

Evaluating the Effectiveness of College Web Sites for Prospective Students

Introduction

College Web sites are often the first structured encounter a student has with a prospective college or university. Outside of serving as a marketing tool (Williams 2000), very little literature exists on the functional purpose of a college's Web site. Almost all college sites show an informational and transactional tool for currently enrolled students. For prospective students, the same site is a connection to a possible education and lifestyle.

For colleges, regarding prospective students, the college Web site is increasingly becoming a sales tool. As with all effective marketing and sales tools, understanding the customer is crucial to success. In addition, Mechitov (2001) raises the importance of developing a systematic approach to university Web site design, based on customer needs, as financial investments in university Web sites increases.

This research examined how well college and university Web sites meet the informational needs and expectations of prospective students. In addition, it is intended to provide a baseline assessment of college and university Web sites that specifically identifies whether the sites are meeting prospective students' needs and to provide an exploratory benchmarking vehicle for further study in the area of college/university Web site effectiveness. This study addresses how well college Web sites meet the needs of high school students, and which needs of high school students are being addressed most and least effectively.

Literature Review

When prospective students visit a Web site, they are engaging in information-seeking behavior. As Vassiliadis (2002) indicates, success or failure with information seeking that is conducted via a computer is significantly tied to interface design. Thus, one factor for determining the effectiveness of a Web site is to evaluate the effectiveness or usability of the site's organization and design. In line with this, Vassiliadis highlights the critical guidance that library users supplied in the redesign of the library Web site at the University of North Carolina at Chapel Hill. Web site usability and effectiveness is intricately tied to user needs. Mechitov (2001) also demonstrates the link between successfully identifying user needs and incorporating them into the design of Web sites.

Demonstrating the cyclical nature of Web site evaluation, Vassiliadis (2002) indicates that evaluation "should be incorporated into Web management." This can most efficiently be done through the use of standardized evaluation and baseline assessment tools.

The results of this research attempt to move colleges closer toward developing and improving these types of evaluative instruments.

Abrahamson (2000) and Steele (2002) profile the 60 million highschool student population as growing up with the Internet and having a strong attraction to technology. For this generation, a Web presence is a direct extension of the institution itself. To stress the point, Abrahamson observes that in the past, colleges marketed in a free-for-all manner, with the admission office sending one message and each department creating its own literature and brochures to send its message. This community patchwork approach is evident in college Web sites where each department is encouraged to develop and maintain its own pages. The result is a disjointed presence of varying levels of technical sophistication and inconsistent information depth and tone. Abrahamson goes on to point out that prospective college students will quickly project dissatisfaction with a Web site to dissatisfaction with the actual institution.

Steele (2002) identifies some of the Internet information-seeking behaviors of high school students and notes that their Internet attention span is streamlined to allow them to quickly discern, sometimes at a glance, if a Web site is offering the information they want. Steele's interviews with high school students have revealed that minimally, prospects are on a fact-finding mission that they expect to be direct and fruitful. Likewise, Hartman (1998) indicates the importance of developing Web sites targeted towards prospective students that offer not only promotion but also substance. He challenges institutions to develop strategic Web sites that will allow for a competitive advantage as recruitment enters the Internet age.

Methodology

For the purposes of this study, "college" refers to a minimally four-year, degree-granting institution. Both public and private colleges were included to provide a broad spectrum of analysis data. The subjects, prospective college students still in high school, were chosen because they are the largest incoming applicant constituents for colleges and universities; and because this study is based on that of Poock (2001), who studied this same population's perception of college Web sites.

In his study, Poock gathered data from 55 high school students in North Carolina and Michigan. Poock's findings, Table 1, are ranked by the importance to high school students. In this study, the top five characteristics are examined to determine if they meet prospective students' needs. (The remaining characteristics have inherent visual and subjective elements best studied with the direct participation of the target audience).

Table 1. The Ranked Importance of College Web site Characteristics

Characteristic (Important or Very Important)	%	Rank
Content	97	1
Organization/architecture	95	2
Download speed	88	3
Organization by functional topic (admissions, athletics, etc.)	84	4
Organization by target audience (applicants, alumni, etc.)	78	5
Friendliness	73	6
Distinctiveness	49	7
Graphics (major emphasis)	49	7
Graphics (minor emphasis)	40	8
Table 1 - Poock (2001)		

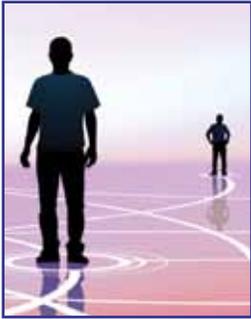
Researchers developed a form to evaluate how important the top five characteristics were to high school students; the form, used to gather data about 18 colleges in North Carolina, contained dichotomous yes/no questions. (The Poock study included high school students from North Carolina and most examples in that study related to universities in North Carolina). According to 2000 survey data, provided by the National Center for Educational Statistics, 75 percent of undergraduate students attend college within their state of residence. Based on this data, researchers chose to map Web site perceptions of high school students in North Carolina to college Web sites in the same state to see if colleges were meeting the needs of their largest potential student population base.

A systematic random sample was used to select 18 colleges for the study. The 54 colleges in North Carolina were listed alphabetically and every third college was selected. To gather data for each college, the researcher visited the Web site of each college over a six-week period.

Findings and Data Analysis

1. Content

Ninety-seven percent of high school students rated content as important or very important. This characteristic was identified as the most important for prospective students. In examining content, the researcher attempted to determine if specific categories of information appeared on each college Web site. The content items included in this study were 1) application fee 2) financial aid information 3) scholarship information 4) majors offered 5) admission criteria 6) tuition 7) faculty information 8) general academic information 9) the application and 10) general college contact information. Each college received one point for each content item on their Web site.



It is important to be able to evaluate the many areas of functioning that comprise academic success in college students. Relying solely on ability measures, such as college entrance exams or high school grade point averages will not result in accurate measurements.

Table 2 represents the points achieved for each Web site and Figure 1 depicts the overall content representation for the Web sites as a whole. Forty-two percent of the Web sites reviewed in the study contained all of the content that prospective college students rated as important or very important. Only three of the Web sites, representing 14 percent of the sample, were missing two or more content items.

Table 2. Content Points Earned for each Web Site

Web Site	# of missing content items	Points
Appalachian State University	0	10
Davidson College	0	10
Elizabeth City State University	0	10
High Point University	0	10
Lenoir-Rhyne College	0	10
Montreat College	0	10
North Carolina A&T State University	0	10
Belmont Abbey College	1	9
Campbell University	1	9
Mars Hill College	1	9
Shaw University	1	9
St. Andrews Presbyterian College	1	9
University of North Carolina – Charlotte	1	9
University of North Carolina – Wilmington	1	9
Western Carolina University	1	9
Gardner-Webb University	2	8
North Carolina Wesleyan College	2	8
Piedmont Baptist College	3	7

Along with available content, it is also important to understand which content items interest prospective students, but are not appearing on college Web sites. Table 3 depicts the content items that were not located on various Web sites in the sample and their omission frequency. If the Web site had a search function, the search function was used to try to locate the item, in the absence of a specific link to the information. If the result of the search was not successful, the item was deemed missing.

As indicated in Table 3, general academic information was not available on eight college Web sites and tuition information was not available on three sites.

Table 3. Content Items Missing

Content Item	Absence Frequency	%
General Academic Information	8	44%
Tuition	3	17%
Admission Criteria	2	11%
Faculty Information	1	6%

Additional areas of concern relate to the consistency of information presented in terms of content. Some of the items which students look for currently have a well-defined structure and definition. For example, of the content areas that were examined in this study application fee, majors, tuition, and application have a clear and common definition. Other content areas are not as well defined. The financial aid information a student is seeking can vary widely. Is the student seeking information on how to apply for financial aid or information on what type of aid is offered or on financial aid counseling? In several instances, this information appeared on different pages within a Web site. The faculty information also varies widely. Are prospective students interested in faculty email addresses or vitae? Again, in several instances, this information was presented on different pages of the Web sites and also, in some instances, in different organizational areas of the Web sites. Clarifying what prospective students' needs are in these loosely defined content areas would enhance a college's ability to organize and provide this information in an effective manner.

2 and 4. Organization/Architecture/Functional Topic
 Poock's findings indicate that 95 percent of high school students rated the organization/architecture of a Web site as important or very important, and 84 percent of high school students rated organization by functional topic as important or very important. The two categories are closely linked and include the visual structure of the site and the ease of navigation, so are addressed together. These categories were evaluated by examining the number of links that had to be followed to get to information for the

selected content areas. For example, when seeking general academic information, although a link for academics may appear on the homepage, the student may have to click two additional links before getting to a specific information item. In that case, a total of three clicks were needed to obtain the information.

As previously indicated, some information areas were broadly defined. Financial aid can refer to how to apply for aid, what type of aid is offered or what advisement is offered in this area. With topics that were loosely defined, the number of clicks required to get to the first information item was counted. If a Web site had a “prospective student” link, the “prospective student” page was treated as the homepage. Thus, if general academic information appeared on the first page of the academic link and a college’s academic link was on the homepage, the number of links needed to get to the information was counted as one. Likewise, if general academic information appeared on the first page of the academic link, and a college’s academic link was on the prospective student page, the number of links needed to get to the information was also counted as one. In this manner, having a prospective student page is not regarded as a disadvantage for a college.

Poock found that high school students wanted to obtain information within three clicks; if they did not, they lost the initial positive feeling associated with the search. For the 18 Web sites examined in this study, on average, two clicks were needed to get to a specific information item. Likewise, two clicks was also the most frequent number of clicks needed to get to any particular content item from the homepage or from the prospective student page.

Two-thirds (12) of the Web sites examined utilized navigation bars that were consistent on the majority of the content pages in the Web site. This gave the sites cohesive appearances and allowed for structured designs that facilitated the sites’ navigation and organization.

The maximum number of clicks needed was five to obtain faculty information at one college and contact information appeared in all but two instances on each Web site’s homepage, thus requiring zero clicks to obtain the information.

Site organization was also evaluated by examining the number relevant content links—links that took the student to one of the 10 content areas examined in this study—on each content information page. In addition, a link to the homepage or the prospective student page was counted as a relevant content link. These links

were presented either in the form of a visually consistent navigation bar or in the form of independent text or logo hyperlinks. McGillis (2001) indicates that studies have shown that the navigation bar, although intended to be an aid for the user, is often an overlooked item on a Web page. Two-thirds (12) of the Web sites examined utilized navigation bars that were consistent on the majority of the content pages in the Web site. This gave the sites cohesive appearances and allowed for structured designs that facilitated the sites’ navigation and organization.

Of the six sites that did not have navigation bars, three used a consistent set of links, although they were not necessarily consistently located across the content pages in the Web site. The other three sites that did not have a navigation bar included fewer relevant content links and these links were not consistently placed on each information page. This organizational structure required the prospective student to visually search each page for links of interest.

A navigation bar on a Web site provides a visual focal point for the user when navigating through a site. This is particularly useful for college Web sites as it allows the major links or relevant content areas to be easily identified. The absence of a navigation bar requires the user to use the “back” button or visually hunt through the available links to locate relevant content.

3. Download Speed

Eighty-eight percent of high school students rated download speed as important or very important. The sites visited had an average download speed of 6.17 seconds with two sites having a download

speed of 15 seconds and three sites having a download speed of two seconds. The most frequent download speed was five seconds. Download speeds are affected by network connection and the amount of and type of graphics depicted on a Web site. Ideally, if a Web site has an extensive amount of graphics, the site should offer the user a text-only version of the site.

5. Organization by Target Audience

Poock’s findings concluded that 78 percent of high school students feel that a site’s focus on the target audience is important

or very important. Poock suggested that a college Web site was targeted toward prospective college students if the Web site has a constituent link for prospective students and the Web site uses terminology that is familiar to high school students. For example, the word “major” is used instead of “program,” and the Web site presents its majors listed alphabetically. My findings revealed that 94 percent of the Web sites studied contained constituent links, but only 56 percent of the sites contained prospective student links. Other constituent links present were for alumni, current students, faculty, and visitors.

The prospective student link provides a user-targeted homepage where colleges can use terminology relevant and information pertinent to these students. This creates a welcoming environment and implies that the college has made a space for the student and his or her needs.

Seventy-eight percent of the Web sites used “major” when identifying their programs of study and only 50 percent of the sites listed their majors alphabetically. If a site listed its majors alphabetically, within department or school, that site was not counted as listing its majors alphabetically. Requiring the student to be familiar with which majors are associated with which departments detracts from the Web site’s ability to serve the needs of prospective students. Table 4 summarizes the findings related to target audience, download speed and site organization.

Table 4. College Web site Organization Summary

Constituent Links Present	94%
Prospective Students Link Present	56%
Term "Major" Used	78%
Majors Listed Alphabetically	50%
Average Download Speed	6.17MB/sec
Text-Only Option	17%
Search Present	67%
Link to Application of Homepage or Prospective Student Page	28%

Discussion

Research Question #1: How well do college Web sites meet the needs of high school students?

1. Content

Eighty-six percent of the Web sites visited contained 90 percent of the content that high school students expected to see. These findings indicate that the content expectations of students are being met by the information present on college Web sites. The content that was not available most often, general academic information,

was absent from 44 percent of the Web sites. This represents eight out of the 18 sites visited. This high absence percentage may be attributed to the broad definition of this content area and to how the presence of this item was determined.

General academic information was defined as academic information presented independent of a college department. The absence of general academic information meant that the Web site presented academic information only in the context of a college department. Thus, the high school student had to select a particular college department to access academic information. Funneling the prospective student through a department at this information seeking stage reduces their flexibility mentally, as well as structurally. In addition, several content areas, though present on all Web sites, presented information at various levels of detail. This was most often present in loosely defined content areas, such as financial aid and academic information. Clarifying what prospective students’ needs are in these loosely defined content areas would enhance a college’s ability to organize and provide this information in a more effective manner.

2. and 4. Organization/architecture/functional topic

In these areas, the needs of high school students are being met when information is being presented in two links. In addition, two-thirds of the Web sites examined utilized a navigation bar and 67 percent of the Web sites visited provided search functionality. Consequently, high school students have the ability to perform agile navigation and directed searches.

3. Download speed

The average download speed was 6.17 seconds, indicating that high school students data download expectations are being met.

4. Organization by target audience

In this area, findings indicate that the needs of high school students are not being met. Only 56 percent of the Web sites visited contained prospective student links. In Poock’s study, prior to viewing the college Web sites, most of the students indicated that a functional organization for the college Web site was preferred. However, after viewing and navigating several sites, most of the students then indicated that organization by target audience was more important. This area warrants further research to clarify student needs and to provide useful information and guidance to college Web site designers.

Another area examined was target audience terminology, specifically regarding the use of the term “major” and how majors were

presented to the students. Although the use of the term “major” was prevalent, only 50 percent of the Web sites visited listed the majors alphabetically, independent of the college department under which the major is offered. Many high school students are not familiar with the academic structure of college and departmental designations. Primarily, majors should be listed alphabetically and the academic structure in which the major resides should be presented as supplemental information. This structure allows high school students to focus on the information of interest, the major, and not get bogged down in the hierarchical structure of the college.

Research Question #2: Which needs of high school students are being addressed most effectively?

The research findings indicate that the content or informational needs and the organizational/architecture/functional topic needs are being addressed most effectively. As previously stated, the majority of the Web sites visited presented between nine and 10 of the informational items sought by students. In addition, the student was able to locate information using navigation bars. This indicates that students were able to find the content that they were looking for in an organizational structure that was intuitive and flexible.

Research Question #3: Which needs of high school students are being addressed least effectively?

The data reveal that organization by target audience is least effectively addressed by college Web sites. College Web sites should have prospective students links structure the information about majors in a format that does not require the student to select or identify a department of study. Another finding, suggested by Pooch, indicates that the college application should be available on the Web site’s homepage or on the prospective student link page. This study revealed that only 28 percent of the Web sites visited placed the college application on the homepage or the prospective student link page. This simple change increases a student’s likelihood for applying to a particular college.

Conclusions and Future Research

Due to the sample selection methods used, the results cannot be generalized. Further research should explore other sections of the student population. In addition, the study examined the needs of high school students. While the largest number of prospective students for a college is high school students, the needs of transfer students and adult learners should not be ignored.

The results clearly indicate that many colleges are missing a prospective student Web site section—a section that is critical to recruitment. Because high school students are increasingly using college Web sites to research where they’d like to apply, colleges should think of Web sites not only as sources of information, but as sales and marketing tools. This study has also established a baseline assessment of prospective students’ needs and can be used as benchmarking vehicle for further study in the area.



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REFERENCES

- Abrahamson, Thomas. 2000. Life and death on the Internet: to Web or not to Web is no longer a question. *Journal of College Admission*. 168. 6 – 11.
- Breeding, Marshall. 2003. Benchmarking technology: a theory of penultimate. *Computers-in-Libraries*. 23(3). 44 – 46.
- City University of New York Queensborough Community College. www.qcc.cuny.edu (accessed April 25, 2004).
- Deutsch, Paula and Barbara Silcox. 2003. Learning from other libraries: benchmarking to assess library performance. *Information-Outlook*. 7(7). 18 – 25.
- Hartman, Kenneth E. 1998. The internet & college admissions: implications and opportunities. *Change*. 2(54). 5.
- Kim, Sung-Eon, et al. 2003. Web site design benchmarking within industry groups. *Internet Research: Electronic Networking Applications and Policy*. 13(1). 17 – 26.
- McGillis, Louise and Elaine G. Toms. 2001. Usability of the academic library Web site: implications for design. *College & Research Libraries*. 62(4). 355-67.
- Mechitov, Alexander I., et al. 2001. Comparative analysis of academic Web sites. *Education*. 121(4). 652 – 662.
- Misic, Mark M. and Kelsey L. Johnson. 1999. Benchmarking: a tool for Web site evaluation and improvement. *Internet Research: Electronic Networking Applications and Policy*. 9(5). 383 – 392.
- National Center for Educational Statistics. Mobility of College Students. <http://nces.ed.gov/programs/coe/2008/section1/indicator10.asp>. Accessed 8/2/2010.
- Ng, Choo Kiang, et al. 2003. Evaluation of a graduate school web-site by graduate assistants. *College Student Journal*. 37(2). 242 – 259.
- Pooch, Michael C. and Dennis Lefond. 2001. How college-bound prospects perceive university Web sites: findings, implications, and turning browsers into applicants. *C & U Journal*. Summer. 15 – 21.
- Steele, Jonathan. 2002. Media omnivores: understanding college-bound students and communicating with them effectively. *Journal of College Admission*. 175. 10 – 19.
- Vassiliadis, Kim and Lisa R. Stimatz. 2002. The instruction librarian’s role in creating a usable Web site. *Reference Services Review*. 30(4). 338 – 342.
- Williams, Brian Gary. 2000. To the personalized go the prospects. *Journal of College Admission*. 166. 12-21.