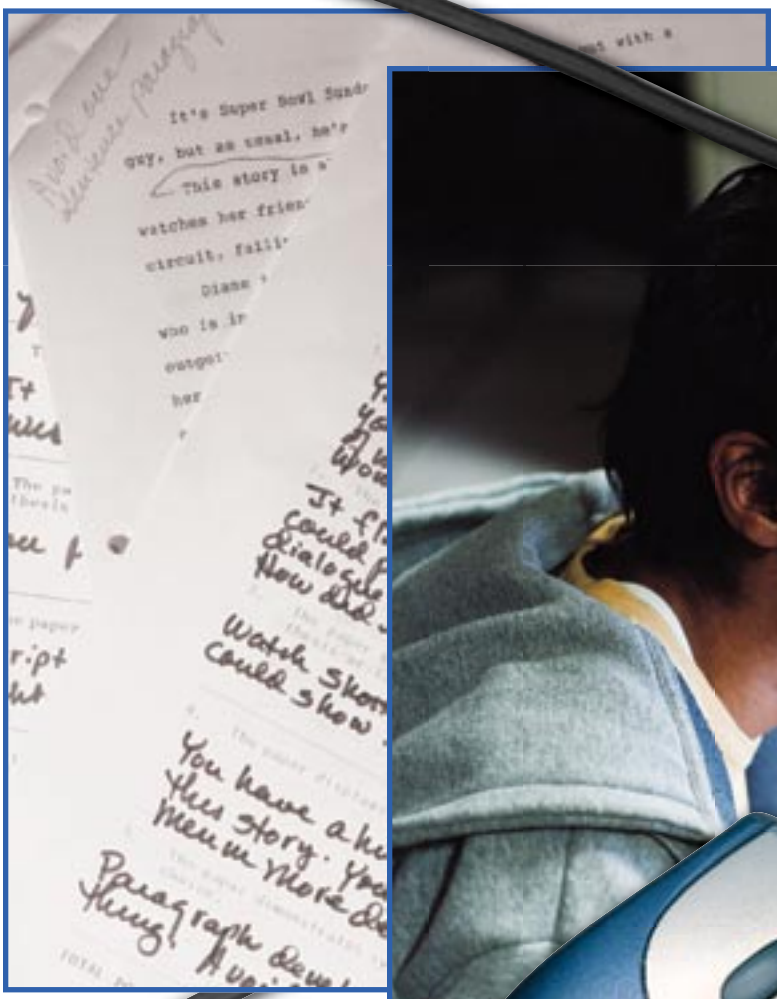

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By Denise Gifford, Juanita Briceño-Perriott and Frank Mianzo

Pen to Mouse:

Web-Based Technology's Impact on College Admission Applications

Abstract

This study analyzed applications for admission to a large metropolitan four-year public university over a three-year period, seeking to determine whether there were any significant differences in characteristics of students who applied online versus those who completed paper applications.

In the competitive world of college admission, students and colleges must stay one step ahead of the game. As students worry about squeezing out that themed application essay or pressing one more teacher for a recommendation, colleges and universities concentrate on attracting quality students to their institutions while adhering to tight budgets. Always on the lookout for new and efficient ways to encourage students to join their institution's applicant pool, colleges and universities have begun to rely on Web technology for application submissions (Hossler, 1998). However, before diving headlong into this growing trend (Hossler, 1998; College Applications, 2003), moving completely from pen to mouse, they must consider where this technological innovation will lead them and their potential admits, and how reliance on the Web has already begun to altering their practices and organizations (Hossler, 1998).

Results from the 2003 Noel-Levitz National Enrollment Management Survey indicate that the number of prospective university students using online applications, email, instant messaging, and online contact forms is increasing annually. Most colleges and universities have responded to this development, making basic pieces of information and processes available through their Web sites. Of the 474 institutions surveyed, 81 percent of both four-year public and private institutions of higher education offer online admission applications, as do 70 percent of two-year colleges (Strategies, 2003). The College Bound Annual Admissions Trends survey (2003) also indicates that electronic applications have become a major part of the admission process. In 2003, 98 percent of colleges surveyed accepted electronic applications. Of these, 89 percent received more electronic applications than in 2002.

Research clearly shows that this application method is increasing in popularity. Hossler (1999) discusses the trend in online applications in terms of customer service. Admission offices are increasingly using the Web to enable students to apply electronically and to allow applicants to look up their application status or their financial aid status on a secure account. Families increasingly expect to use the Web to apply, and to check the status of that or a financial aid application (25). Other benefits of electronic applications include time efficiencies for students and institutions, the ability to provide immediate confirmation to students that the application was received by the institution, and financial savings for institutions which could be passed on to students as discounted application fees (College Applications, 2003).

However, this substantial increase in the use of online applications is not all positive. Some institutions report a higher number of errors on electronic applications than on traditional paper applications (College Bound, 2003). To achieve the efficiencies (time and money saved) of online applications, they must be created in a manner that students can understand and use effectively. College Applications (2003) cautions institutions that students can be easily frustrated by technology-related problems on schools' Web sites. Having a student spend time completing an application, only to lose it in cyberspace, sends a message to perspective students that the institution is neither tech savvy enough to create a working application nor cares about its prospective students.

In addition to addressing the technological aspects of online applications, Hansen and Wamback (2001) posit that institu-

Institutions need to be aware of students' varying access to the computer and Internet, as well as research related to other student characteristics that may affect the comfort level students have with the use of technology.

tions need to consider issues of student access to technology, as well as differences in student characteristics that may affect how prospective students respond to a more technology-based admission process. They add that higher-education institutions are placing a high priority on the latest technology without a concurrent analysis of which students lack the background needed to compete. In their argument, they also note that many K–12 schools do not have the equipment and resources to enable students to gain the technological experience needed in college, and that many, but not all students have computer and Internet access at home.

Student Poll (2003) reported that 94 percent of the 500 prospective college students polled have access to the Internet at home, while 79 percent have Internet access at school, reflecting a marked increase from the 31 percent who had access at home or school in 1996 when the study was last done. When looking at the breakdown of computer access by student achievement levels, Student Poll (2003) indicated that students with an ACT score between 26 and 36 (97 percent) had more access to computers than students with ACT scores of 21 or lower (88 percent).

Students entering graduate school demonstrate differing levels of technological skills when contrasted to academic level. Poock (2001) researched the academic background of students entering graduate school who applied online. He found that female applicants' GRE and GPA scores are very similar with both online and paper application, while male applicants who apply online tended to have lower GRE and GPA scores.

Institutions need to be aware of students' varying access to the computer and Internet, as well as research related to other student characteristics that may affect the comfort level students have with the use of technology. Houtz and Gupta (2001) claim that there is a "technological gender gap" in our nation's high schools. Fey (2001) found that females tend to defer to males when dealing with computer issues. The education system may close this gender gap in the future, but the current literature shows that, for the time being, institutions still need to note potential gender gaps in their applicant pool with regard to the use of technology.

Poock (2001) also finds that not only is there a socioeconomic gap with access to computers, but this gap is increasing each year. Although a variety of government programs and local initiatives address access to technology, poverty remains the major factor inhibiting student technology. Jones (2003) reports that minority groups have increased their computer and Internet use in the U.S. during the last few years, but that minorities lag behind the majority population in overall use. The same study also notes that computer use has increased in most middle class homes, but is not so in poor or working class communities. Solomon (2002) comes to a similar conclusion that socioeconomic status surpasses all other considerations related to the access to technology, including ethnic or minority group affiliation. Solomon also concludes that, although the problem of access is being addressed, the quality of hardware and Internet connections continue to produce a digital divide based on socioeconomic status.

Method

Description of Study

The purpose of this study was to determine if significant differences existed between the types/characteristics of students who completed online applications versus those who completed paper applications, and then substantiate whether moving completely to a Web-based admission process would negatively impact applicants. This study analyzed more than 7,000 applications for admission, over a three-year period, to determine whether gender, race and academic achievement played a role in application choice.

Demographic Data, Analysis and Results

The 7,145 students applied for admission at a large metropolitan four-year public institution in the Midwest. Researchers collected general demographic data—gender, ethnicity and ACT scores—from an institutional database that also identified which method the freshmen used to apply. The three cohorts used were first-time freshmen entering the university in fall 2001, 2002 and 2003. Table 1 provides a demographic breakdown of the sample.

Researchers performed statistical tests to determine the significance between freshmen who applied for admission online versus the traditional paper format.

The results indicated that approximately 24 percent of male freshmen, 20 percent of female freshmen; 23 percent of white freshmen, 15 percent of minority freshmen; and 22 percent of freshmen overall applied online (Table 1).

Table 1
Freshmen Demographics and Application Type Distribution

	Number	%	Online App.	%	Paper App.	%
Total Freshmen	7145	100	1534	21.5	5611	78.5
Males	3491	48.9	832	23.8	2659	76.2
Females	3654	51.1	702	19.2	2952	80.8
Whites	5851	81.9	1339	22.9	4512	77.1
Minorities	1266	17.7	187	14.8	1079	85.2
Other	28	.4	8	28.6	20	71.4

The difference in ACT scores was statistically significant, as was the difference in the application type used by males and females—males accounted for 54.2 percent of the total online applications and females for 45.8 percent. These results indicate that 23.8 percent of males used online admission applications, which is a statistically higher percentage than the 19.2 percent of females.

White freshmen accounted for 87.3 percent of the total online applications and minorities (African-American, Latino and Native-American) for 12.2 percent of the total online applications. Tests indicated that the difference in the application type used by white students and minority students was statistically significant. These results indicated that 23 percent of white students used online admission applications. This was a statistically higher percentage than the 14.8 percent of minority students who used online applications for admission.

In summary, the results of this study, as related to the original research questions were as follows: a) students who applied online for admission demonstrated statistically-significant higher ACT scores than those students who applied for admission using the traditional paper application, b) male students used online applications for admission at a statistically higher percentage than female students, and c) white students used online applications for admission at a statistically higher percentage than minority students.

Discussion

While future years may yield differing results, the analysis of these cohorts and the current literature in this area lead to the conclusion that moving to exclusively online applications may have a disproportionate effect on women, minorities and students with lower ACT scores. However, the advantages of Web-based technologies, as well as their escalating use by students demonstrate that online applications are here to stay. The challenge for institutions of higher education is to assure that certain student subgroups are not negatively impacted by this trend.

Traditional student development theory suggests that institutions concentrate on creating learning outcomes that provide opportunities for all prospective students to take advantage of Web-based technologies. Proactive initiatives might include making paper applications available for students who request them; designing applications that can be printed off the Internet that perspective students can complete and mail to the institution; having computer and staff available to assist students in completing online applications both on the campus and on the road; designing programs for prospective students that encourage them to complete online applications while on campus where help is available; and tailoring communications to student groups who may be technologically disadvantaged.

When completing paper applications, school counselors and parents typically serve as resources—sharing their insights and experiences—and as proofreaders. Online applications and electronic communications can potentially remove parents and counselors from the entire process, and as a result, applications may lessen in quality.

This study suggests other areas that need to be assessed before moving to a Web-based admission process. The first is the diminished role parents and school counselors might play in a Web-based application process. When completing paper applications, school counselors and parents typically serve as resources—sharing their insights and experiences—and as proofreaders. Online applications and electronic communications can potentially remove parents and counselors from the entire process, and as a result, applications may lessen in quality. The second stems from socioeconomic status. Access to technology means not only access to computers, but also access to quality hardware and Internet connections, and the skills and abilities necessary to use

Most importantly, institutions must know their applicant pool and regularly evaluate how moving to Web-based technologies could impact the recruitment and enrollment of the students they desire. Optimistically, the technology gaps indicated in this study will disappear in the very near future, but until each institution can conclude that online applications disadvantage no prospective students, it is in their best interest to develop programs and services that offer all students an equal opportunity in the admission process.

the newest technologies. Further research could help institutions pinpoint origins of technological incompetence and create practical solutions. A third issue arises regarding student success. To truly measure the value of online applications, researchers must weigh the admission rate of these applicants against the admission rate of students who applied on paper. Student preference should also be taken into consideration. For years to come, prospective students still may be more comfortable with information they can hold in their hands. In a recent Noel-Levitz survey of more than 100,000 high school students, almost 42 percent indicated that, if given the choice between various combinations of communication options, they preferred receiving "snail mail" from the institutions and then putting pen to paper. More than 90 percent of respondents wanted traditional mail to be one of the ways they heard from colleges (Strategies, 2003).

Most importantly, institutions must know their applicant pool and regularly evaluate how moving to Web-based technologies could impact the recruitment and enrollment of the students they desire. Optimistically, the technology gaps indicated in this study will disappear in the very near future, but until each institution can conclude that online applications disadvantage no prospective students, it is in their best interest to develop programs and services that offer all students an equal opportunity in the admission process.

The challenge is for each institution to find the right mix between pen and mouse. To be successful in meeting campus enrollment management goals in today's challenging budget environment, institutions will have to clearly delineate their unique applicant pool and ensure that their recruiting process provides a level playing field for all students they desire to recruit.

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