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3-1-2008

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### Recommended Citation

Seeman, Elaine and Killingsworth, Brenda L., "A Web Portal Approach to Improving Higher Education Accessibility: CFNC.ORG" (2008). *SAIS 2008 Proceedings*. 35.

<http://aisel.aisnet.org/sais2008/35>

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# A WEB PORTAL APPROACH TO IMPROVING HIGHER EDUCATION ACCESSIBILITY: CFNC.ORG

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## ABSTRACT

This purpose of this research is to document the initial development, evolution, and outcomes of a web portal, CFNC.org which was designed to provide a comprehensive college access program for North Carolina citizens. The initiative's focus is to support five critical areas of access: (1) aspirations, (2) academic preparation, (3) application, (4) affordability, and (5) availability. In identifying critical success factors, the research will examine environmental issues and potential obstacles that could impact successful implementation of such a web portal.

Diffusion of innovations (DOI) research can provide insight into the factors that might impact successful adoption of the CFNC.org web portal. One outcome measure of importance is the college-going rate. Other measures include trends in student accounts created, college admissions application submitted through the web portal, school counselors trained to use the web portal, and overall usage of the web portal.

## Keywords

Enterprise Level Portal, Web Based Systems, system implementation, critical success factors, college-going rate

## INTRODUCTION

Since the 1980s, strengthening interorganizational linkages using information technology has received considerable attention in information systems research, both applied and theoretical (Cash et al. 1992). Organizations recognized the potential competitive advantage obtained when information technology-based interorganizational linkages (IT-based IOL) were successfully implemented. The proliferation of business-to-business (B2B) electronic commerce further increased interest in IT-based IOLs over the last decade. Only recently has the higher education sector begun to focus on the use of IT-based IOLs to reach its mission and to improve customer service and outreach to the public. Enterprise-level portals and web-based systems are two of the top issues cited in an EDUCAUSE SURVEY (Spicer and Deblois, 2004). Across the country, there has been considerable concern expressed about the future competitiveness of the United States in a global society given its dismal college going rate. Thus, adoption of interorganizational linkages within the higher education sector is an interesting and important subject worthy of additional study.

## LITERATURE REVIEW

Diffusion of innovations (DOI) research (Tomatzky and Klein 1982, Rogers 1995, Chwelos et al 2001) can provide insight into the factors that might impact the successful adoption of an enterprise web portal in higher education. DOI focuses on perceived characteristics of an innovation that either encourages or inhibits adoption of the technology. A number of studies found that complexity is a strong inhibitor of intent to adopt (O'Callaghan et al. 1992, Premkumar et al. 1994, Teo et al. 1995). O'Callaghan et al (1992) determined that relative advantage was a predictor of intent to adopt in his study of independent property and casualty insurance agents decisions. Premkumar et al (1994) also found that relative advantage and compatibility were predictors of the extent of adaptation. Teo et al (2003) found that 3 determinants of the intent to adopt EDI were readiness, perceived benefits, and external pressure. Teo et al further classified the constructs of this model into 3 levels: technological, organizational, and interorganizational. Reich and Benbasat (1990) studied the adoption of customer-oriented strategic systems. They found that adoption was related to customer awareness of need and support. The study of higher education enterprise-level portals needs to consider not only the levels of technology, organization, and interorganization but also environmental factors such as demographics.

## OVERVIEW OF THE COLLEGE FOUNDATION OF NORTH CAROLINA (CFNC) WEB PORTAL

In North Carolina, a statewide collaborative web portal has been developed and implemented. The conception and initial development of the web portal initiative began in 1999 using a collaborative approach that involved counselors, students, parents, the community colleges, and the universities. Because of the intense and specialized resources necessary to develop such a system, the University chose to outsource the development and maintenance of the web portal to Xap Corporation. Initially there were two websites, NCMentor.org and College Foundation of North Carolina (www.CFNC.org) but these were blended into one portal both because the two sites had parallel missions and to eliminate potential consumer confusion (Kanoy, Watts [a], 2005).

The purpose of the web portal initiative was to provide one location where students, parents, and school counselors could go to for all information educational opportunities in North Carolina. One critical component of this initiative was to gain full participation of all 110 colleges and universities in the state. These institutions spanned 58 community colleges, 16 constituent institutions of the University of North Carolina system, and 36 independent colleges and universities. The overarching goal of the system was to increase the college-going rate of high school students from North Carolina. This was to be accomplished by targeting the portal to students in grades 7-12. The specific objectives of the initiative were to address the five critical areas of (1) aspirations, (2) academic preparation, (3) application, (4) affordability, and (5) availability (Tafel, 2002). Given the demographics of projected student population, a special emphasis has been placed on improving the college-going rate for low-income, first-generation college students. To address these five critical areas, the web portal was designed initially to assist students in planning, applying for, and paying for college.

Recently the web portal was expanded to include support for advising the first-generation college student. In addition, the web portal would eventually be complemented by a resource center with toll-free call-in advising and service delivery programs to support the first-generation student. The marketing effort has expanded to reach students and families across the State who are interested in planning for and/or attending college. No major changes have occurred in billboard coverage (since 2002) and television coverage has remained constant. Several changes that could have an impact on interest in cfnc.org have included (1) the new state tax provision for tax-free deductions for the year a qualified contribution is made, (2) increased availability of financial aid for need-based students, (3) increased press attention to the availability of financial aid and costs of higher education, and (4) the availability of Bridges, a complementary career tool set. In August 2006, the President of the University of North Carolina as well as his counterparts of the North Carolina Community College system and Department of Public Instruction wrote a letter to counselors which announced the availability of a complementary career tool set, called Bridges, on cfnc.org that would complement the other features of the site.

## CHALLENGES

We have segmented the challenges encountered in the creation and implementation of this portal system into three areas: environmental, technological and interorganizational. Each of these areas is briefly discussed in the subsections below.

### Environmental Challenges

Three environmental challenges faced North Carolina in its effort to increase its college-going rate: changing demographics of high school students; increased costs of higher education and declining value of financial aid available through federal and state grant programs; and, the perceived access obstacles of the first-generation student. The majority of the projected growth of high school graduates in North Carolina will be from Hispanics and African-American Students, two groups who have been historically underrepresented in higher education.

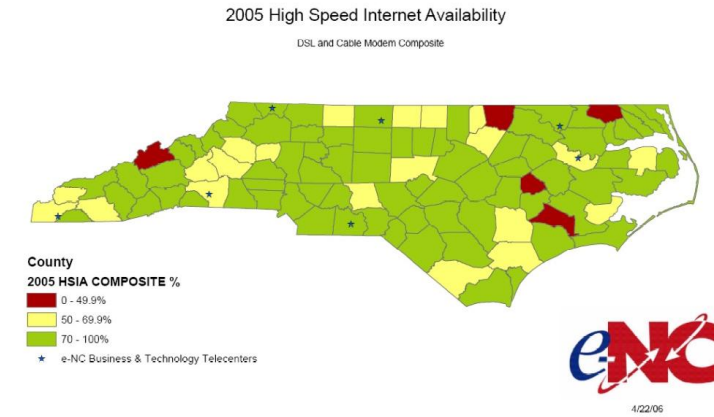
The combined impact of significant increases in the costs of higher education as well as the declining value of financial aid available through federal and state programs poses another key challenge. Over the period of 1980 through 2000, the cost of higher education has increased at a faster rate than need-based federal and state financial aid. For students in the lowest quintile of family income, these costs as a share of family income required to pay for tuition have increased dramatically from 6% to 12% for public two-year colleges and from 12% to 25% at public four-year colleges (Tuition at Public Colleges and Universities as a Percentage of Family Income, by Income Quintile. 2000, College Board, US Census Bureau). At the same time, the coverage of tuition by the average Pell grant has declined significantly. The average Pell grant covered 98% of tuition costs at a public university in 1986 but only covered 57% of tuition costs in 1998. Further, the coverage of tuition costs for a public university by the average state grant has declined from 75% in 1986 to 64% in 1998 (Federal Pell Grant Aid and State Grant Aid as a Percentage of Tuition at Public Four-Year Colleges (in current dollars) – College Board, 1998.).

Finally, first-generation students often perceive that they are not able to go to college and believe they cannot afford to go to college. When they reach a conclusion that either of these obstacles actually exist, then they no longer consider college as an

option, and thus no longer prepare for college admissions. By reaching these students early (such as during middle school) through CFNC.org and providing them with information regarding financial aid and accessibility, there should be an increase in college-going rate for first-generation students.

**Technological Challenges**

Access to high-speed internet was an initial concern. According to the e-NC Authority (2005) “Access to online education will be one approach to increasing educational attainment. By the end of 2005, 82.3% of all NC households had access to high-speed Internet services (89.9% of urban and 74.9% of rural).” The e-NC Authority was created to address the disparity in high-speed internet access across rural counties and distressed urban areas. Figure 1 illustrates high speed Internet service access across North Carolina for year end 2005.



**Figure 1. High Speed Internet Service Access Across North Carolina (e-NC Authority, 2006)**

To combat the fear that student with limited access to the Internet would be at a disadvantage, a toll-free hotline was put into place. Additionally, school counselors, librarians and college access professionals such as TRIO, AVID and GEAR UP advisors were trained on the benefits and usage of the system (Kanoy, Watts [a], 2005). Table 1 provides the number of counselors trained each year on the use of the web portal.

Year	Number of School Counselors Trained
2000	394
2001	660
2002	439
2003	414
2004	500
2005	631
2006	1147

**Table 1. School Counselors Trained to Use Web Portal**

Because many types of colleges and universities were involved, integration of the various systems was vital. The site was developed in a transparent manner so that users can pass relevant materials hosted on different servers with no interruption or inconvenience. Modules was developed for specialized users including the School Counselor Module, Financial Aid Administrator Module, Adult Learner, Transcripts Module and the College Redirection “pool” which connects students with colleges that have open admission slots during the late spring and summer (Kanoy, Watts [a], 2005)..

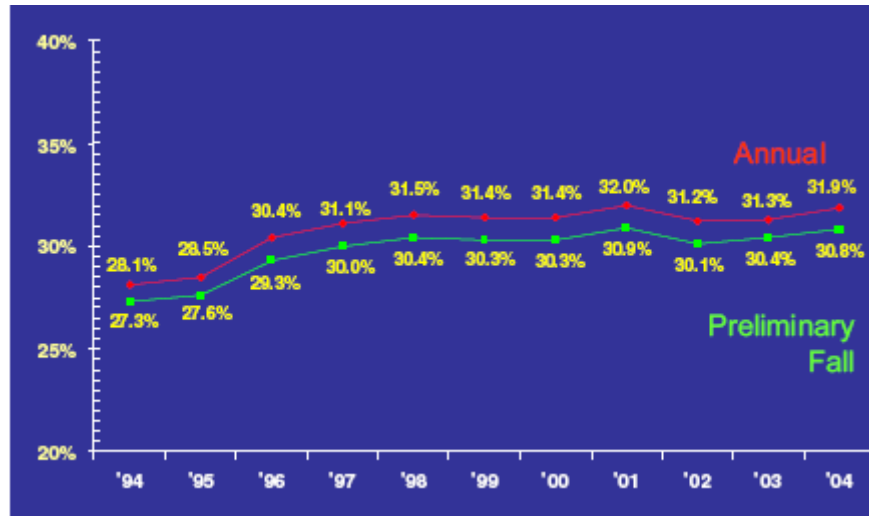
**Interorganizational Challenges**

While building a relationship between institutions might be a problem in some states, numerous initiatives and legislative bills paved the way for a cooperative initiative in North Carolina. Senate Bill 1366 (1977) created a system that provided for the sharing of selected applications for admissions from North Carolina residents among the constituent institutions. All 110

colleges and universities now accept the NC Mentor-based on-line applications and 95 of those schools now use CFNC.org as their sole source for on-line applications. By focusing on student needs, all institutions have benefited (Kano, Watts [b], 2005).

**OUTCOME MEASURES**

One outcome measure of particular importance is the college-going rate. Since the implementation of this web portal, the college-going rate (includes students attending any college or university) has increased by 9% to 67% (Dixon, 2006). The University of North Carolina college-going rate (those new high school student graduates who attend one of the sixteen University of North Carolina campuses) has also increased as is illustrated in Figure 2.



**Figure 2. UNC College-Going Rate for New North Carolina High School Graduates: 1994-2004. Source: University of North Carolina, Office of the President. 2005**

Other measures involve web portal usage and include: (1) student accounts created (overall and by grade-level); (2) admissions applications processed; (3) school counselors trained to use the web portal; (4) overall usage of the site, and (5) website sessions. Table 2 illustrates the growth in the number of accounts created per year. There has been a 439% increase in the number of accounts created since 2001.

Year	Number of Accounts Created
2000 (July-Dec)	1,195
2001	75,351
2002	152,974
2003	213,424
2004	272,172
2005	306,777
2006	405,813

**Table 2. Growth in Number of Accounts Created per Year**

Figure 2 breaks out the growth in the number of accounts created per year by grade level. Interestingly, CFNC.org has seen a recent drop in the number of accounts created by High School Seniors through College while there has been an increase in accounts created by parents as well as students in 7<sup>th</sup> grade or below through 10<sup>th</sup> grade students. The largest jump in account creation in 2006 was by participants who identified themselves as “other.”

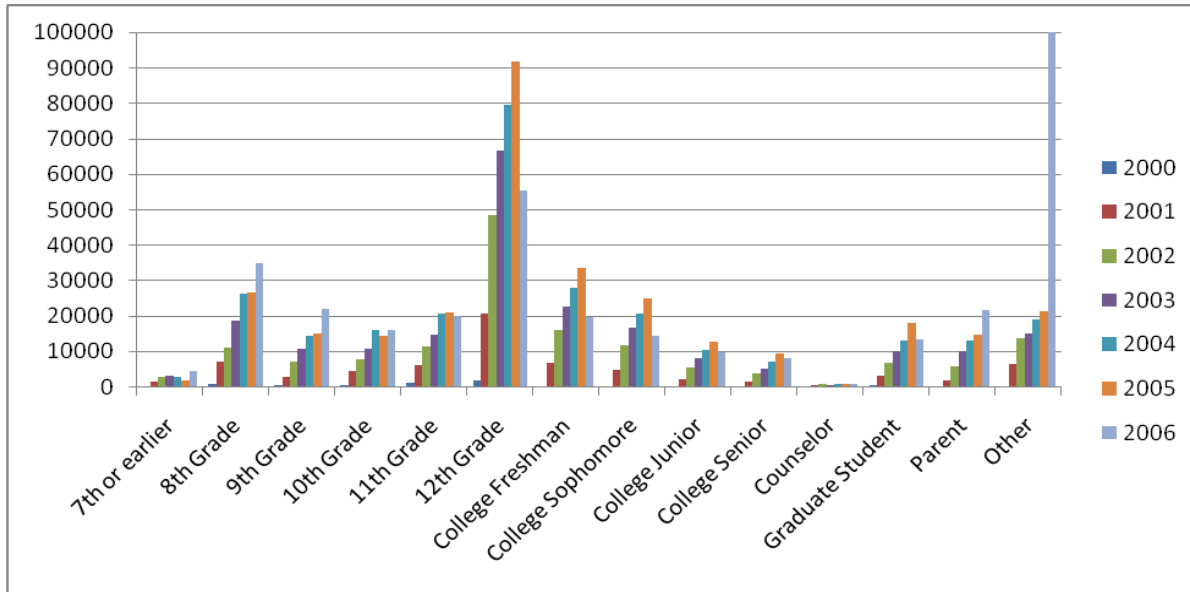


Figure 2. Growth in Number of Accounts Created per Year (by Grade Level)

Table 3 documents the growth in the number of admissions applications processed per year through the web portal. There has been a 974% increase in applications processed since the first full year of service.

Year	Number of Admission Applications Processed
2000 (July-Dec)	184
2001	19,751
2002	46,897
2003	75,233
2004	100,705
2005	140,437
2006	212,137

Table 3. Admission Applications Processed per Year

Table 4 documents the number of website sessions per year (this data was collected beginning in 2004). A 'Session' is defined as a series of clicks on the site by an individual visitor during a specific period of time. A Session is initiated when the visitor arrives at the site, and it ends when the browser is closed or there is a period of inactivity. The number of sessions has increased by 44% over the last three years. Table 5 provides the total usage of the site for each year. In 5 1/2 years, the usage of the web portal has grown by almost 500%.

Year	Number of Website Sessions
2004	1,891,927
2005	2,210,593
2006	2,728,234

Table 4. Number of Website Sessions per Year

Year	Usage of Web Portal
2000 (July-Dec)	6,537,560
2001	39,616,705
2002	77,717,414
2003	129,376,957
2004	168,443,926
2005	221,205,294
2006	235,776,152

Table 5. Overall Usage of the Web Portal

## CONCLUSION AND FURTHER RESEARCH

This paper has documented the development and preliminary outcomes of CFNC.org. Based on initial analyzes of outcomes, CFNC.org is already successful. Campus-technology.com recently named the UNC System 2005 Campus Technology Innovator) and portrayed the portal as a national model for statewide college access initiatives. According to George Dixon “The most pleasant surprise was how readily the entire educational community in North Carolina K-12, public and private, two- and four-year institutions rallied around the college access focus and pulled together to help students better prepare for a post-secondary experience....Gaining buy-in from the top, and including all engaged educational partners, is the key to success.” (Campus-Technology.com, 2005).

We are in the process of analyzing the data further to evaluate the degree to which CFNC.org is achieving its objective of increased accessibility by examining the college-going rate by county compared to the number of student accounts created (and by what grade level), admissions applications processed, and school counselors trained by county, overall usage of the site, and website sessions. We will also look to see how availability of high-speed internet in rural and urban distressed areas has impacted the website participation rate. While CFNC.org does not currently track data on the location of the applicant, analysis of IP addresses should provide a proxy measure. We further plan to compare the changes in the college-going rate by demographic data, including county per-capita income and other county-based demographic data available.

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