus in the navigation bar as their favorite aspect of the home page.

14. Please describe your least favorite aspect of this home page.

For the College of New Jersey's Web site, the most popular least favorite aspect among participants included the use of colors (blue and gold).

For Kean University, most participants' least favorite aspect was the clutter of the home page. Eighteen out of the 23 participants believed there to be too much information, too many links and too much use of the color blue.

For the New Jersey Institute of Technology, the least favorite aspects among participants were the photographs and the small type, which they believed to be too difficult to read. Although, four participants did report no least favorite aspect.

For Drew University, the least favorite aspects reported included the colors and the navigation system. Most participants thought that the home page employed too many colors.

For Centenary College, the most popular least favorite aspects included the inadequate use of space (too little color and information) and the navigation system.

For Felician College, an overwhelming number of participants -16 out of 23- disliked the most the color choice of the home page. These participants stated that the color choice was “ugly.” Some also commented on the dated photographs used and poor layout.

Summary

Based on the ratings of the 11 Likert-type questions, students rated two institutions with the highest average score for certain criteria and three institutions with the lowest average score for certain criteria.

Student participants gave The College of New Jersey the highest average score for eight of the 11 Likert-type questions and gave the New Jersey Institute of Technology the highest average score for five out of the 11 Likert-type questions. The College of New Jersey and the New Jersey Institute of Technology tied with the highest average ratings for two criteria.

Student participants gave Kean University the lowest average score for six of the 11 Likert-type questions and gave Felician College the lowest average score for four of the 11 Likert-type questions. Finally, students gave Drew University the lowest average score for one of the 11 Likert-type questions.

In the field experiment questionnaires, students were also asked to find the tuition rates of each institution, marking the number of necessary clicks. Felician College was given the highest average score for this piece of criterion as it required the fewest number of clicks. Students gave Drew University the lowest average rating, as it required the most clicks.

CHAPTER 5

Interpretations and Suggestions

The content analysis and subsequent findings of the 23 questionnaires found that New Jersey college and university's adherence to certain home page layout and design principles affects viewers' perceptions of the institutions' image and credibility.

The first part of the content analysis, completed by the researcher, comprised of questions with quantitative measures, which found more objective results. The second part of the content analysis, which revealed more subjectivity, comprised of 11 Likert-type questions. As explained earlier, the more quantitative measures and thus more objective results helped the researcher to choose two excellent, two average, and two poor institutions in terms of their adherence to certain standards. Field experiment student participants then rated these six institutions based on the same Likert-type questions also completed by the researcher. Results from these student-completed questionnaires substantiated the researcher's reasons for choosing those six institutions. Students rated highest the two institutions the researcher chose to stand as excellent examples. Students gave average scores to the two institutions the researcher chose to stand as average examples. Finally, students rated lowest the two institutions the researcher chose to stand as poor examples.

To determine the students' perceived value of the institutions, the researcher looked mainly at the average ratings of one Likert-type question. It asked if participants,

on a scale of one to nine, strongly agreed or strongly disagreed with the statement, “Based on the home page, the institution presents itself as a credible organization.” The researcher then compared these results to the objective results found by the researcher in her content analysis. This looked to determine if any relationship existed between the institutions’ adherence to design principles when creating their home pages and the participants’ believed credibility of the institution.

From the researcher’s objective measures, the College of New Jersey adhered to 20 out of the 20 tested principles, achieving 100 percent adherence. Student participants gave this institution’s home page an average rating of 7 out of nine for perceived credibility, which is significantly high. The New Jersey Institute of Technology achieved 90 percent adherence, by following 18 of the 20 principles. Students also gave this home page an average rating of 7 for perceived credibility. These two institutions were also the highest rated among students in the overall ratings, showing that high adherence to certain principles in home page design causes a higher amount of perceived credibility and value.

Centenary College adhered to 16 of the 20 tested principles, achieving 80 percent adherence. Students gave this institution an average rating of 6.1 for perceived credibility. Drew University achieved 75 % adherence by following 15 of the 20 principles and it received an average rating of 6.7 for perceived credibility. The researcher chose these two institutions as average examples of design principle adherence. Students also awarded these institutions ratings that placed them as the third and fourth most highly rated of the six institutions. Although, a surprising result did present itself as Centenary College’s home page adhered to 16 principles, but achieved a

lower rating for perceived credibility than did Drew University's home page which adhered to 15 principles. Although the difference between adherences is only one, it shows a difference in perceived credibility. This difference could be attributed to any one aspect of a home page that a participant liked more than the other home page. More research would be needed to discover the deciding aspect.

Felician College adhered to 14 of the 20 tested principles, achieving 70 percent adherence. Students gave this institution an average rating of 3.8 for perceived credibility. Kean University achieved 55 percent adherence, following 11 of the 20 principles. It received an average rating of 4.6 for perceived credibility. Students gave these two the lowest overall average ratings of the six institutions. Again, a discrepancy exists. Felician College adhered to more principles, receiving a lower score for perceived credibility, while; on the other hand, Kean University adhered to fewer principles and achieved a higher score for perceived credibility. This difference could be attributed to many different factors, which only further research could discover. Because the majority of students listed the color choice as their least favorite aspect of Felician's home page, perhaps the poor color scheme caused the home page to be less liked and therefore perceived as less credible.

Study's Strengths and Weaknesses

One strength within this study was the researcher's ability to acquire much knowledge about evaluative criteria for layout and design of Web sites and their home pages. Through research of past studies, Web site design books, and personal interviews with Web and graphic design experts, she found this information, which allowed her to evaluate each Web site's home page objectively and subjectively. Another strength of

this study is the agreement between the researcher's opinion and students' opinions of each of the six chosen home pages. The overall average results, based on the Likert-type questions, were similar, showing that the students' ratings substantiated the researcher's claim that a college or university's Web site and home page adherence to certain standards affect students' perceptions of the credibility and value of that institution.

A weakness of this study was the small survey population and its resulting small sample size. Though the information gathered from this research answered the main question, the information cannot be extended to reflect the perceptions of students across the state, or across the country.

Conclusion

The data gathered in this study provides a look into how students perceived the value and credibility of institutions based on their adherence to home page design standards. The researcher found agreement between her objective measures and the students' interpretations and perceptions of the institutions. These results show significance in the claim that a college or university will be perceived as of higher quality (i.e. more credible) the more closely it adheres to certain design standards when creating its Web site and home page.

Colleges and universities, not only located in New Jersey, but those throughout the United States, can use these results to better evaluate their home pages and Web sites. They can use the design standards provided in this study to determine if their home pages and Web sites are effective in terms of readability, proper layout, ease of use, and use of graphic design. Designing home pages and Web sites that follow certain principles is

important in successfully and positively impacting a college or university Web site visitor.

For further research, study replicators could use the same format, but expand the survey population and thus the sample size to achieve more representative findings. Also, perhaps another, larger scale study could be conducted examining Web sites and home pages of colleges and universities across the nation.

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