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A Study of the Impact of Institution Name, Tuition Price, Longevity, and Website Form on Online Student Enrollment

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A STUDY OF THE IMPACT OF INSTITUTION NAME, TUITION PRICE, LONGEVITY, AND WEBSITE FORM ON ONLINE STUDENT ENROLLMENT

BY

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ABSTRACT

By concentrating a college choice analysis on distance learning institutions, this study delved into the potential, commodity-like nature of higher education in perhaps a not-so-distant, technology-hyperdriven future. Three-hundred-and-twenty-seven distance learning institutions were dummy-coded by name group (institutions with the word *college* in them, etc.). Tuition data and program ages were acquired from the *Peterson's Guide to Online Learning 2006* website. Captology (i.e., website persuasiveness) attribute data were acquired from the National Research Center for College & University Admissions (NRCCUA) 2004 Enrollment Power Index ® (EPI) list. Student quality data—namely, entry SAT/ACT score (25^{th} percentile) and freshman retention rate—were acquired from the *U.S. News & World Report Ultimate College Guide 2006* and its related website. Distance learning student enrollment numbers were taken from the *Peterson's Guide* website. In some cases, enrollment data were organized into six population groups for analysis. SPSS software runs of these files were used to consider the influence of institution name, tuition price, distance learning program age, and captology attributes on online student enrollment (as well as on each other), controlling in some cases for student quality.

Results: Combined in a statistically significant, multiple linear regression analysis, institution name, graduate tuition price, and distance learning program age accounted for more than 10% of the variance in the size of total online

student enrollment groups. In another statistically significant analysis, institution name, *undergraduate* tuition price, and distance learning program age accounted for 9% of the variance in the size of total online student enrollment groups. Institution name, graduate tuition, undergraduate tuition, and program age each accounted for between more than 2% and more than 6% of the variance in the size of total online student enrollment groups. Website attribute values, as measured by NRCCUA, had no statistically significant impact on the size of online student enrollment in any part of the analyses. However, the scores were clustered tightly, possibly making for difficult regression analysis. When controlled for SAT/ACT score and overall (traditional and nontraditional) freshman retention, none of the variables showed impact on online student enrollment.

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DEDICATION

This report is dedicated to all non-traditional, late-starting students who want a better lot in life through higher education; who seek academic validation of amazing life experiences; who need ways to maneuver around tough work and family schedules; who love the Web and all the marvels it has to offer; who desire prestige and career marketability through college degrees; who demand quantifiable returns on time and tuition invested; who tolerate the personalities that thrive in bureaucracy; and who maintain smiles and never give up.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

"In a cybernetic institution, the administrator is not an appendage sitting atop an organization but an integral part of a complex network within it."

Robert Birnbaum

How Colleges Work: The Cybernetics of Academic and Organization Leadership

Chapter I

INTRODUCTION

Statement of the Problem

Since Manski and Wise's *College Choice in America* (1983), the scrutiny of modern college choice has come from several different directions, including economics (Heller, 1997; St. John, 2003), student characteristics (Cabrera & LaNasa, 2000), visual appeal and marketing (Kinzie, Palmer, Hossler, Jacob, & Cummings, 2004; Kirp, 2004), list rankings (Ehrenberg, 2003; Keller, 2004; Monks & Ehrenberg, 1999), and extended access (Finkelstein, Frances, Jewett, & Scholz, 2000). A common theme amongst these treatments is that prospective students' perceptions can play a huge role in college choice. For example, if financial aid and scholarship programs exist for low socio-economic status (SES) students but their existence and magnitude are not perceived, then the perception tends to adversely affect the tendency to apply. Central as well is that the study of college choice considers a mesh of factors that do not always neatly interconnect, such as the differing goals, social interests, and impressionability of different types of students.

As the Internet becomes a stronger and stronger presence in college choice, the above-mentioned factors take on different mixes and carry different weights. For example, the visual appeal of an institution is no longer solely

dependent upon the neat trimming of shrubbery or the fresh sheen of paint in the fall: aesthetics—and perhaps a different kind of aesthetics, at that—must be conveyed on a computer screen to a generation of prospective students that like to be dazzled via the Web. The same goes for paper literature on colleges, which now serve more to help students make up their minds than to whet interest at the beginning of the choice process (LeFauve, 2001; Weygand, 2000). Another altered factor might be SES, where low SES students or perhaps rural students have limited or slower Web access and, therefore, cannot access all information or website features (or, for that matter, cannot complete the electronic application for a student loan).

The transformation in college choice involves not only the electronic delivery of recruitment information but also the delivery of the *schooling* itself. In the school year 2000-2001, 19% of all 2- and 4-year degree-granting institutions in the United States had degree or certification programs that could be completed entirely online or via other off-campus technology (U.S. Department of Education, 2003a). With the average Internet user in the U.S. spending 3 hours per day online, 1.6% of all time spent on the Internet in 2005 involved education (Nie, Simpser, Stepanikova, & Zheng, 2004). At least one recent study (Spencer, 2005) indicates a link between a college's online and on-campus wireless capacities and its positive student outcomes. One might compare this Internet scenario to seeing a product advertised in a television commercial and then reaching into the television and pulling the product directly into one's living room.

When on-the-spot access to recruiting information meets with on-the-spot access to education, the education marketplace widens and college choice inherently moves further away from restricting factors such as convenience of physical location, family ties, and local lore. Ease of access and similarity of access (through generic platforms such as eCollege) bring to mind the word *commodity*—but not necessarily from the standpoint of value. Instead, the online commodifying of education might be considered more from the perspectives of standards and perceived uniformity. As with food products, the goal of the seller is to de-commodify the good by creating auras of difference and prominence and desirability. And such it is with online learning, where perhaps the only thing keeping the product from fitting neatly into the economic category of *commodity* is brand identity. The learning institution's identity, particularly its name—along with the reputation and status it portrays—might be all that separates the online retailing of education from, say, the price-driven trade of produce at a farmers' auction. Professors are not heads of cabbage; the goal of the online distributor is to convince prospective students it is so. As such, one might argue that a distance learning institution's name and Web presence are everything. Without the persuasiveness of its moniker and website, the institution is left with little to convey the satisfaction, achievement, and advancement one might acquire from *attending*.

The importance of website influence—or the tendency of the Internet to perhaps level a previously uneven field—has not, over the years, been terribly apparent to all colleges and universities. In the late 1990s, traditional learning

institutions saw distance learning from a limited perspective—that of boundless access and the potential for profit-making. This view, not to mention that for-profit education, at the time, was becoming one of the fastest-growing investment sectors on Wall Street ("The ABCs of education stock", 2001), prompted many institutions to sink big outlays into the development and marketing of online coursework.

The results, financially speaking, were disastrous. Seeing the access but not taking into account the potential for commodity-like side effects, traditional colleges and universities endured heavy financial losses related to those online ventures. Between 1998 and 2003, traditional institutions collectively lost hundreds of millions of dollars in failed, online schooling projects. For example, Columbia University spent over $15 million on its for-profit, online course venture, Fathom. Its returns were negligible and the program was shut down in 2001. NYU spent $25 million on its failed, for-profit venture, called NYUonline, before shutting down the program in 2002 (Gordon, 2003). As reality set in towards the end of this period, *The Chronicle of Higher Education*, in a headline on the collective disappointment in these endeavors, was prompted to ask rhetorically, "Is *anyone* making money on distance education?" (Carr, 2001, A41).

And yet, although the electronic enrollment management/delivery arena has not been for the feint of heart, it is still very tough to argue that online schooling has been a fad best ignored and left to run its course. For-profit schooling, which includes online delivery, is booming (notwithstanding some glaring episodes of enrollment exaggeration). Public institutions, recognizing this

success, also indicate a desire to charge forward—albeit tentatively—with online offerings. A 2005 survey conducted by the Sloan Consortium revealed that more than 70% of the polled public institution administrators were including online education as a critical part of their long-term, enrollment-management strategies (Allen & Seaman, 2005). Furthermore, e-commerce, in general, has found its way into—and, in many cases, taken over—markets that would not previously have seemed amenable to the setting, as different as diamond retailing and engineering design. Nearly 20% of all Internet users regularly communicate with someone—mostly business-related—they have never met (Nie et al., 2004).

ONLINE EDUCATION IS CRITICAL TO THE LONG-TERM STRATEGY - 2005

	Public	Private, nonprofit	Private, for-profit
Agree	73.9%	41.0%	52.9%
Neutral	21.1%	37.0%	38.2%
Disagree	5.0%	22.0%	8.9%

Figure 1. Online Education as a Critical Strategy for Public, Private, and Private For-Profit Institutions, 2005. The above percentages of institutions agreed with, were neutral to, or disagreed with the statement that online learning was critical to the long-term strategy of their institution. Taken from Allen, I.E., & Seaman, J. (2005). *Growing by degrees: Online education in the United States.* Needham, MA: The Sloan Consortium. Used with permission from the authors and The Sloan Consortium.

The problem, then, becomes identified as one of forecasting, and, perhaps, one of self-appraisal. That is: (a) online education, as a collective entity, is booming; (b) many traditional institutions are still *in the game* but gun-shy

about online schooling due to relatively recent, individual failures in online ventures; (c) traditional institutions—along with all types of institutions—therefore could utilize a quantitative, analytical tool for assessing the potential student enrollment of new or future online academic offerings; and (d) institutions currently lack such a tool. To the extent that nothing succeeds like success, and to the extent that enrollment is an indicator of success, this study seeks to create a model for assessing the potential student enrollment of an online academic program. It draws upon readily available data on what seems to be working (from enrollment and retention points of view) and combines them with information that needs to be quantified, such as brand-name aesthetics and website design.

Surely the cynical academic is prompted to exclaim, *Not another college ranking system!* And, admittedly, much has been written on the dubious nature of some prominent college-ranking publications—including ones with data used in this study. But even if one acknowledges the suspect aura of ranking methodology and quantifying the otherwise unquantifiable, one should ask why these are rankings so popular. Perhaps the answer can be found, again, in the by-product of e-recruiting of students. That is, if the Web is reducing institution credibility—at least on the surface—to a prestigious-sounding name, an affordable tuition, and a Web assortment of worthy academic programs, then what might the prospective student be left with? Perhaps the answer is college rankings, suspect as they might be. Similarly, if an enrollment manager or an academic program director only has the advice of Web *experts*, consultants, or blind enthusiasm to rely on, what might that decision-maker be left with in

choosing whether or not to charge forward with a new online offering? Perhaps a hierarchical linear model, established from the measurements of other online programs, is a more appropriate, sober starting point for that administrator. Such a model, at the very least, addresses the problem of colleges and universities' desire to continue with online offerings but uncertainty about where to begin or how successful a new offering and its venue might be.

Definition of Terms

In order to assess influence on online student enrollment, the following terms should be described operationally: distance learning, online course, name, tuition, online, website, captology, and enrollment.

Distance learning

Distance learning defined by the United States Distance Learning Association (USDLA), an accrediting body, is "the acquisition of knowledge and skills through mediated information and instruction, encompassing all technologies and other forms of learning at a distance" (USDLA, 2005). This study concentrated specifically on the distance learning that was offered *online*. (See definition.). Distance learning could be either synchronous (instructors and students online at the same time, communicating in real time) or asynchronous (instructor and students logging in at different times of day to post questions, thoughts, responses, assignments, gradings, etc.). This study made no specific distinction between the two types.

Online course

Butler (2004) defined an online course as "a course that is offered on the World Wide Web [see definition] by a nationally accredited institution of higher learning. These courses are also referred to as a web-based course" (p. 18). The Sloan Center for Online Education at Olin and Babson Colleges defined an online course (as opposed to a blended/hybrid, Web facilitated, or traditional course) as a course with 80% or more of its content delivered online (Allen & Seaman, 2005).

Name

This study defined a learning institution's name as how it was referenced in the *U.S. News & World Report Ultimate College Guide 2006* and the *Peterson's Guide to Online Learning 2006* website. This analysis considered specific components of an institution's name, such as whether or not it included the word *college* or the word *university*; whether or not it included a geographic location; and whether or not it included a potentially off-putting word, such as *virtual* or *international*.

Tuition

This study defined tuition as the amount charged by an institution offering degrees online, referenced as or converted to per-credit, obtained from the *Peterson's Guide to Online Learning 2006* website. It took into account miscellaneous fees and charges only to the extent that they were included in the per-credit price listed by the *Peterson's Guide* website. It was, admittedly and, therefore, conceivable that institutions with all-inclusive tuition were unfairly

identified as more expensive than some institutions that *nickel and dime* their students with assorted charges and back-door fees. For example, at this writing, Seton Hall University's $677 per credit tuition for its online Master of Arts in Counseling degree includes books, residency room and meals, and graduation, with no additional fees. This study presumed that prospective students often make the same, flawed comparisons when evaluating academic programs, especially online ones.

Online/Internet/Web

For ease of prose and common understanding, the terms *online*, *Internet*, and *Web* were used interchangeably in this report as the venue for accessing education on one's home or laptop computer. For the record, the term *online* means connected to a big network. Used today, the term generally implies the network to be the Internet. The *Internet* is a world network of decentralized, publicly accessible computers used for communication. The *Web* is the *World Wide Web*, an information space that operates over the Internet (Berners-Lee et al., 2004; Hougland & Pollock, 2001).

Website

An institution's website is defined as a collection of Web pages, accessible on the Internet using a computer. An institution's website typically serves many functions, including the facilitating of communicating among staff, faculty, and students, enticing prospective students to *attend* the institution, delivering academic and institution-related material, and—in many cases—serving as a platform for online schooling.

Captology

Captology is the academic field of study that considers and examines computers as persuasive technologies. As defined by Stanford University's Persuasive Technology Lab, "this includes the design, research, and analysis of interactive computing products created for the purpose of changing people's attitudes and behaviors" (Stanford University, 2005). The Stanford lab, at this writing, specifically looks at the capacity of websites to change viewers' motivation, attitude, worldview, behavior, and compliance.

Enrollment

For the purpose of this study, enrollment was defined as the number of students taking online courses with a particular institution, reported by the *Peterson's Online Learning Programs 2006* website. This study did not differentiate between undergraduate and graduate enrollment (nor could it, with the data available). It did not break down enrollment by academic programs, although future enrollment analyses certainly could endeavor in that direction. It did not consider whether or not students were matriculated in their programs. It did not make a distinction between part-time and full-time students.

Research Hypothesis

The study proposes an enrollment anticipation model through rejecting five null hypotheses. The first null hypothesis is that components of a distance learning institution's name have no statistically significant influence on the size of the institution's student enrollment. The second null hypothesis is that an

institution's undergraduate/graduate tuition prices have no statistically significant influence on the size of its student enrollment. The third null hypothesis is that the age of an institution's distance learning program has no statistically significant influence on the institution's student enrollment. The fourth null hypothesis is that the characteristics of an institution's website have no statistically significant influence on the institution's student enrollment. The fifth null hypothesis is that there are no such influences when controlled for the institution's entry SAT/ACT score (where information is available) and first-year retention (where information is available). The overriding proposition of this study is that quantitative data such as tuition price and first-year retention can be combined with information that needs to be quantified, such as brand name appeal and website persuasiveness, to produce a worthy model for assessing potential student enrollment of an online academic program.

Research Questions

The primary question is: *How can a model be created that helps assess the enrollment potential of an online academic program?*

The research questions include the following:

1. What is the influence of a distance learning institution's name on its student enrollment?
2. What is the influence of a distance learning program's tuition price on its student enrollment?

3. What is the influence of a distance learning program's age on its student enrollment?
4. What is the influence of certain characteristics of a distance learning institution's website on its student enrollment?
5. How can these influences be formulated into a model for online student enrollment anticipation?

Constructing the Predictive Model

Once relationships are established (or invalidated and removed from the analysis), this study suggests that a predictive model or ranking system be created, with the goal of assessing an online program's potential student enrollment. For example, such an index might be called the Online College Enrollment Anticipation Number, or OCEAN. There is, admittedly, some subjectivity in how such a number would be formulated. The debate, however, might be reduced through relating as much of the formula to successful enrollment as possible—especially the recruitment of quality students who stay on board for at least one year.

Of course, the debate over enrollment management itself will never cease. Very vocal critics of recruitment/retention gimmicks continue to call to task *any* tool that takes emphasis off core curriculum and agreed-upon pedagogy. But, again, if the worthiness of enrollment management and enrollment forecasting is an overriding assumption of this study, then the combining of enrollment predictors to produce a forecast model is justified.

The initial assumption of the study is that all examined variables will have at least a small amount of predictive value and, therefore, an important contribution to the predictive model. These variables include:

1. Name of institution (and all that it implies to the prospective student)
2. Cost (per-credit tuition, as reported to the *Peterson's Guide to Online Learning 2006* website)
3. Online program longevity (as suggested by online program age)
4. First-year student retention (as reported to *U.S. News & World Report* [*USN&WR*])
5. Student SAT or ACT score (25th percentile), when available (as reported to *USN&WR*), as an indicator of student quality
6. Website Enrollment Power Index (EPI) rating (as calculated by the National Research Center for College & University Admissions [NRCCUA])

Student standardized test scores, apparently worthy as a persistence predictor, were thought to have limitations. While SAT scores have been shown to impact online university student retention (Morris, Wu, & Finnegan, 2005), such impact might be less so among some adult students and non-traditional students who gravitate to an online venue. Furthermore, many prominent online colleges and universities do not require SAT/ACT/GRE scores for enrollment,

such as the University of Phoenix, Empire State College, Thomas Edison State College, and University of Maryland University College (UMUC). *No GRE or GMAT required!* screams one UMUC brochure. One suspects that such an admission-requirement exclusion is more of a recruiting device than a reflection of the literature on standardized testing. A subject for future research might be non-traditional students' inclination to enroll in an online program based on its lack of an SAT/ACT/GRE requirement. (Anecdotally, it is worth noting that this author's discussions with hundreds of prospective students in 2003 suggested that the SAT/ACT/GRE is a huge roadblock or speed bump for the adult or non-traditional student.) But for this study, one can lean on previous research work (Butler, 2004) that uncovered, more simply, the influence convenience has on the tendency to select distance learning.

To the extent that SAT/ACT/GRE scores are required for online enrollment, keeping SAT/ACT data in the mix serves as an appropriate consideration, albeit not a perfect one, of student quality. This study acknowledges that student quality is an appropriate goal of enrollment management. In fact, as student quality is figured into *USN&WR* scores, it fosters a self-perpetuating cycle: super *USN&WR* rankings attract quality students; quality students keep the institutions' rankings elevated; elevated rankings continue to attract quality students. The enrollment manager is charged with the task of entering and altering that cycle somewhere within the circle of events and taking it to a new, higher level. SAT/ACT score, as both an indicator of learned

cognitive ability and as a persistence predictor, serves as the variable most closely associated with student quality.

The first and overriding assumption of this study is that enrollment management/forecasting is a worthy endeavor. Perhaps this is more a political statement than a research postulation, but the assumption is important to mention and to note upfront before continuing. The second assumption is that student enrollment serves as a worthy indicator of success in affecting student choice. That is, one can draw conclusions about student choice by examining student enrollment numbers at different institutions.

Need for the Study

Any study that might prevent institutions of higher education from re-hemorrhaging millions of dollars in failed efforts, as they did in the late 1990s and early 2000s, is seemingly worth exploring. Furthermore, looking at student enrollment as it relates to online academics provides a wonderful economic perspective. That is, by concentrating a college choice analysis on distance learning programs, one is able to delve into the potential, commodity-like nature of all higher education in perhaps a not-so-distant future. In such an examination, the Web becomes not only the platform for marketing, but also the instant, barrier-free method of access, magnifying the competitive aspects of college choice.

The notion that online schooling might be commodifying higher education in general is not farfetched for anyone wandering the hallways of today's

technically capable institutions. Upon glancing into a classroom, one finds students gazing at online class notes, delivered across the airwaves via wireless Internet service to their unplugged laptops. The instructor may very well be lecturing from those notes on a laptop—or sending new notes via wireless email to students in the same classroom. What is the next step? As virtual-reality technology advances in ways we cannot comprehend, students and teachers will meet in an electronic, illusory classroom—while perhaps never leaving their homes. At that point—assuming home affordability—physical and sunk-cost barriers will be gone and entering any academic market without obstruction will be possible. This easy purchase and delivery of distance learning may be viewed within the economist's definition of *pure competition*, a theoretical state defined in detail by Klein (1988) where many sellers exist, where the product is standardized, where there is no brand identity or customer loyalty, where no single entity has significant control over pricing, and where firms can enter and exit the market without significant legal or financial obstacles. In this abstract state, price (tuition?) is controlled entirely by the market and, as a result, economic profit eventually settles in at zero.

In a virtual marketplace full of unknowns, the need exists for some type of quantitative assessment tool. When an institution reviews its current distance learning offerings—or considers offering new ones—it should have, at the very least, a starting point of evaluation based on current literature and the business patterns of successful programs. Without some form of initial, experiential measuring stick, an institution is left to rely on either the loudest, most persuasive

voice (internally or externally), or the snake oil salesman with the grandest promises. While launching an online academic program, this author admittedly found himself drawn in by marketing, admissions, and financial claims that, in hindsight, were wildly optimistic and led to the failure of a curriculum that his traditional institution had held high hopes for. The notion that others, hundreds of times over, have fallen for the same unfilled promises proposed by online delivery offers little salve—and it certainly does little to reassure the next wave of online pioneers.

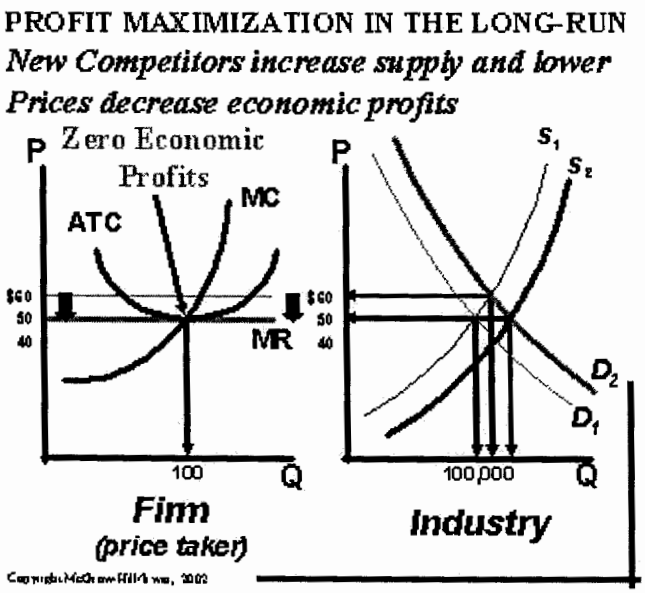

Figure 2. Economic Profit Goes to Zero in a Purely Competitive Market. New competitors increase supply, lowering prices and decreasing economic profits. As they depart the market, supply decreases, and prices and economic profits increase. In the long run, economic profits go to zero. Discussed in Klein, C. (1988). Taken from McConnell, C.R. & Brue, S.L. (2002). *Microeconomics (15th Edition)* New York: McGraw-Hill Irwin. Retrieved November 1, 2005, from http://www.mhhe.com/economics/mcconnell/low_index1.mhtml. Copyright © 2002 McGraw-Hill Irwin. Used with permission from The McGraw-Hill Companies.

The study of distance learning institutional branding, in particular, becomes noteworthy to all of higher education in that (a) the line between traditional and non-traditional learning is blurrying, if not fading, (b) the eventual vanishing of this line might translate into a commodity-like impact on higher education in general, and (c) if one subscribes to the merits of successful enrollment management and healthy competition for students, then one should keep tabs on any aesthetic advantage one institution has over another. At the very least, a predictive model might serve as both an important starting point for objectively gauging potential success and a neutral, devil's advocate-type of alarm that could be heard over the numbing hum of overly optimistic groupthink.

Two quotations, when read together, portray a marketing reality that many post-secondary schools are only beginning to face. In January 2000, Burton R. Clark (2000) wrote that "many universities ought to become much more proactive, even entrepreneurial. If they do not, they will put themselves at considerable risk during the first decades of the 21st century" (p. 1). During the same month of the same year, business writer Greg Ip (2000) wrote in the *Wall Street Journal* that "when it comes to technology, even the most bearish analysts agree the microchip and Internet are changing almost everything in the economy" (p. C1). If universities are, in fact, about to encounter a dark storm of marketing and recruitment challenges, how do e-business and online access magnify the thunder and lightening? More importantly, *is* e-business the storm itself?

For most colleges and universities, the questions posed could not come at a worse time. Ehrenberg (2000) notes that by keeping technology current, old

buildings sound and well air-conditioned, salaries and higher health benefits paid, and federal student access guidelines met, post-secondary schools are coping with continued, dramatic increases in tuition. If some elements of *pure competition* settle in, a scenario might someday exist where schools are forced to level or lower tuitions (to compete with well-marketed online venues), retaining enrollment but creating harsh financial realities and dilemmas.

Although college enrollment is expected to increase by 1.5% to 2% each year until 2013, data from the 2000 U.S. Census suggest that the number of traditional age college students, age 20 to 24, will begin declining in 2015, when the second generation of Baby Boomers wrap up their college studies (Jones, 2003; U.S. Department of Education, 2002). Although *non-traditional* students, a growing population, might make up part of the loss, there are no guarantees. Furthermore, there is the issue of price elasticity of demand for college—at least for the non-elite institutions—where the fact that tuitions are increasing faster than the rate of inflation translates predictably into fewer prospective post-secondary students (Heller, 1997). The fight amongst schools for this smaller pool of *customers* might coincide with a point where higher education marketing, delivery, and communication are cresting from a virtual technology standpoint.

The notion of academic institutions changing their names and identities—in the name of marketing—is no longer outrageous. In recent years, the Union Institute, a distance learning institution in Cincinnati, Ohio, changed its name to the Union Institute and University. Fielding Graduate Institute, a distance learning institution based in Santa Barbara, California, changed its name to Fielding

Graduate University. The traditional institution Beaver College, outside Philadelphia, changed its name to Arcadia University to great enrollment gain. And, just this past year, Cornell University—yes, *that* Cornell University—dramatically changed its ever-present logo and several aspects of its *visual identity*, hoping to portray itself as more traditional and distinguished. There exists a new, unashamed acceptance of branding and marketing in higher education. Over a decade before Manski and Wise (1983), Krachenberg's (1972) article in *The Journal of Higher Education* said, in essence, let us call enrollment strategy what it *really* is, which is marketing, and let's embrace it as an integrated process. A three-decade snowballing of marketplace reality is perhaps finally being addressed, intensified by online marketing and delivery.

One hopes this study might provide yet another, small wake-up call—that colleges and universities need to recognize similarities between their *product* and the products of industries that recently have been or are being transformed by access technology. And, just as important, one hopes it might sound a call-to-arms—that colleges and universities need to see how other industries (as well as their fellow academic institutions) are reacting and surviving, and how they should respond accordingly. In sum, one hopes to create an appreciation for college branding and the need to tailor the academic sizzle that accompanies the academic steak.

Limitations and Key Assumptions

This study assumes that college choice factors are delineable and predisposed for scrutiny. It assumes that college choice factors, while intertwined, are not so entangled that they cannot be divided, categorized, and considered separately. This study assumes that student enrollment is a meter for college choice and that flourishing student enrollment and retention of quality students are indicators of successful enrollment management. Finally, this study makes the less-than-perfect presumption that the information provided by schools to *Peterson's Guide* and *USN&WR*, especially for the purposes of ranking, are accurate.

A delimitation of this study is the omission of *U.S. News & World Report* Tier One schools' online academic programs. This study assumes that Tier One schools are less tied to the competitive aspects of online schooling. And so, for purposes of economic frameworking, this study excludes sampling the Tier One schools. These schools parallel the category Ehrenberg (2000) describes as "selective private colleges and universities" (p. 4) that tend to fall outside the studies of market effects and the price elasticity of demand for post-secondary education. The primary reason to avoid considering them is that no one knows where the point of price elasticity (i.e., price increase affecting consumer purchasing) is for these schools, even when online access is introduced. As Ehrenberg points out, applications to these elite schools continue to increase even after tuition costs rise faster than the pace of inflation. As Clotfelter (1999) suggests, "There are indications that offers of admission from the most selective

colleges have become even more prized and that the top students are becoming more concentrated in a relatively small number of very selective institutions" (p. 7). So, apparently, branding works!—especially on a resume or among society's elite. To the degree that the student bodies at these colleges and universities have become "more affluent and socially distinct" (p. 9), one can then conclude that they and their families fall outside the economic tendency that would prompt, say, a middle class husband to purchase a diamond on Amazon Jewelry for his wife. Therefore, removing these institutions from the sampling helps avoid skewing the collected data. (See Appendix A for a list of the Tier One online programs removed from the study.)

Another delimitation of this study is the omission of online programs listed by the *Peterson's Guide to Online Learning 2006* website but falling under the 2005 Carnegie classifications *Associate's—Public Rural Small* or *Associate's—Public Rural Medium*. A major change in the Carnegie Foundation's college and university classification system is the splitting of 2-year colleges into subcategories (Carnegie Classifications of Higher Education, 2005). This study presumes that small or medium rural community colleges are more village-driven in their academic plans and limited in their desires to expand into the boundless education markets of the Internet. On the other hand, this study accepts the possibility that other two-year schools, especially private ones, are interested in expanding into online markets. And so, this study includes the online programs, as listed by *Peterson's*, belonging to 2-year colleges and falling under the following 2005 Carnegie classifications:

1. Associate's—Public Rural Large
2. Associate's—Public Suburban Single Campus
3. Associate's—Public Suburban Multicampus
4. Associate's—Public Urban Single Campus
5. Associate's—Public Urban Multicampus
6. Associate's—Public Special Use
7. Associate's—Private Non-for-profit
8. Associate's—Private For-profit
9. Associate's—Public 2-year Colleges under Universities
10. Associate's—Public 4-year, Primarily Associate's
11. Associate's—Private For-profit 4-year, Primarily Associate's

A final delimitation is the omission of academic programs that are not accredited by one of the six prominent regional accrediting bodies (e.g., Middle States Commission on Higher Education, Northwest Commission on Colleges and Universities). This study does not consider programs accredited exclusively by the Distance Learning Accreditation Board (DLAB) or the Distance Education and Training Council (DETC). A regional accreditation is also needed.

Chapter II

REVIEW OF THE RELATED LITERATURE

Learning Institution Choice

Cabrera and La Nasa (2000) looked at the college choice process as a mesh of connecting factors. Listed in no particular order of importance, they included:

1. Cost of attendance and availability of financial aid
2. Saliency of potential institutions
3. Parental characteristics: education, occupation, income
4. Parental collegiate experiences
5. Parental encouragement and involvement
6. Availability of information
7. Student input
8. Student occupational inspiration
9. Student ability
10. Student qualifications
11. Contact with high school counselor

Over a decade earlier, Johnson and Stewart (1991) conducted a study that essentially deemphasized the impact of the Cabrera and La Nasa's last factor—the student counselor. Tice (1992) concurred, noting that 80% of college-bound high school students began the selection process during their junior year, presumably before meeting their senior year counselor.

In the mid-1980s, Hearn (1984) found that prospective students' aspirations served as predictors in their choosing to apply to high-cost, high-profile institutions. Inoue (1999) established a status attainment model suggesting that prospective students sought to achieve status by attending a particular post-secondary institution. The study specifically considered socioeconomic status and parental influence on women's determination to attend college and on their aspirations towards a higher occupational status, similar to previous models suggesting the same influence on men. Inoue's study suggested that bringing about and maintaining ambitions for status in high school not only increased the likelihood of success as an adult but also affected education goals and college choice. Parent and high school teacher support and influence had an especially profound importance on these early-life decisions. Along the same line, Hossler, Vesper, and Braxton (1991) investigated the discrepancies between what school attributes students thought should be important in the choice process and what attributes were, in fact, important to them. This team argued that family background, student social circles, and different degrees and types of pursuing information all had significant influence

on how prospective students were swayed by a college's location, among other attributes.

Toma and Cross (1998) provided a somewhat overlooked but arguably significant factor in college choice: the impact of championship athletic seasons on undergraduate applications. That is, when a school's team got national attention, more prospective students—regardless of their interest in that sport—tended to apply there! Anecdotally, enrollment recruiters at Seton Hall, where this author is writing from, often lament when their basketball team does not make the NCAA playoffs or the *Sweet 16* finals, suggesting aloud that when the Seton Hall Pirates are not mentioned prominently in national collegiate sports news, the situation hurts overall student recruitment.

Grunig (1997) argued that school reputation heavily affected school choice. Grunig looked at what determined the reputation of public and private universities. Analyzing the status of over 100 schools, the study found that graduate and undergraduate academic program reputations were largely explained by two recurring factors: size and selectivity. Grunig also found a correlation between a school's size and its amount of institutional research activity. Grunig suggested that these subsequent reputations strongly influenced college choices and the setting of tuition prices.

Urbanski (2002) proposed a three-step process influencing student college choice and its relationship to the college marketing processes. The study surveyed students at Fond du Lac Tribal and Community College in Michigan. In the predisposition stage, students shared an early desire to attend college and

felt they possessed the academic capacity to do so. In the search and choice stages, students stated that the factors of campus location, academic programs, class size, cost, hospitality and friendliness, and campus size had impact on their college choices.

Cunningham (2003) related these factors of school choice directly to federal need-based financial aid. Cunningham discussed how choice had transformed from considering if students were able to choose between public or private institutions to whether they were able to choose between 2-year colleges and 4-year institutions. Importantly, Cunningham's data revealed a pattern of enrollment from 1989 to 2000 suggesting a choice shift towards lower-priced institutions, particularly community colleges, for many students, even lower-income students who could attend a more expensive institution using financial aid.

Expectation of future earnings has tended to be a factor for consideration in school choice. Behrman, Rosenzweig, and Taubman (1996) examined non-identical twins in Minnesota and determined that more expensive private universities with smaller enrollments produced students with significantly higher earnings further along in life. The surveying of these students suggested that they anticipated such results in their choice of school. Keane and Wolpin (1997) put forth estimation models that related schooling, work, and occupational decisions among young men. The models suggested that more generous *human capital investment* related to better work and wage.

As the examination of school choice has lead into school branding (and, therefore, premium tuition), Delucchi (1997) explored the academic mission claims of so-called liberal arts colleges. Delucchi discovered that, in spite of claims of a liberal arts mission, descriptive statistics revealed that two-thirds of the colleges promoting a liberal arts education were, in reality, overshadowed by professional disciplines. Perhaps one of the more significant aspects of college branding, in regard to image, has been a school's *U.S. News & World Report* rankings. MacGowan (2000) said that when a prospective student started talking about *no Tier 2 colleges*, he knew the student had been heavily influenced by the notion of rankings or the rankings themselves.

The *U.S. News* rankings have, in fact, been no small influence; they have become all about big money and big—if arbitrary—competitiveness. The *U.S. News & World Report's America's Best Colleges* issue has generally sold 40% more copies than any other *U.S. News* issue. These rankings are extremely popular: bound book versions of this information account for a huge portion of Sourcebooks Publishing's annual total sales. By most accounts, *U.S. News* still dominates a growing field of college rankings lists. Writes Sourcebooks Publishing senior editor Peter Lynch: "In recent years, books based on the data gathered by *U.S. News* have been among the top-selling college guides on the market" (2005, interview). It is difficult to refute the influence of these rankings. Although surveys suggest that a school's individual list standing has been low among choice factors, they also indicate that the *U.S. News* list has been a very common starting point. The National Bureau of Economic Research (Monks &

Ehrenberg, 1999) concluded that a school's lower list rank reduced its number of applicants, lowered its quality of entrants, and increased the amount of grant incentives it had to offer to attract the same number of enrolled students!

Name and Enrollment

Kirp's (2004) book *Shakespeare, Einstein, and the Bottom Line* discussed at length Beaver College's name change to Arcadia University in the mid-1990s. Focus groups were formed, in true marketing fashion, to gauge reactions to different-sounding alternatives. The name *Arcadia*, when combined with the more prestigious-sounding *University*, evoked an image among those focus groups that prompted what, by many accounts, has been a successful branding endeavor.

Morphew (2000) investigated nearly all of the 120 public and private 4-year colleges that had changed their name to include *university* during a 10-year period beginning in 1990. His findings suggested that less-selective schools were more likely to make the college-to-university name change. Over the last 2 years, two distance learning schools have incorporated the *university* name, believing that the word *institute* was confusing prospective students. The Fielding Graduate Institute, based in Santa Barbara, California, changed its name to Fielding Graduate University. The Union Institute, located in Cincinnati, Ohio, changed its name to The Union Institute and University.

Distance learning schools are likely more sensitive to branding, as it relates to their names, because their names and Web images are all that many

students (prospective and enrolled) ever see. Perhaps it is their geographic, traditional-sounding brand names that have made the University of Phoenix and the University of Maryland such long-term successes. This argument was supported by Bear Stearns analyst Jennifer Childe, who suggested that the triumph of Phoenix and Maryland's programs showed that e-learning programs "must establish an educational brand name to compete effectively" (as cited in Pethokoukis, 2002, website). She noted that pure e-learning, nebulous-seeming firms such as Jones International University and Capella University have suffered from not having the sound or aura of a traditional university: as of 2004, they had only 6,000 and 3,000 students, respectively—contrasted by Phoenix and Maryland's 187,000 and 30,000—in spite of being around since the mid-1990s.

Tuition Price and Enrollment

The concept of price elasticity of demand can best be explained through a brief example. Not too long ago, this author was approached by his daughter's violin instructor. This music teacher was raising the price of her lessons from 20 dollars to 23 dollars per half-an-hour session. Only a few months later, the teacher again increased the per-lesson rate, from 23 dollars to 25 dollars. "Why the increase so soon after the last one?" she was asked by this chagrined parent.

"Because," the teacher answered, "I lost too much money after the *last* increase!"

Her curious statement makes sense as one grasps the notion of price elasticity. The price elasticity of demand is defined as a measurement where

consumer reaction is weighed against the seller's pricing action. In the case of the music teacher, perhaps she was hoping that a 3-dollar increase for, say, 100 students would increase her weekly income by 300 dollars, from $2,000 to $2,300. However, what she did not count on was the number of students whose parents would resist the increase and pull them out of lessons, perhaps seeking lessons elsewhere or giving up lessons altogether. If 15 students have stopped taking lessons with her as a result of the increase, her weekly take is now 23 dollars times 85 students, or $1,945. Her weekly take has dropped! Since the consumer reaction has outweighed her price increase to the point of negative income generated, we can say that the demand for her music lessons is highly price elastic. Had she taken a basic economics course, she might have comprehended the negative results from her first price hike and reconsidered the second hike.

The concept of price elasticity of demand is illustrated as the absolute value of a fraction, where the numerator is the percentage change in demand or revenue, and the denominator is the percentage change in the price. In the case of the music lessons, price elasticity of demand *e* could be explained mathematically as follows:

$$e = \frac{\left|\frac{(1945-2000)}{(2000)}\right|}{\left|\frac{(23-20)}{(20)}\right|} = \frac{|-2.75\%|}{|1.50\%|} = 1.83$$

Since *e* is greater than 1, we say that the demand for the music lessons is price elastic. A value of less than 1 would mean that the demand is price inelastic. A

value of exactly 1 would mean that the demand is *unit price elastic*, that is, a change in price is netting zero change in demand or revenue (McConnell & Brue, 2002).

The American recession of the late 1990s and early 2000s hurt the budgets of private universities and colleges, as well as those of state universities and colleges and community colleges, as the number of income-earning parents diminished. Furthermore, as state coffers were reduced via fewer tax payers, state monies used to offset tuitions at state institutions decreased. The easy reaction for any of these schools would have been to calculate the lost revenue, divide it by the number of students on hand, and adjust the tuition accordingly. And, indeed, it is well-documented that many schools did so. However, is it possible that these schools were like the music teacher mentioned previously—blind to the possibility that a tuition hike would perhaps exacerbate the problem, as some current students and would-be students opted out of the equation? Is college tuition price elastic? And, if so, how should it figure into a school's pricing strategy, particularly in light of rising institutional expenses and tough economic times?

Before delving into this portion of the literature, it is worth stripping out the *USN&WR* Tier One schools, or what Ehrenberg (2000) called "selective private colleges and universities" (p. 4). It may be difficult to discuss price elasticity as related to these institutions, because no one really knows what their point of elasticity might be. That is, since applications for these elite schools continue to grow in spite of dramatic tuition increases, no one really knows for sure how high

tuitions could go before applications dropped to the point of hurting enrollments. Therefore, elasticity is best approached when the schools of very affluent families are mentioned only briefly.

The upfront answer to the basic question is, yes, the demand for non-Tier One college is price elastic. In study after study over the last 20 years, it has become apparent that when tuition prices increase, enrollment predictably and quantifiably decreases. Numbers in these studies support the quantifiability of the elasticity argument, although the different methods/techniques used to garner them make them not so easily compared and contrasted. However, they can be looked at in comparison to what is considered defined elasticity. As reference points, Bryan and Whipple (1997) suggested that three one-hundredths (.03) of one percentage point of retained enrollment was inelastic, three-tenths (.3) of one percentage point was moderately elastic, and half (.5) of one percentage point was highly elastic.

In 1987, Leslie and Brinkman released a milestone document that considered the price elasticity of college tuition as it related to 25 economic studies, revealing a common thread that ran throughout all of the studies: tuition prices were negatively related to demand. That is, whenever tuition was increased, the demand for college enrollment decreased and, again, the inclination of prospective college students to enroll decreased. Leslie and Brinkman (1987), drawing on earlier equations, used a student price response co-efficient (SPRC), which measured changes in the college participation rates of 18-to-24-year-olds for every $100 increase in tuition pricing, as measured in

1982-83 dollars. Their wide-net generalization was that each $100 increase resulted in six-tenths of a percentage point decline in college participation, or an SPRC of negative 0.6.

In 1997, Heller updated Leslie and Brinkman's report, zeroing in on other factors such as financial aide, income, income sector, and race. Heller noted that many studies had managed to account for these factors by isolating them and holding them constant. For example, the effects of being the student of a middle-class family could be isolated by examining only middle-class families in a study. Using such techniques and controlling the background characteristics and financial aid awards of prospective students, St. John (1990) found that increasing tuition price by $1000 (in 1990 dollars) reduced the rate of enrollment by 2.8%. Even as he considered all income sectors, St. John discovered levels of tuition sensitivity for all but the wealthiest families.

Several studies suggested that tuition price increases not only negatively influenced enrollment for accepted students, but they also negatively affected the number of prospective students willing to apply to college. Kane (1996) estimated that, "For both blacks and whites, the impact of tuition on entry rates is negative and significant. Evaluated at the mean characteristics, a $1000 increase in tuition [in 1988 dollars] was associated with a 15 percentage-point decline in entry by age 19 for blacks and a 13 percentage-point decline for whites" (p. 188). Savaco (1990) went even further, stating that the effect of rising tuition on prospective students was more dramatic than anyone was anticipating, because most studies considered application decisions to be exogenous, or related mostly to external

causes. "By treating the application decision as exogenous," she wrote, "[studies] are likely to understate the true price effects, for they ignore the possibility that a change in tuition may effect enrollment through its effect on the [initial] decision to apply to college" (p. 123). She believed that the price elasticity of the *probability* of college enrollment was the sum of two elasticities—meaning a much greater price elasticity of demand for college. It is worth noting that future papers speculated she had overestimated the numbers by assuming that admission standards were unaffected by tuition price.

In updating Leslie and Brinkman's work, Heller (1997) re-emphasized that the studies were very uniform in how they related tuition pricing to the price elasticity of demand:

> All studies described here are consistent in one respect: each found an inverse relationship between tuition and enrollment rates....the magnitude of the effect is remarkably similar across most of the studies. The evidence indicates that a tuition increase of $100 [in 1997 dollars] is consistent with a drop in enrollment of somewhere in the range of 0.50 and 1.00 percentage points, a range consistent with Leslie and Brinkman's (1987) estimates. (p. 631)

Mumper (1996) observed that understanding price elasticity and appreciating the effect of financial aid on its impact did not necessarily translate to better policies for low income families. As tuition prices went up, Mumper suggested that students became focused on price rather than on the opportunities available.

> [A] plan which may look good in an economics class may prove counterproductive in the real world of college finance. In this view, lower-income students are likely to become discouraged by rapid increases in the *sticker price* of higher education. This occurs because information about tuition levels is much more widely known and available than is information about financial aid programs. (p. 45)

Furthermore and importantly, Hu and Hossler (2000) suggested through their analysis that college choice was affected not only by prospective students' ability to pay, but also by their willingness to pay.

The reader might be prompted to ask, *What about the community colleges in these less affluent neighborhoods? Don't they offer relief for the poor student?* The answer is that the price elasticity of demand for college carries into community colleges. For students already accepted and enrolled, Kane (1995) found: "When taken by itself, a $1000 increase [in 1991 dollars] in public 2-year tuition is estimated to result in a 3.5 percentage point drop in public undergraduate enrollment" (p. 15). In a unique twist, Kane's study said that, as community college tuition rose, public 4-year enrollment *increased*, as public 4-year college tuition began to appear more cost competitive. And so, a more expensive community college and a reactively more competitive 4-year college application process would not bode well for the low-income student.

In an article on community college distance learning, Cox (in press) cautioned that the mere creation of online venues for community colleges would not, in and of itself, address college choice issues related to tuition and access. "[D]igital forms of distance education...offer a means of extending geographical access to college without necessarily increasing students' educational opportunities," she noted. "Authentic educational opportunity requires access to a learning environment that is not fraught with obstacles to success. Accordingly, for virtual access to increase the educational opportunities for less advantaged students, it must do more than offer the chance to enroll" (p. 5-4).

An overriding *unanswered* question is: *If the demand for college is price elastic, should a college consider lowering tuition to acquire more students?* The answer appears to be that, while strategically using tuition discounting as a tool of enrollment management, colleges avoid outright lowering of tuition for fear of being perceived as having financial trouble. Bryan and Whipple (1995) developed a tuition pricing model based on students' *willingness* to pay, to be figured in along with their ability to pay and an institution's student aid. But the question of whether to lower tuition to gain higher enrollment remains somewhat theoretical—and even difficult to gauge theoretically.

On the tuition-raising side, the situation is more clear-cut. The research suggests that, as most universities and colleges face continued rising costs, reduced government assistance, and possibly fewer job-holding families with college-age children, they need to avoid the inclination to raise tuition through simple math. Institutions, instead, need to continually consider the apparently

highly price elastic nature of the demand for college and strategize their pricing and their budgets accordingly.

Distance learning tosses more variables into the elasticity/tuition-setting mix. Frances and Collins (2005) pointed out that the costs related to setting up Internet courses—and, therefore, their pricing to an extent—were affected by technology-driven factors. Examples included the unbundling of and contracting out of course design and communication. Other aspects included the potential for economies of scale and the U.S. military's participation in online schooling.

In a discussion regarding tuition price and online college enrollment, one would be remiss not to mention the United States *enrollment gap*, particularly as it relates to the *digital divide*. This gap is either unchanged or widening, depending on how one measures SES. Numbers drawn from the U.S. Department of Education (2003b) show a 30-point college enrollment gap, relatively unchanged over the 1970s, 80s, and 90s, between the percentages of rich young adults over poor young adults starting college directly after high school. (The percentages of both groups grew over the years at mostly the same rate.) The same statistics show a White-over-Black enrollment gap that grew from almost nothing in the 1970s, swelled to a 15-point gap in the mid-1980s, and settled in to about a 9-point gap in the late 1990s. The White-over-Hispanic enrollment gap grew steadily from non-existence in the early 1970s to a 20-point gap by the late 1990s.

If online schooling, as well as any commodity-like effects, is to close this gap, it will first have to push past the current technology gap, or digital divide.

The U.S. Census Bureau (2004) reports that, in 2001, only 35% of school-age children in families earning less than $25,000 had computer access at home, compared to a rate approaching 100% for children in families with incomes over $75,000. One third of school-age children in moderate-income families ($25,000-$50,000) did not have home computer access. Suggests Brian Fitzgerald (personal communication, December 3, 2004), staff director for the congressionally charted Advisory Committee on Student Financial Assistance: "If we wait for the digital divide to close, the result could be an entire generation of missed college opportunity among part of the population." Among the stark implications of this lost opportunity, says Fitzgerald, is a U.S. labor market falling short by as many as 6 million educated and technology-savvy workers by the year 2020.

Tom Mortenson (personal communication, November 22, 2004), a senior scholar at the Pell Institute and a prominent researcher in the field of education opportunity, suggests that the digital divide is now turning into a state-of-the-art, or bandwidth, divide. "There are several questions," he says. "Does the prospective college student have nearby library Internet access, at-home dial-up access, or at-home high-speed modem access?" In January 2005, Brian Fitzgerald's committee (as cited in U.S. Department of Education, 2005) released to Congress a number of recommendations specifically designed to help close some of the divide, including the creation of personal digital assistants (PDAs—electronic handheld devices such as *palmOnes*), with simplified student aid software, loaned to any student for submitting an online financial aid application.

Prototype hardware and software are, at this writing, being developed at the Harvard Graduate School of Education.

Program Age and the Online Learning Marketplace

A review of academic literature regarding experience and longevity in the distance learning marketplace suggests that: (a) such literature possesses a very short shelf-life, and (b) acquiring know-how in the marketing of online education is, indeed, a very challenging endeavor, if for no other reason than it is akin to shooting at several moving targets at once. As Oslington (2004) noted,

> Uncertainty is a central issue both for policy makers and university managers concerned with information and communications technology and online learning. Rapid change in the available technology, and the costs of this technology, combined with the volatility of the market for online courses all contribute to uncertainty for decision makers. (p. 233)

DiSalvio (2003) suggested that, whether or not an institution was experienced in this venue or knew the territory at all, its reputation was coming to depend on the *perception* that it was a player in this realm—hence, the entry of very prestigious Tier One universities who otherwise did not need the extra enrollment. Wrote DiSalvio:

> The entry of Harvard and other *elite* into the degree-granting distance learning business may not be so much a sign of distance learning's abrupt ascendancy to *creditability*, but rather, an

> institution's branding strategy that will help Harvard maintain its competitive advantage among its peers....[F]or Harvard to maintain its cachet in this marketplace, perception will have to be shaped. (website)

In other words, Harvard wanted to both gain the online experience and portray, from the position of traditional market superiority, that it had it.

Other than the raw measuring of years spent offering distance learning, defining experience in a refereed light is difficult in that the backdrop is constantly metamorphosing. For example, anecdotal evidence suggests that the most successful distance learning programs at this writing may be older and wiser and also, through several mutations, have become not *distant* at all but actually blended programs, combining Internet communicating of information and discussion with some real-world classroom interaction. Fittingly, the Sloan Center's definition of online courses, mentioned previously, allows for 20% of a program to be lecture-based in a classroom.

As technology continues to advance at exponential rates, the virtual world in every home becomes, well, more *virtual*, also eroding any surefire academic findings regarding distance learning and the academic marketplace. That is, as technology continues to evolve, accelerate, and surprise, the line between Internet and classroom venues becomes blurred. One sees a day in the not-too-distant future when a student will have a 360-degree sensation of being in a classroom that, in fact, is not really there. When this student can attend class simply by stepping into a simulation chamber at his or her home or by turning on

the wireless micro-modem implanted behind his or her optic nerve, *distance learning* will take on a new literal definition—the unnecessary drive to a nearby, brick-and-mortar classroom! And the marketplace literature—and the definition of experience—will become outmoded once again.

So is all forlorn, and is all such research and documented experience damned to obsolescence before the ink is dry? (Never mind—the ink is electrons, lit up on a screen.)

No.

Considering the topic, the literature is noteworthy in that technology plays such a paradoxically *small* role in its findings. Prospective students select learning institutions for a host of reasons unrelated to technology. People are taken by prestigious-sounding names. Tuition price is an enrollment predictor for many types of schools. Success in distance learning goes back to before the Computer Age. Website attributes involve mostly aesthetics, impressions, and availability of information—not technical bells and whistles (next section). In fact, the *new phenomenon* here, from an enrollment management standpoint, is neither technology nor the erecting of technical walls. It is the razing of brick ones.

Therefore, upon review, one suspects that, due to the non-technical, market-driven findings suggested in this literature, it is possible to formulate an empirical model for studying the influence of institution name, tuition price, program age, and website form on enrollment—a model that, with minor adjusting, could last into the next few technological revolutions. The tenets of

goal-setting, image, price, experience, and aesthetics all seem to enjoy pliability in the erratic marketplace of online, post-secondary schooling.

The Learning Institution Website

Web branding and marketing have not been lost entirely on the community of higher education researchers. For example, in 2004, the Lumina Foundation for Education released its report on college choice, suggesting that the successful college enrollment manager had to be a confident brander and marketer. Such a marketer would need to employ the use of mailed computer CDs, email, and Web pages in hard-hitting recruitment combinations (Kinzie et al., 2004).

The National Research Center for College & University Admissions (NRCCUA) is a Missouri-based, not-for-profit corporation providing—among other services—enrollment management consulting and prospective student databases. NRCCUA's annual Enrollment Power Index ® (EPI) list is the ranking of nearly 3,000 college websites by potential enrollment effectiveness. The list rates the websites on a scale of 0 to 100, combining dozens of factors such as online forms and services and virtual campus tours.

The EPI list, in and of itself, might not be an exact predictor of student enrollment: the top-rated 2005 institution was the relatively tiny Transylvania University in Kentucky (NRCCUA, 2005, website). And the research has a proprietary nature to it: at this writing, NRCCUA charges 1000 dollars for an institution to access only that institution's data. (The institution breakdown data

are used in this study per a non-disclosure agreement with NRCCUA.) However, the organization does an honorable job in attempting to quantify what makes prospective students tick. The work appears exhaustive, and it manages—through marketing analysis, student surveying, and regression analysis—to put a figure on something as seemingly nebulous as website aesthetics and utility.

NRCCUA began constructing the EPI scores in 1999. The list uses the following measures:

Home Page and Prominence of Admissions Link	0.35
Admissions Page Design and Navigation	28.01
Online Access to Admissions Material	14.40
Ability to Find Key Admissions Information	36.39
Ability to Contact Admissions Office	10.85
Possible EPI	100.00

NRCCUA characterized website effectiveness as "a website's ability to provide tools to take a student from prospect to applicant, while leaving the student with a positive impression of the site" (NRCCUA, 2005, website). The institution first tapped the opinions of marketing professionals. Then, in 2005, it electronically surveyed over 2,500 students, each responding to the websites of 20 randomly selected institutions. Positive correlations between the marketing professional and the students figured into the above measurements. Each website was scored on 28 different objective criteria falling under the five measures listed

above. NRCCUA suggested that the predictive effect was greatest among websites with scores of 75 or lower. A more thorough explanation of NRCCUA's methodology for generating this website effectiveness score (as described by NRCCUA) is included as Appendix B.

Stanford University surveyed nearly 5,000 people over 3 years in order to determine what website characteristics and designs portrayed expertise, credibility, and professionalism (Stanford University, 2005). At the Stanford Persuasive Technology Lab, experimental psychologist B. J. Fogg researched and co-wrote several peer-reviewed journal articles on the topic. Fogg's findings suggested that the most convincing websites were easy to use, were error-free, provided easy means for communicating, underscored expertise in the organization, and de-emphasized commercialism (Fogg et al., 2001a, 2001b).

Poock and Lefond (2001), using surveys and focus groups, collected the impressions of college-bound students about various college websites. Their study uncovered several common preferences, including ease of navigation and graphics that enhance but do not overwhelm. LeFauve (2001) argued that the college choice process had taken on new kinds of intricacy as the Web grew in both significance and influence. LeFauve submitted that college admissions offices were struggling to balance their marketing budgets between the Web and traditional, print publications. The study suggested that prospective students perceived college materials differently depending on the type of venue and that, in fact, they considered and expected different methods of presentation for different and specific varieties of material. College websites, as an early

gatekeeper, were more likely to be a source of information consulted early in the decision-making process, perhaps to narrow a large field. LeFauve suggested that websites were used by students to answer their pre-formulated questions. Paper viewbooks and brochures, on the other hand, had become mediums of final persuasion.

Douglas L. Christiansen, the assistant vice president for enrollment management and dean of admissions at Purdue University, studied high school juniors and seniors to see what college website attributes drew positive reactions from these prospective college students. His research team found altering site preferences as prospective students moved through different stages of the college selection process. The team also found strong influences from the Web pages of the various academic departments (Christiansen, Davidson, Roper, Sprinkles, & Thomas, 2003). These findings suggested that a university or college's Web design task became more difficult than, say, the singular mission of a technical or vocational school. Add to the intricate nature of this task a traditional institution's alumni, who might delve into their alma mater's website for positive happenings before writing annual checks to the endowment. The design undertaking, then, has become one of making prospective, current, and former students all happy at once, for different reasons, without cluttering the site!

A compelling conceptual framework is Deepak Prem Subramony's *means-end* approach to website appeal. Means-end theory is a very popular marketing tool developed by Jonathan Gutman (1982), where prospective consumers are given in-depth, one-on-one interviews as they ladder up through an abstraction of

product attributes and consumer core values. Subramony's research (2002) sought to apply this *laddering* to website allure.

Interestingly, Subramony found that although his research initially sought to distinguish differences between entertainment websites and informational websites, both sets of ladders produced the *same* four value codes! Those codes were Satisfaction, Relaxation, Happiness, and Security. "This indicates," wrote Subramony, "that both sets of respondents were essentially motivated by the same set of values in their choice of websites, whether for entertainment or for information" (p. 157).

Here is an example of how a typical one-on-one laddering interview might have gone for the above study:

Interviewer: Do you like anything about this informational website?

Respondent: I like the way the site is designed.

Interviewer: Why is that important to you?

Respondent: I am able to get to the information quickly.

Interviewer: Why is that important to you?

Respondent: Well, the quicker I get to the information, the less time I waste.

Interviewer: Why is that important to you?

Respondent: The less time I waste, the more time I have for other things I'd rather be doing.

Interviewer: Why is that important to you?

Respondent: Doing things I like makes me happy.

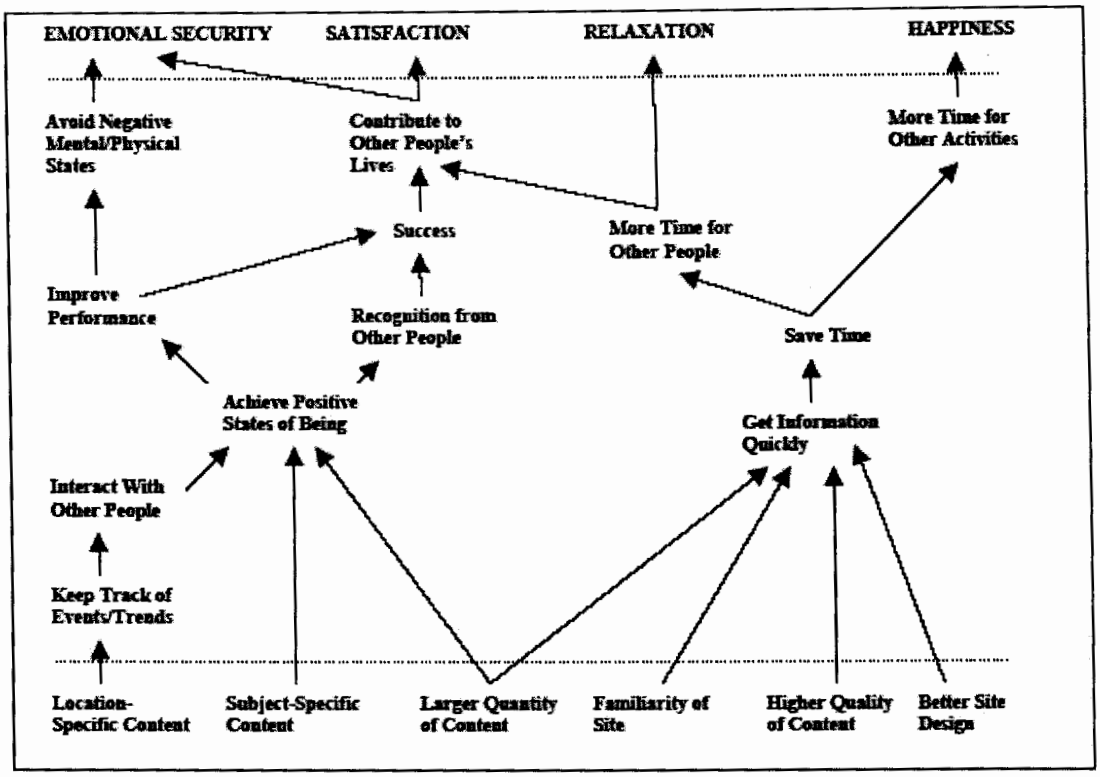

Figure 3. Subramony's Hierarchical Value Map for Information Websites. From Subramony, D. P. (2002). Why users choose particular Web sites over others: Introducing a "means-end" approach to human-computer interaction. *Journal of Electronic Commerce Research,* 3(3), 154. Used with permission from the author and from the *Journal of Electronic Commerce Research.*

By undertaking very specific coding and labeling of responses for 50 separate interviews—rather than arbitrarily placing responses under different headings—Subramony found that the positively perceived attributes of websites led the user to these same feelings of contentment, fulfillment, rest, and refuge.

Mentz and Whiteside (2003) suggested that young, prospective students shopping colleges on the Web enjoyed the privacy and instant feedback that surfing a school's website allowed. They argued that these teenagers preferred sites with several pathways to information and Web pages that loaded in less

than 30 seconds, even in rural areas over telephone lines. When it came to Web content, Mentz and Whiteside said teens were interested in enthusiastic descriptions, alumni testimonials, and information about alumni salaries and employment statistics. They observed, like Inoue (1994), that teens were interested in prestige, including the prestige that many academic institutions held and the prestige that attending them would bring.

Chapter III

METHODS

Research Design

The research design for this study is a descriptive correlation study utilizing three secondary-source surveys.

Data Analysis

The subjects for this study (*N*=2,932) consisted of institutions of higher education offering undergraduate and/or graduate degrees. From January 13, 2006, to February 24, 2006, the names of 2,932 institutions of higher learning were entered into the *school search* of the website that accompanies *Peterson's Guide to Online Learning 2006* (2005). The process was untaken with permission from Peterson's Guides Publishing.

As the literature suggested that Tier One schools are less tied to the competitive aspects of marketing and pricing, the 58 schools offering online degrees and ranked Tier One by *U.S. News & World Report* under *best national universities* or *best liberal arts colleges* were removed from the study (see Appendix A). Schools falling under the 2005 Carnegie classification *Associate's—Public Rural Small* or *Associate's—Public Rural Medium* were removed from the study. Schools not offering undergraduate or graduate degrees

completely online (i.e., with some residency requirements) were removed from the study. A certificate program alone did not qualify a school for inclusion.

Schools not accredited by one of the six regional associations were removed from the study. (One exception. Three schools listed by Peterson's but accredited only by the Accrediting Association of Bible Schools were included.) Schools accredited only by the Distance Learning Accreditation Board or the Distance Education and Training Council were removed from the study.

Schools that had not provided their enrollment data to Peterson's were removed from the study. This exclusion was unfortunate, as a few prominent distant learning institutions chose not to post their enrollment figures on the website. However, as this number was the dependent variable of the study, these institutions had to be omitted.

The result was a list of 327 online degree programs. 259 offered at least one online undergraduate degree, and 185 offered at least one online graduate degree. (117 offered at least one of each.) 121 programs required the SAT or the ACT for admission. These four sets of data were then converted into four Statistical Package for the Social Sciences (SPSS) software files to consider the influence of institution name, tuition price, program age, and captology attributes on online student enrollment, controlling in some parts of the four analyses for student quality.

Institution name: In all four SPSS files, institutions offering degrees through online venues and listed in *Peterson's Guide* were grouped by name. This study defined a learning institution's name as how it was referenced in the

U.S. News & World Report Ultimate College Guide and *Peterson's Guide*. If there was a discrepancy, this study selected the *Peterson's* name. These distance learning institutions were then dummy-coded as follows:

1: Institutions with the word *virtual*, *online*, or *international* in their names.

Example: Art Institute Online.

2: Institutions without the characteristics of 1, 3, 4, 5, or 6.

Example: Westchester Business Institute.

3: Institutions with the word *college* in their names.

Example: The Defiance College.

4: Institutions with the word *university* in their names.

Example: Taylor University.

5: Institutions with both geographic designations and the word *college* in their names.

Example: North Idaho College.

6: Institutions with both geographic designations and the word *university* in their names.

Example: University of Maryland

The dummy-coding was based on the proposition that the words *virtual*, *online*, and *international* are not aesthetically pleasing and that institutions with these words in their names are least desirable. The coding proposed that the

word *college* adds more appeal and the word *university* adds still more appeal. It also proposed that a geographic location adds further appeal, perhaps by suggesting a brick-and-mortar presence behind a Web existence or perhaps because of the desire for the status sought from a legitimate-sounding name on a diploma and a resume. Therefore, an institution with both a geographic designation and the word *college* was thought to be very appealing, surpassed only by an institution with both a geographic designation and the word *university*.

If it was unclear as to whether or not a name pertained to geographic location, the word was entered into the Google search engine, followed by a comma and the state where the institution was located. If a Google Map came up on screen (of, say, Murray, Kentucky), the school was considered to have within its name a geographic location. If the search engine entry did not produce a map but only information on the institution, the name was categorized as not including a geographic location.

Tuition data: Per-credit tuition amounts were acquired from the *Peterson's Guide to Online Learning 2006* website. Only those institutions listed in *Peterson's* as offering full degrees online were entered into the SPSS file. Separate SPSS files (and runs) were used for undergraduate and graduate tuition amounts. When undergraduate degree programs within the same institution had different tuition prices, the mode tuition price was used. If there were only two programs with different tuition prices or if there were three or more completely different tuition prices, the mean tuition price was calculated and

used. This procedure also was used when graduate degree programs within the same institution had different tuition prices.

If an in-state and an out-of-state tuition price were listed, the in-state tuition price was used. If there was a super-inexpensive locality tuition price (i.e., local students could attend almost for free), the next tier up was used. This next tier up was generally the in-state tuition price.

Captology: Website persuasiveness/utility attribute data were acquired from the National Research Center for College & University Admissions (NRCCUA) 2004 Enrollment Power Index ® (EPI) list. The EPI is NRCCUA's computation and numerical assessment of a college website's "appeal, ease of navigation, completeness of information, and overall quality" (EPI methodology webpage). Each institution's EPI score was entered into the SPSS file. (These values are left out of this report per a non-disclosure agreement with NRCCUA.)

Program age: The age of each institution's distance learning degree program was taken from the *Peterson's Guide* website. In many cases, the number of years went back to the non-computer days of correspondence courses. These larger numbers were a surprise to this author, who was expecting ages ranging mostly from 1 to 9 years old.

Student quality data: This study considered the entry SAT or ACT score (25^{th} percentile) and average freshman retention rate to be suitable student quality data. These statistics were acquired from the *U.S. News & World Report Ultimate College Guide 2006*. The SAT scores were from the old scoring system (i.e., without the essay and critical reading skills section). (It should be noted that

these scores were used as cut-offs, and that the dependent variable was never regressed upon standardized score.)

Enrollment: Distance learning student enrollment numbers were acquired from the *Peterson's Guide to Online Learning 2006* website. Again, this was the website that accompanies the guidebook. These enrollment numbers were listed as provided to *Peterson's* by the institutions.

A limitation of this study was that undergraduate tuition price was considered for its influence on combined undergraduate and graduate enrollment. Graduate tuition price, as well, was considered for its influence on combined undergraduate and graduate enrollment. The reason was that Peterson's, at this writing, does not break down enrollment by undergraduate and graduate students. Was there another source of more accurate and detailed online enrollment? In sum, the answer is no. The National Center for Education Statistics Integrated Postsecondary Education Data System (IPEDS) school surveys do not include questions about methods of instruction such as online (confirmed by IPEDS statistician Samuel Barbett). The Sloan Consortium does survey schools annually about their numbers of online students, but the Consortium does not release the data due to survey privacy policy (confirmed by Sloan survey director Jeff Seaman, who also suggested that the Peterson's numbers were the analyses' best bet).

Upon entering the data into the SPSS files, this study used SPSS software version 14.0 for Windows to generate information seeking statistically significant results from the following runs:

1. A simple regression SPSS output, with the dependent variable, online student enrollment, regressed upon the independent variable, the dummy-coded institution name.
2. A simple regression SPSS output, with the dependent variable, online student enrollment, regressed upon the independent variable, undergraduate per-credit tuition price.
3. A simple regression SPSS output, with the dependent variable, online student enrollment, regressed upon the independent variable, graduate per-credit tuition price.
4. A simple regression SPSS output, with the dependent variable, online student enrollment, regressed upon the independent variable, distance learning program age.
5. A simple regression SPSS output, with the dependent variable, online student enrollment, regressed upon the independent variable, EPI score.
6. A multiple regression SPSS output, with the dependent variable, online student enrollment, regressed upon the independent variables, the dummy-coded institution name, undergraduate per-credit tuition price, age, and EPI score.
7. A multiple regression SPSS output, with the dependent variable, online student enrollment, regressed upon the independent

variables, the dummy-coded institution name, graduate per-credit tuition price, age, and EPI score.

8. Another set of the same runs, with student enrollment sizes arranged into bracketed groups: 0-100; 101-500; 501-1,000; 1,001-5,000; 5,001-10,000; >10,000.
9. Another set of the same runs, controlling for SAT/ACT and freshman retention.

The first five runs served to suggest significant positive or negative impacts. The sixth and seventh runs considered the collective impact of the independent variables on enrollment and on each other. The eighth step, a set of runs with bracketed enrollment groups, determined if any relationships became more pronounced as student enrollment sizes were grouped. The ninth step considered how strong these relationships were when controlled for student quality.

Time Interconnecting of the Data

It is worth noting that the three secondary sources selected for these hierarchical linear models coincided nicely from the reference of time. NRCCUA's 2004 Enrollment Power Index ® (EPI) was generated from website data collected in a lab by students in the summer of 2004 and calculated in September 2004. The *U.S. News & World Report Ultimate College Guide 2006 Edition* (2005) was drawn from a common data set finalized in September 2004

(with a popular magazine edition between the two). Peterson's Guides Publishing used to release its guide on distance learning programs in December of the year prior to the one posted on the cover, covering college information collected in September one-and-half-years back. Therefore, *Peterson's Guide to Online Learning 2006*, released in December 2005, relied on overview information gathered in the fall of 2004. However, as this most recent guide was much smaller than previous editions, with tuition, age, and enrollment data available, instead, on the book's accompanying website, some of the data collected undoubtedly was from information updated after September 2004.

Proposed Enrollment Anticipation Model

This study proposed the creation and testing of an enrollment anticipation model if a sizable percentage of the variance of online enrollment could be explained by any one of or combination of the independent variables. (The results suggested that it could not.) This study initially suggested that some type of Online College Enrollment Anticipation Number (OCEAN) for Web-based academic programs, based on the strength of the relationships revealed by the SPSS output, could be formulated and utilized as an enrollment management tool.

This study initially proposed a numeric scale of 0 to 20. That is, a college online program could be assigned a value of 0 to 20, with 20 being the ideal online program rating from the standpoint of expected enrollment. For example, it was surmised that an institution with an aesthetically pleasing name and website,

a relatively low tuition price, and a relatively long-standing distance learning program would receive a high OCEAN calculation for its proposed or new online academic program. However, since only slightly more than 10% of the variance in online population groups could be explained by any combination of the variables, this part of the study appropriately did not go forward.

Chapter IV

RESULTS

Name Influence

In this part of the analysis, the dependent variable, online student enrollment, was regressed upon the independent variable, the dummy-coded name of the institution. The SPSS output suggested no statistically significant results (see Table 1, Run 1). However, for the next run, online student enrollment was grouped and coded as follows:

1. 0-100
2. 101-500
3. 501-1,000
4. 1,001-5,000
5. 5,001-10,000
6. >10,000

This grouped and dummy-coded dependent variable was then regressed upon the independent variable, the dummy-coded name of the institution. The SPSS output suggested a positive, significant relationship (see Table 1, Run 6). The *F*

value was 8.119. The significance (*p*) was less than .005. Degrees of freedom were 1, 324.

The standardized coefficients implied a positive impact. Beta was positive at .156. The *t* value was 2.849. These values suggested that the higher the value of the institution's dummy code, the larger the group of enrolled online students. The value of R Square was .024, suggesting that 2.4% of the variance in enrollment population groups can be explained or predicted by the institution's name. The standard error of the estimate was 1.140.

This regression run suggests that institution name, by itself, is a modest but worthy predictor of a distance learning institution's total student enrollment. The data refute the first null hypothesis that components of a distance learning institution's name have no statistically significant influence on the size of the institution's student enrollment.

In the next run, the sample set was changed to include undergraduate institutions that: (a) required the SAT or ACT for admission, (b) reported a 25th percentile SAT score (old scoring system) of higher than 800 or a 25th percentile ACT score of higher than 16 (giving it a *U.S. News* rating of *less selective* or better), and (c) had an overall (traditional and nontraditional) freshman student retention rate of higher than 60%.

Table 1

Simple Linear Regression Models: Name, Undergraduate Tuition Price, Graduate Tuition Price, Age, EPI vs. Online Student Enrollment

Run	Dep Variable	Indep Variable	R Squ	Std Err/Est	dF	F	Beta	*t*	*P*
1	Enrollment (Ungrouped)	Name Group	0.002	3371.570	1,324	0.695	0.046	0.834	0.405
2	Enrollment (Ungrouped)	Undergrad Tuition	0.006	3649.712	1,256	1.525	-0.077	-1.235	0.218
3	Enrollment (Ungrouped)	Graduate Tuition	0.008	3243.000	1,182	1.446	-0.089	-1.202	0.231
4	**Enrollment (Ungrouped)**	**Age**	**0.024**	**3333.716**	**1,324**	**8.111**	**0.156**	**2.848**	**0.005**
5	Enrollment (Ungrouped)	EPI	0.000	3375.097	1,324	0.017	-0.007	-0.131	0.896
6	**Enrollment (Grouped)**	**Name Group**	**0.024**	**1.140**	**1,324**	**8.119**	**0.156**	**2.849**	**0.005**
7	**Enrollment (Grouped)**	**Undergrad Tuition**	**0.063**	**1.033**	**1,256**	**17.170**	**-0.251**	**-4.144**	**0.000**
8	**Enrollment (Grouped)**	**Graduate Tuition**	**0.051**	**1.175**	**1,182**	**9.755**	**-0.226**	**-3.123**	**0.002**
9	**Enrollment (Grouped)**	**Age**	**0.040**	**1.131**	**1,324**	**13.466**	**0.200**	**3.670**	**0.000**
10	Enrollment (Grouped)	EPI	0.000	1.154	1,324	0.000	-0.001	-0.015	0.988
11	Enrollment Grp (With Controls)	Name Group	0.030	1.005	1,118	3.688	0.174	1.921	0.057
12	Enrollment Grp (With Controls)	Undergrad Tuition	0.048	0.996	1,118	5.930	-0.219	-2.435	0.160
13	Enrollment Grp (With Controls)	Age	0.000	1.021	1,118	0.007	-0.008	-0.084	0.934
14	Enrollment Grp (With Controls)	EPI	0.000	1.021	1,118	0.022	0.014	0.147	0.883

The SPSS output suggested no statistically significant results (see Table 1, Run 11). The data support the fifth null hypothesis that there is no influence when controlled for the institution's entry SAT/ACT score and first-year retention.

Tuition Price Influence

This part of the analysis considered the influence of undergraduate tuition price on total online student enrollment and the influence of graduate tuition price on total online student enrollment. First, undergraduate tuition price: the dependent variable, online student enrollment, was regressed upon the independent variable, undergraduate tuition price. The SPSS output suggested no statistically significant results (see Table 1, Run 2).

However, as with the name analysis, online student enrollment was then grouped and coded, using the same groups as previously mentioned. The grouped and dummy-coded dependent variable was then regressed upon the independent variable, undergraduate per-credit tuition price. The SPSS output suggested a negative, significant relationship (see Table 1, Run 7). The *F* value was 17.170. The significance (*p*) was less than .000. Degrees of freedom were 1, 256.

The standardized coefficients implied a negative impact. Beta was negative at -.251. The *t* value was -4.144. These values suggested that the lower the per-credit price of undergraduate tuition, the larger the group of enrolled online students. The value of R Square was .063, suggesting that more than 6%

of the variance in enrollment population groups can be explained or predicted by undergraduate tuition. The standard error of the estimate was 1.033. This regression run suggests that undergraduate tuition price, by itself, is a modest but worthy predictor of a distance learning institution's total student enrollment.

Much the same results occurred when enrollment group was regressed upon the independent variable, graduate per-credit tuition price. The SPSS output suggested a negative, significant relationship (see Table 1, Run 8). The results suggested that more than 5% of the variance in enrollment population groups can be explained or predicted by graduation tuition. The data for both undergraduate and graduate tuition price refute the second null hypothesis that an institution's tuition prices have no statistically significant influence on the size of its student enrollment.

As with the name/enrollment analyses, another set of runs was conducted, controlling for SAT/ACT score and first-year retention (undergraduate only). Again, the SPSS output suggested no statistically significant results (see Table 1, Run 12). The data support the fifth null hypothesis that there is no influence when controlled for the institution's entry SAT/ACT score and first-year retention.

Program Age Influence

The influence of distance learning program age on online student enrollment is especially noteworthy in that the SPSS output was statistically significant for both ungrouped and grouped enrollment. First, the dependent variable, online student enrollment, was regressed upon the independent

variable, ungrouped enrollment (i.e., the raw, online student enrollment number). The SPSS output suggested a positive significant relationship (see Table 1, Run 4). The *F* value was 8.111. The significance (*p*) was less than .005. Degrees of freedom were 1, 324.

The standardized coefficients implied a positive impact. Beta was positive at .156. The *t* value was 2.848. These values suggested that the older the distance learning program (in some cases, going back to the days of correspondence courses), the larger the raw number of online students. The value of R Square was .024, suggesting that 2.4% of the variance in online student enrollment can be explained or predicted by program age. The standard error of the estimate was 3333.716.

The influence became more significant and accounted for a greater percentage of the variance when enrollment was grouped and dummy-coded (see Table 1, Run 9). The *F* value was 13.466. The significance (*p*) was less than .000. Degrees of freedom were 1, 324. The standardized coefficients, again, implied a positive impact. Beta was positive at .200. The *t* value was 3.670. These values suggested that the older the distance learning program, the larger the group of online enrolled students. The value of R Square was .040, suggesting that 4% of the variance in online student enrollment could be explained or predicted by program age. The standard error of the estimate was 1.131. The data suggest that program age, by itself, is a modest but worthy predictor of a distance learning institution's student enrollment. The data refute

the third null hypothesis that the age of an institution's distance learning program has no statistically significant influence on the institution's student enrollment.

However, as with the other analyses, the influence was not evident when the analysis was controlled for SAT/ACT score and first-year retention. Once again, the SPSS output suggested no statistically significant results (see Table 1, Run 13). The data support the fifth null hypothesis that there is no influence when controlled for the institution's entry SAT/ACT score and first-year retention.

Website Form Influence

The dependent variable, online student enrollment, was regressed upon the independent variable, the institution website's Enrollment Power Index (EPI), as calculated by the National Research Center for College & University Admissions. The SPSS output suggested no statistically significant results (see Table 1, Run 5).

As with the previous analyses, online student enrollment was then grouped and coded, using the same groups. The grouped and dummy-coded dependent variable was then regressed upon the independent variable, EPI. Again, SPSS output suggested no statistically significant results (see Table 1, Run 10). The data support the fourth null hypothesis that the characteristics of an institution's website have no statistically significant influence on the institution's student enrollment.

As with the other analyses, the model was then controlled for SAT/ACT score and first-year retention. Once again, the SPSS output suggested no

statistically significant results (see Table 1, Run 14). The data support the fifth null hypothesis that there is no influence when controlled for the institution's entry SAT/ACT score and first-year retention.

At this point, it should be emphasized that EPI was the only independent variable to show no influence on online student enrollment in any part of this study. Therefore, its SPSS results were the only statistics to support the corresponding null hypothesis. These results are reviewed further in the Discussion section.

Influence of Combined Variables

The multiple regression part of this analysis sought to determine if the best results of the simple regression runs, namely, grouped online student enrollment regressed upon each variable except EPI, could be improved when the variables were considered together for their impact on enrollment and on each other. In a multiple regression considering all the factors but EPI, the dependent variable, grouped online student enrollment, was regressed upon the independent variables, institution name (dummy-coded), undergraduate per-credit tuition price, and age in years of the institution's distance learning program. The SPSS output suggested a significant predictive model and a significant multiple regression equation (see Table 2, Run 1). The *F* value was 8.330. The degrees of freedom were 3, 254. The significance (*p*) was less than .000.

Table 2

Multiple Linear Regression Models: Name, Undergraduate Tuition Price, Graduate Tuition Price, Age vs. Online Student Enrollment

Run	Dep Variable	R Squ	dF	F	ANOVA *p*<	Ind Variable	Beta	*T*	*p*<
1	**Enrollment (Grouped)**	**0.090**	**3,254**	**8.330**	**0.000**	**Name Group**	**0.148**	**2.435**	**0.016**
						Undergrad Tuit	**-0.215**	**-3.493**	**0.001**
						Age	**0.073**	**1.198**	**0.232**
2	Enrollment Grp (With Controls)	0.063	3,116	2.616	0.054	Name Group	0.124	1.325	0.188
						Undergrad Tuit	-0.190	-2.020	0.046
						Age	-0.034	-0.375	0.708
3	**Enrollment (Grouped)**	**0.103**	**3,180**	**6.874**	**0.000**	**Name Group**	**0.137**	**1.892**	**0.060**
						Graduate Tuit	**-0.187**	**-2.588**	**0.010**
						Age	**0.171**	**2.405**	**0.017**
4	Enrollment (Grouped)	0.084	2,254	11.757	0.000	Name Group	0.149	2.451	0.015
						Undergrad Tuit	-0.227	-3.741	0.000
5	Enrollment (Grouped)	0.074	2,181	7.228	0.000	Name Group	0.155	2.124	0.035
						Graduate Tuit	-0.194	-2.648	0.009
6	Enrollment (Grouped)	0.061	2,323	10.559	0.000	Name Group	0.147	2.718	0.007
						Age	0.192	3.564	0.000
7	Enrollment (Grouped)	0.068	2,255	9.350	0.000	Undergrad Tuit	-0.238	-3.878	0.000
						Age	0.075	1.223	0.222
8	Enrollment (Grouped)	0.085	2,181	8.403	0.000	Graduate Tuit	-0.214	-3.008	0.003
						Age	0.185	2.597	0.010

The standardized coefficients suggested a positive impact of name group (Beta was .148, *t* value was 2.435, significance was less than .016) and a negative impact of undergraduate tuition price (Beta was -.215, *t* value was -3.493, significance was less than .001). These values suggested the higher the value of institution's name dummy code, the larger the total enrollment group, and the lower the undergraduate per-credit tuition price, the larger the total enrollment group. In this regression equation, age was outside the parameter of significance ($p < .232$, Beta = 1.198, $t = .232$) but contributed to the predictive model by increasing the value of R Square (see Table 2, Run 4).

The R Square value was 0.090, suggesting that 9% of the variance in enrollment group size can be explained or predicted by the three independent variables. The Beta values of name group (.148) and undergraduate tuition price (-.215) suggested that, in this model, undergraduate tuition price is 45% more predictive than is name group. In sum, this multiple regression model is a modest but satisfactory one.

This model was then controlled for SAT/ACT score and first-year retention. The SPSS output suggested no statistically significant results (see Table 1, Run 2). The data support the fifth null hypothesis that there is no influence when controlled for the institution's entry SAT/ACT score and first-year retention.

One hierarchical linear model was able to account for over 10% in the variance of grouped student enrollment. In a multiple regression considering all

the factors but EPI, the dependent variable, grouped online student enrollment, was regressed upon the independent variables, institution name (dummy-coded), graduate per-credit tuition price, and age in years of the institution's distance learning program. The SPSS output suggested a significant predictive model and a significant multiple regression equation (see Table 2, Run 3). The *F* value was 6.874. The degrees of freedom were 3, 180. The significance (*p*) was less than .000.

The standardized coefficients suggested a positive impact of age (Beta was 0.171, *t* value was 2.405, significance was less than .017) and a negative impact of graduate per-credit tuition price (Beta was -0.187, *t* value was -2.588, significance was less than 0.010). These values suggested that the older an institution's distance learning program, the larger the total enrollment group, and the lower the graduate per-credit tuition price, the larger the total enrollment group. In this regression equation, institution name (dummy-coded) was just outside the parameter of significance ($p < .060$, Beta = 0.137, $t = 1.892$) but contributed to the predictive model by increasing the value of R Square (see Table 2, Run 5).

The R Square value was 0.103, suggesting that over 10% of the variance in enrollment group size can be explained or predicted by the three independent variables. The Beta values of graduate tuition (-0.187) and program age (0.171) suggested that they are nearly equally predictive. In sum, this multiple regression model was a modest but satisfactory one.

Five more runs were conducted, accounting for all combinations of any two variables to see if the sizes of R Square were increased over their values in Runs 1 and 3. Although all the runs produced ANOVA significances less than .000, none of their R Square values approached those in Runs 1 and 3. Therefore, combining all three independent variables (name, tuition price, and program age) accounted for the most variance in enrollment group size.

Chapter V

DISCUSSION

The First Research Question: Name

The first research question considers the influence of a distance learning institution's name on its student enrollment. Following the proposition of Bear Stearns analyst Jennifer Childe (as cited in Pethokoukis, 2002), this study dummy-coded the names so that traditional-sounding designations with geographic locations and the word *university* received the highest code of 6 and institutions with imprecise names including *virtual* or *open* received the lowest code of 1. The SPSS output suggested a positive, significant relationship where the higher the value of the institution's dummy code, the larger the group of enrolled online students. This relationship indicated that 2.4% of the variance in enrollment population groups can be explained by the dummy-coded name value, suggesting that institution name is a modest but worthy predictor of enrollment.

Admittedly, there might be a bit of blatancy in this finding. That is, a university, by its definition, has graduate programs and, therefore, more academic programs in general than does an undergraduate institution or college. So couldn't this relationship be explained simply by the academic offerings of a university versus those of a college, rather than the way a name looks on the

Web? Perhaps, perhaps not. The dummy-coding also included geography, which has no real bearing on the number or size of academic programs. Also, the method for coding gave a low number to schools and institutes of technology, which traditionally have large program listings, campuses, and student bodies. Finally, when physical limitations are removed, the number of academic programs might be inconsequential. A successful distance learning college might have only five academic programs but with each hosting thousands of students.

Clearly others are already convinced of the name-enrollment relationship: over one hundred, less-selective schools went from *college* to *university* in the 1990s, each with the hope of improving its brand and its enrollment (Morphew, 2000). The results of this study do not suggest that their change meant an enrollment bonanza—in fact, this was not a study of cause. But this study does suggest that having a geographic location and the word *university* in one's name holds a modest impact on enrollment in relation to that of other academic institutions.

The Second Research Question: Tuition Price

The second research question considers the influence of a distance learning program's tuition price on its student enrollment. This study considered the impact of the mode, per-credit tuition price on grouped, online student enrollment. Hierarchical linear modeling was set up for both undergraduate and graduate tuition prices but could only consider the influence of each on total enrollment, as Peterson's data did not separate undergraduate and graduate

students. This study sought to determine if non-Tier One online schooling was price elastic—perhaps dramatically so by the electronic introduction of a pure-competition-like backdrop.

The SPSS output suggested a negative, significant relationship, where the lower the tuition price (undergraduate or graduate), the larger the group of enrolled online students. This relationship indicated that 6.3% of the variance in enrollment population groups can be explained by undergraduate tuition price, and 5.1% of the variance in enrollment population groups can be explained by graduate tuition price. These results suggest that tuition price is a modest but worthy predictor of enrollment. The relationships certainly support the writings of Leslie and Brinkman (1987) and Heller (1997), which proposed that tuition prices were negatively related to demand for education—at least when the most selective schools are taken out of the picture.

If online enrollment data, at some point, become available for undergraduate and graduate programs, these relationships may prove to be stronger. The same might occur for enrollment in specific types of majors or degree programs. However, considering the proprietary and guarded nature of this information, such discovery might prove elusive.

The Third Research Question: Program Age

The third research question considers the influence of a distance learning program's age on its student enrollment. This part of the study, in essence, asked if an institution that muscled its way through the shake-out at the turn of

millennium (Carr, 2001) might have seen the impact of this longevity. This author was caught off guard by the number of institutions reporting a distance learning program dating back to World War II. The fact that program age showed the strongest influence of any independent variable when enrollment was ungrouped suggests that successful experience in, say, correspondence courses might carry over into Internet marketing success. (Not surprising, when one contemplates the online enrollment achievements of correspondence pioneers like Excelsior College and the University of Maryland.) Using raw enrollments in an SPSS simple linear regression model, the value of R Square, at .024, suggests that 2.4% of the variance in online student enrollment can be explained or predicted by program age.

With enrollment grouped and dummy-coded, the value of R Square was .040, suggesting that 4% of the variance in online student enrollment group can be explained or predicted by program age. With both enrollment ungrouped and grouped, the SPSS output implied a positive impact, indicating that the older the distance learning program, the larger the group of online enrolled students. This data suggest that program age is a modest but worthy predictor of online enrollment.

These results pose interesting, unanswered questions. Did the schools that pulled out of distance learning during its crash several years ago pull out too soon? Is some mode of success possible if an institution simply stays the course? Will success on today's online platforms carry over to the next technical breakthroughs? There is the possibility that these results can be explained more

basically: perhaps good work practices, business practices, and marketing practices carry from genre to genre and help, over time, to build a growing population of students and alumni. Perhaps it's true that nothing succeeds like success.

The Fourth Research Question: Website Form

The fourth research question considers the influence of certain characteristics of a distance learning institution's website on its student enrollment. This part of the study sought to discover if college website utility (LeFauve, 2001; Poock & Lefond, 2001) and website aesthetics in general (Fogg et al., 2001a, 2001b; Subramony, 2002) impacted enrollment. It began with the EPI, an attempt at quantifying such utility and aesthetics.

Simple regression runs with website attribute data, as measured by NRCCUA, produced no statistically significant results throughout the study. Possible reasons? The scores were heavily concentrated between 60 and 70, with 40% of the sample schools having Enrollment Power Index scores in the 60s. Only 4 out of 327 schools had scored an 80 or better. In an attempt to spread out the values, this study then numerically ranked the schools by EPI in ascending order. Grouped online student enrollment was then regressed upon these numerical ranks (1 to 327). Again, there were no significant results.

The tight cluster of scores perhaps hid an influence that otherwise might have made itself known. Such a score bunching might be difficult to overcome: it is possible that schools of similar venues and objectives simply carry similar EPI

scores. It is also possible that—to the extent that EPI is an indicator of what a website is missing—many of these types of schools have similar shortcomings.

The literature had suggested impact, as had the methodology and scoring breakdown for the EPI. For example, NRCCUA had numerically evaluated the schools based on the prominence of their admissions Web links, their ease of navigation, and the interactivity and animation on their admission pages. It included assessments of campus photos and student activity blurbs. EPI scores included points for the time it had taken students to view, consider, and complete an enrollment application and pay an admissions fee online. It included points for the ability to contact or live-online chat with admissions representatives. As mentioned earlier in this paper, the EPI process seemed an admirable attempt at quantifying what makes prospective students tick as they respond to website aesthetics and utility. In any event, the EPI/enrollment relationship was the only part of the study where the results were statistically insignificant and did not support the literature.

The Fifth Research Question: Combined Variables

The fifth research question considers how combined variables impact student enrollment and each other. It considers the possibility that a model or formula for anticipating online student enrollment might be constructed. An underlying question is, within the many, many college choice variables (Cabrera & La Nasa, 2000), how much of the variance in enrollment among distance learning institutions can be explained by only four of them?

Based on the simple regression results, EPI is not included in the results for this part of study. For the record, a series of step-entry, multiple regression models were conducted following the included results, with EPI entered as the fourth independent variable in the final step. None of these runs resulted in improved significance or an increased R Square. Subsequently, the results in this study (see Table 2) cover the various combinations of institution name, tuition price, and program age.

With enrollment regressed upon name, undergraduate tuition, and age, the SPSS output indicated a significant predictive model and a significant multiple regression equation. The results suggested that the higher the name's dummy-code number, the lower the institution's undergraduate per-credit tuition, and the older the institution's distance learning program, the larger the total enrollment group. A similar run using graduate per-credit tuition price generated similar results. Interestingly, in both sets of runs, one independent variable became insignificant but still increased the value of R Square: age (very surprising) in the undergraduate tuition run and institution name (just outside the accepted limit of significance) in the graduate tuition run.

The noteworthy result of these runs is that, in light of dozens of enmeshed college choice variables, either 9% (undergraduate tuition) or 10% (graduate tuition) of the variance in grouped online student enrollment could be predicted by three, relatively uncomplicated factors: name, price, and program age. A few other runs considered the possibility that two variables could result in a higher R

Square than did three. In all cases, the highest R Square values were in analyses that included all three independent variables.

As for the construction of a model or formula for projecting online student enrollment, the study simply ended here. Even in a social science experiment, putting together some sort of mathematical, predictive model when 90% of variance was explained from impact outside the model would be difficult to defend at best, irresponsible at worst. It is worth emphasizing that point here in the discussion: in a study that was meant to quantify otherwise unquantifiable aspects of online college desirability and to use these quantifications to predict sizeable portions of variance in student online enrollment, this study fell short. Blissful is the enrollment manager or college marketer who sees that 90% of enrollment dissimilarity is not so easily explained simply by brand, price, and experience.

Controlling for Student Quality

Student quality was *the* nuisance variable in this study, and what a nuisance it was. When changing the sample set to include only those undergraduate institutions with SAT scores higher than 800 or ACT scores higher than 16 (25^{th} percentile), as well as freshman student retention rates higher than 60%, every regression model in this study became insignificant. (Since SAT/ACT scores are generally associated with undergraduate admission, only SPSS analyses involving undergraduate tuition prices were run.)

In compiling the above data, this study discovered that the average online student enrollment at institutions with undergraduate programs not requiring the SAT or ACT was 2,747 students. This number was about 41% higher than 1,952 students, the average online student enrollment at schools with undergraduate programs requiring the SAT or ACT. This finding begs the question: rather than controlling for it as a nuisance variable, shouldn't SAT/ACT requirement have been included as an independent variable?

Considering the methodology of this study, the answer is probably no. Going back to an earlier analogy involving farm produce, one must ask, *Exactly what type of apples are we selling?* Early on, this study set a delimiter of only including regionally accredited schools. If all online programs—non-accredited or non-traditionally accredited—had been included, might the impact of the investigated independent variables have been stronger? Perhaps. But to what end? It seems probable that most institutions would like to know how enrollment variance is explained amongst other, reputable institutions. In other words: *How do my Granny Smith apples stack up against other Granny Smith apples?* Even if SAT/ACT requirements or freshman retention were proven to have significant impact on enrollment (and it seems likely they would), it is doubtful that many institutions would act, in knee-jerk fashion, to water down their admission requirements or embrace a faster revolving door of students that didn't stay around to complete their degrees.

Chapter VI

SUMMARY AND CONCLUSIONS

Summary

Conducting a college choice analysis involving distance learning institutions, this study examined the potential, commodity-like nature of higher education in perhaps a not-so-distant, technology-hyperdriven future. In this study, the Web was considered not only as a platform for marketing but also as the instant, barrier-free method of access, magnifying the competitive aspects of college choice and leveling a historically uneven playing field. This easy purchase and delivery of distance learning hinted at symptoms of the economist's definition of *pure competition*, a theoretical state where many sellers exist, where the product is standardized, where there is little brand identity or customer loyalty, where no single entity has significant control over pricing, and where firms can enter and exit the market without significant legal or financial obstacles. In such a setting, it was thought that reaction to an institution's name, price, and website form would be highly sensitive.

Method. Data were converted into Statistical Package for the Social Sciences (SPSS) software files. The distance learning institutions were dummy-coded by name group (institutions with the word *college* in them, etc.). Tuition data and program ages were acquired from the *Peterson's Guide to Online*

Learning 2006 website. Captology (i.e., website persuasiveness) attribute data were acquired from the National Research Center for College & University Admissions (NRCCUA) 2004 Enrollment Power Index ® (EPI) list. Student quality data—namely, entry SAT/ACT score (25th percentile) and freshman retention rate—were acquired from the *U.S. News & World Report Ultimate College Guide 2006* and its related website. Distance learning student enrollment numbers were taken from the *Peterson's Guide* website, as reported to *Peterson's* by the institutions. In some cases, enrollment data were organized into six population groups for analysis. Data from all three secondary sources had been initially collected in the vicinity of summer/fall 2004. SPSS software runs of these files were used to consider the influence of institution name, tuition price, distance learning program age, and captology attributes on online student enrollment (as well as on each other), controlling in some cases for student quality.

Results. Combined in a statistically significant, multiple linear regression analysis, institution name, graduate tuition price, and distance learning program age accounted for more than 10% of the variance in the size of total online student enrollment groups. In another statistically significant analysis, institution name, *undergraduate* tuition price, and distance learning program age accounted for 9% of the variance in the size of total online student enrollment groups. In statistically significant, simple linear regression analyses, institution name, graduate tuition, undergraduate tuition, and program age each accounted for between more than 2% and more than 6% of the variance in the size of total online student enrollment groups.

Website attribute values, as measured by NRCCUA, had no statistically significant impact on the size of online student enrollment in any part of the analyses. However, the scores were clustered tightly in the 60s, with 40% of all EPI ratings falling between 60.0 and 70.0, possibly making for difficult regression analysis. An attempt to better distribute these ratings by regressing enrollment group upon EPI ranking (as opposed to EPI score) still produced insignificant results.

When controlled for SAT/ACT score and overall (traditional and nontraditional) freshman retention, institution name, undergraduate tuition, and program age showed no statistically significant influence, either individually or collectively. However, an enrollment contrast became evident. The average online student enrollment at institutions with undergraduate programs not requiring the SAT or ACT, at 2,747 students, was nearly 41% higher than the average online student enrollment at schools with undergraduate programs requiring the SAT or ACT, at 1,952 students.

Conclusions and Comments

This study concludes that, either individually or combined, institution name, tuition price (undergraduate or graduate), and distance learning program age serve as modest but worthy predictors of online student enrollment. The individual results regarding the impact of name on enrollment affirm the extant literature on the topic, particularly that of Kirp (2004), who argued that name (or, perhaps, *brand* name) garnered worthy attention as an admissions tool. As this

study's results regarding name and enrollment are significant, they support Kirp's investigative writings. The results of this study grandly affirm the research of Morphew (2000), because this study's dummy coding weighed the word *university* more heavily than it did the word *college*. It also supports the musings of Bear Stearns analyst Jennifer Childe (as cited in Pethokoukis, 2000), who argued that online institution names carried heavy sway on enrollment. It is possible, to an extent, that these results also support Grunig (1997), who argued that institutional reputation was related to its size. If a geographic location and the word *university*, combined within a school's name, imply a larger institution, then these results augment Grunig's study.

The individual results considering the impact of tuition price on enrollment support the existing literature on the price elasticity of demand for higher education. Specifically, the significant negative relationship of price to enrollment is consistent with the research of Leslie and Brinkman (1987), Heller (1997), and St. John (1990). If total enrollment is an indicator of applications, then these findings also support the research of Kane (1996) regarding price and willingness to apply and Hu and Hossler (2000) regarding price and willingness to pay.

The individual results regarding the impact of time (and, therefore, experience) in the distance learning marketplace on enrollment affirm the observations of Oslington (2004), in that the results suggest that an older program is, perhaps, more acclimated and able to push through the rapid, volatile changes in the online learning market. It also supports the thoughts of DiSalvio (2003), who offered that an institution's foray into online learning helped the

institution maintain its long-standing dominance in all types of education markets. In sum, this study is consistent with literature that suggests experience and/or the perception of experience have impact on enrollment.

The part of this study that considers the impact of website form on enrollment essentially refutes the existing literature. As there are no significant results in this part of the analysis, the study refutes the research of Poock and Lefond (2001) and Christiansen et al. (2003), who suggested that positive relationships existed between college website design and enrollment. The results also refute the research of Fogg et al. (2001a, 2001b) and Subramony (2002), whose research argued a positive impact of website utility and aesthetics on consumer response. Considering the effort and energy put into most college websites, and considering the impact of the Web on today's consumer, it is difficult to embrace these findings outright. As suggested earlier, there is a possibility that the NRCCUA measuring stick kept like-mission institutions too closely packed in its scoring. On the other hand, the individual Web attributes evaluated by NRCCUA are quite similar to the items examined in the above-mentioned research. And so, it is equally difficult to dismiss the Web-related findings in this study.

In spite of their significance, this study suggests that the relatively small, combined magnitudes of impact do not justify creating an evaluation index or predictive formula, as initially suggested in this study's proposal. Will institutions still have to enter the distance learning fray with marketing blinders on, hoping to survive financially long enough to gather the experience necessary to blossom?

The answer, to an extent, seems to be yes. After all, this study suggests that program longevity has stronger impact on enrollment than that of any other examined variable.

On the other hand, with further study, some practical models for enrollment success might be possible. Consider this: without knowing anything about the make-up of enrollment (graduate, undergraduate, certificate, continuing education, just starting back), and without considering demographics, majors, program types, class sizes, institution types, or instruction types, this study still was able to explain 10% of the variance in online student enrollment groups. As one colleague suggested when looking at these results, "If I'm an enrollment manager, I want to know that."

From the *glass is ninety percent empty* perspective, the good news for higher education professionals (especially those who detest the notion of education as a product) is that, within the distance learning marketplace, almost 90% of the variance in online student enrollment can be explained by variables other than brand name, price, and product age. Perhaps factors such as the relevance of academic programs, longstanding reputation, parental encouragement, alumni satisfaction and pride, academic inspiration, religious goals, and the indispensable quest for knowledge all still count for something – lots! – when one is selecting a distance learning institution. To that extent, perhaps higher education, at this writing, is not as far into the realm of commodity marketing or pure competition as one might have thought. Minor controls for

student quality, while possibly reducing enrollment, appear to take education out of the realm of commodification altogether.

Implications for Enrollment Managers

If about 10% of the variance in online student enrollment groups can be explained by name, price, and longevity without even considering demographics or program types, institution enrollment managers might want to consider how this information is presented to prospective students. Perhaps institution name, as presented on school websites and on college information Web clearinghouses (such as Peterson's), should be transformed to include those attributes where this study suggests impact. Similarly, perhaps price should be presented competitively. This study was not designed to determine, and it does not speculate, whether program time has impact due to experience in the marketplace or the perception of experience. Either way, enrollment managers might consider emphasizing long-term, distance-learning experience or de-emphasizing new entry into the fray.

On the website front, it is unlikely that any institution would scale back its Internet marketing efforts based on the findings in this study, particularly when the literature, the actions of peer institutions, and e-commerce in general suggest otherwise. However, this study offers the possibility that perhaps the impact of college websites *is* currently over-emphasized, and if nothing else, perhaps enrollment management offices should play devil's advocate to the argument that a website needs an unending assortment of adornments. Last year, *The*

Chronicle of Higher Education—chiming in on the topic—suggested that universities and colleges, in response to concerns about Web marketing, might be headed down the wrong road. The article offered that a potential overreaction, such as a plethora of "college Web site bells and whistles, like blogs [student personal, electronic journals made available to the public for recruitment purposes] and podcasts [live Web broadcasts from the college]" might take away from the initial intent of soliciting inquiries and online applications (Carnevale, 2005, A25). Judy Hingle (*Colloquy*, 2005), the director for professional development at the National Association for College Admission Counseling enterprise, concurred. "There are also concems," she wrote, "of appearing so commercial [on a college website] that the mission of education, of admitting students who will be successful, becomes lost in a flash of glitz. By their very nature, commercial products are more focused on increasing user traffic and exposure for advertisers" (*Colloquy*, 2005). The insignificant results of this portion of the study are consistent with these thoughts.

A final implication of this study for enrollment managers is, perhaps, the validation of enrollment management itself. The significant results of this study, modest as they are, clearly suggest that college choice factors can be dissected and analyzed for impact on enrollment. If traditional colleges and universities are to remain solvent as the world becomes more virtual, discovering what makes for successful online enrollment strikes this author as reasonable and worthwhile. Furthermore, the notion that enrollment management *can* make a difference allows the institution to determine where on the spectrum it wants to place

itself—closer to the one extreme of academic emphasis and marketing moderation or to the other extreme of raw commercialism—rather than determining if it wants to engage in such a strategy at all. Don Hossler (2004), vice chancellor for enrollment services at Indiana University at Bloomington and the editor of *Strategic Management Review*, wrote that "it is unlikely that higher education can put the market and enrollment-management models back into the genie's bottle. Enrollment management is simply a tool. Organizations need such tools in order to administer their affairs" (p. B3) – and in order to stay competitive in an academic world no longer limited to traditional, non-profit colleges and universities. In sum, the results of this study suggest that institutions are right in their pursuit to determine what makes the prospective online student tick. Selecting an online college program based, in noteworthy part, on its name, price, and online presence might be a disparaged choice process, but it certainly cannot be an ignored choice process.

Implications for Policymakers

Clyde Prestowitz (2005), head of the Washington think tank Economic Strategy Institute, suggested that, when it comes to worldwide labor skills and costs advantage, the United States is perhaps competitively positioned in only two areas: technology and universities. If that is so, then the U.S. would be wise to maintain its competitive edge in these two sectors. To the extent that the results of this study imply at least *some* commodifying of education, or perhaps the start of the commodifying of education, policymakers on federal, state, and

local levels might want to ask themselves if this condition is good for the international reputation and competitiveness of U.S. higher education. That is, should policy be brought about that promotes or stems a commodity-like transformation of higher education?

Education's becoming commodity-like is not a novel concept. In their study on prospective students' willingness to pay for tuition, Hu and Hossler (2000) wrote, "Public and private universities are attracting different types of students in terms of background characteristics and subjective price expectations. This type of market segmentation in postsecondary education is exactly like the consumers' purchase behaviors in the commodity market" (p. 697). Again, is this condition good or bad for U.S. excellence in higher education? At this writing, federal, state, and local policymakers disagree. For example, the federal government recently opened up a full range of federal, student-aid dollars to for-profit, online institutions. At roughly the same time, the State of New York placed a moratorium on classroom-based, for-profit college programs. And on the local level, many community colleges throughout the U.S. continued aggressively marketing to prospective international students due to the off-budget tuition dollars these students brought with them.

The University of Michigan's Richard Krachenberg (1972) suggested over thirty years ago that, if anything, colleges and universities needed to *embrace* the workings of a free market and the tenets of aggressive selling in order to survive. "A major need, therefore," he wrote, "is to give universities a deeper appreciation for the value and spirit of marketing and to encourage them to make marketing a

more formal and ongoing part of the administrative activities" (p. 370). Don Hossler (2004) recently agreed, but only to a point. He suggested that perhaps the time had come for colleges and universities to establish agreed-upon rules for enrollment management. "My point," he wrote, "is not to debate such strategies here, but to call for a broad conversation about them....At the moment, neither organizations of admissions professionals nor their member institutions seem able to craft common recruitment practices that might, as in the past, provide norms that would be good for students and good for institutions" (p. B3). Hossler said that such conferences would be similar to those held in the early-to-mid 1900s by the College Board that set common admissions practices, with the intent of reeling in the unbridled marketing. Again, this study suggests that policymakers should determine if raw, goods-and-services competition within higher education is good for their nation, their state, and their community.

Implications for Future Research

Areas of further research related to this study might include investigating the impact of these variables on only online undergraduate student enrollment or online graduate student enrollment, if these numbers were to become available. Other areas might include specific academic fields of study or majors; non-profit vs. for-profit institutions; and standardized testing admission requirements vs. no standardized testing admission requirements. Further study might take one component of EPI where the numerical ratings are more evenly distributed. An example might involve the impact of website home page attributes, especially

those directly connected to obtaining an application, on total online student enrollment. Another example might involve information for prospective students on the Web page for each academic department.

What might future researchers do better? They could elect from the outset to include in their sample sets the prominent (or, at least, the well-advertised) online institutions. The starting point for this study was NRCCUA's list of EPI-rated institutions, on the premise that, since EPI was an independent variable, each institution needed to have one. Furthermore, the list was seemingly exhaustive at nearly 3,000 institutions. However, since some colleges and universities are nontraditional-student-only (outside of NRCCUA's mission), and since not all college websites fit NRCCUA's parameters for examination, a small handful of prominent online institutions had not been evaluated by NRCCUA and, therefore, were not included in the sample set. Once the EPI-enrollment relationship was shown to be insignificant, it became apparent that these institutions had been omitted needlessly. A future researcher studying only the impact of name, price, and/or longevity on online student enrollment should consider adding these prominent institutions into the sample set. One possible exception: University of Phoenix Online, whose 187,000-strong online enrollment at this writing is, indeed, an outlier. Of course, from an enrollment management perspective, a qualitative study examining the same four independent variables as they relate to Phoenix's noteworthy successes might be a worthy endeavor—were Phoenix willing to share some aspects of its strategizing not available through public literature or its Web presence.

Related to the implications for enrollment managers and policymakers mentioned above, this study might be reconsidered, in total, every 5 years, as distance learning flourishes and transforms. This repeated cross-sectional phase of the study might indicate if a commodity-like condition was slowly or rapidly taking over higher education—sort of like global warming. Breaking such a time study into demographics, if the data were to become available, would also benefit enrollment managers and policymakers alike.

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APPENDIX A

Tier One Programs Removed from the Study

A review of the literature—as well as recent tuition/application histories—suggests that Tier One schools are less tied to the competitive aspects of online schooling. And so, in the interest of economic frameworking, this study excludes sampling the *U.S. News & World Report* Tier One schools offering online degrees. These universities and colleges tend to fall outside the studies of market effects and price elasticity of demand for post-secondary education.

The following 58 online degree programs, listed alphabetically, are from the 234 institutions ranked under *national universities* and *liberal arts colleges* on *U.S. News & World Report's America's Best Colleges 2006* lists. Used with permission from *U.S. News & World Report*. The URL address for these lists is http://www.usnews.com/usnews/edu/college/rankings/rankindex_brief.php.

Auburn University
Boston University
Clemson University
Colorado State University
Columbia University
Drew University
Drexel University
Duke University
Earlham College
Florida State University
George Washington University
Georgia Institute of Technology
Indiana University, Bloomington
Iowa State University
Johns Hopkins University
Lehigh University
Marquette University
North Carolina State University, Raleigh
Northeastern University (MA)
Northwestern University (IL)
Ohio State University, Columbus
Ohio University

Pennsylvania State University, University Park
Pepperdine University
Purdue University, West Lafayette
St. Louis University
Skidmore College
Southern Methodist University
Stanford University
Stevens Institute of Technology
SUNY, Stony Brook
Syracuse University
Texas A&M University, College Station
Texas Christian University
University of Alabama
University of Arizona
University of Colorado, Boulder
University of Connecticut
University of Delaware
University of Denver
University of Florida
University of Illinois, Urbana - Champaign
University of Iowa
University of Maryland, College Park
University of Massachusetts, Amherst
University of Michigan, Ann Arbor
University of Missouri, Columbia
University of North Carolina, Chapel Hill
University of Oklahoma
University of Oregon
University of South Carolina, Columbia
University of Tennessee
University of Tulsa
University of Washington
University of Wisconsin, Madison
Virginia Tech
Washington State University
Worcester Polytechnic Institute

APPENDIX B

Enrollment Power Index ® (EPI) Methodology

The following extended excerpt was taken directly from the National Research Center for College & University Admissions (NRCCUA) Web page entitled "Enrollment Power Index ® [EPI] Criteria & Methodology." The excerpt explains in detail the methodology used by the NRCCUA in computing each institution's EPI. At this writing, the URL address for this excerpt is http://www.nrccua.org/educator/services/epi/criteria.asp.

> The original purpose of EPI research was to establish a statistically significant measure of website effectiveness based on specific functional attributes. Effectiveness was defined as a website's ability to provide tools to take a student from prospect to applicant, while leaving the student with a positive impression of the site.
>
> The EPI benchmarks were first identified by Internet and admissions marketing professionals. These measures have been refined and validated through the seven years of the Enrollment Power Index research. Since the benchmarks are non-specific to geographic area, institution size or funding source, all are rated on the same scale to provide an easy-to-use evaluation for developing your website.
>
> To identify those features with a significant impact on students perception of the site, an email was sent to over 100,000 college-

bound high school students from the NRCCUA database asking them to rate two websites on four different criteria: appeal, ease of navigation, completeness of information, and overall quality. Over 2,500 students completed evaluations on the 20 institutions randomly inserted in the emails to obtain valid samples. The overall rating was then correlated to specific criteria identified by the expert panel. The components showing a positive correlation were included in the final 2005 EPI formula.

With the final list of criteria, over 3,000 sites were evaluated by a team of college-bound students who were trained to identify the presence or absence of these specific attributes. These students each assessed over 500 sites to maximize a consistent measurement. A minimum of three student raters evaluated each site in order to ensure a fair evaluation.

Each website was scored on 28 objective criteria weighted to a total of 100 possible points. These criteria were grouped into five functional areas for scoring purposes. Additional research was conducted in order to validate the importance of these criteria and the weighting levels. A regression analysis of the correlated variables showed them to be predictive overall, but the greatest predictive effect was evident with sites that were missing at least 25

percent of the EPI points. The adjusted R-squared value for those with an EPI score of less than 75 was .85, indicating that these variables explained 85 percent of the change in these sites' overall ratings. For sites with an EPI score of 75 or greater, other factors not included in the EPI formula began to have an effect on the overall perception of quality. As 2,479 sites scored under a 75, the first priority for most institutions should be upon adding the functional features included in the EPI formula.

APPENDIX C

Collected Data on 327 Online Institutions

Data for the following 327 online degree programs, listed alphabetically, were collected in the following manner: 1) From January 13, 2006, to February 24, 2006, the names of 2,932 institutions of higher learning were entered into the *school search* for the website that accompanies *Peterson's Guide to Online Learning 2006*, with permission from Peterson's Guides Publishing; 2) *U.S. News & World Report* Tier One programs were removed (see Appendix A); 3) Schools falling under the 2005 Carnegie classification *Associate's—Public Rural Small* or *Associate's—Public Rural Medium* were removed; 4) Schools not offering undergraduate or graduate degrees *completely* (80%) online were removed; 5) Schools not accredited by one of the six regional associations were removed (Three schools listed by Peterson's and accredited only by the Accrediting Association of Bible Schools were included. Schools accredited only by the Distance Learning Accreditation Board or the Distance Education and Training Council were removed.); 6) Schools omitting their enrollment data were removed.

Of these 327 programs, 259 offered at least one online undergraduate degree, 185 offered at least one online graduate degree, and 117 offered at least one of each. 121 programs required the SAT or the ACT for admission.

Institution	City	St	Na	UTu	GTu	Age	EPI	Enroll	SAT	ACT	Ret
Academy of Art University	San Fran	CA	4	550	600	4	*	2323			
Adams State College	Alamosa	CO	3	105	125	28	*	590			
AIB College of Business	Des Moines	IA	3	245		5	*	192			
Alaska Pacific University	Anchorage	AK	6	305		7	*	30	860		67
Alcorn State University	Lorman	MS	4		193	9	*	311			
Alliant International Univ	San Diego	CA	4		410	6	*	280			
Anne Arundel C College	Arnold	MD	5	83		25	*	2594			
Antioch College	Yellow Spr	OH	5	360		18	*	238	1040		68
Arapahoe C College	Littleton	CO	5	80		21	*	1856			
Arkansas St Univ Beebe	Beebe	AR	6	75		7	*	575		17	69

Arkansas State University	State Univ	AR	6		82	7	*	119			
Arkansas Tech University	Russellville	AR	6	154	163	10	*	767		19	67
Art Institute Online	Pittsburgh	PA	1	383		6	*	1500			
Augusta State University	Augusta	GA	6	132		10	*	2300	860		65
Austin Peay State Univ	Clarksville	TN	4	201	303	10	*	3500		19	63
Azusa Pacific University	Azusa	CA	6		390	7	*	1000			
Baker College Muskegon	Muskegon	MI	5	175		8	*	15200			
Ball State University	Muncie	IN	4	180	192	22	*	2610	940		78
Becker College	Worcester	MA	3	360		3	*	100			
Bellevue C College	Bellevue	WA	5	167		26	*	2700			
Bellevue University	Bellevue	NE	6	260	295	10	*	3000			
Bemidji State University	Bemidji	MN	6	172	247	29	*	1200		20	70
Bergen C College	Paramus	NJ	5	93		32	*	1450			
Berkeley College	Wh Plains	NY	5	565		8	*	95			
Berkeley College of NYC	New York	NY	5	565		8	*	235			
Berklee College of Music	Boston	MA	5	298		4	*	1200			
Bethany College	Scotts Val	CA	3	310	360	14	*	120			
Bethune-Cookman Coll	Daytona B	FL	3	400		2	*	200	720		74
Bismarck State College	Bismarck	ND	5	160		15	*	1100			
Black Hills State Univ	Spearfish	SD	5	181	240	12	*	641			
Bloomfield College	Bloomfield	NJ	5		498	9	*	137			
Bloomsburg U of Penn	Bloomsburg	PA	6		316	23	*	125			
Boise State University	Boise	ID	6		377	26	*	2994			
Bowling Green St U Main	Bowling Gr	OH	6	450	450	8	*	1000		19	76
Brenau University	Gainesville	GA	4	402	402	8	*	338	900		70
Bristol C College	Fall River	MA	5	100		16	*	550			
Brookdale C College	Lincroft	NJ	5	92		32	*	1000			
Bryant & Stratton Online	Albany	NY	1	394		9	*	368			
Burlington County College	Pemberton	NJ	5	79		28	*	1527			
CA St U Dominquez Hills	Carson	CA	6	170	225	32	*	4000	730		64
CA St U San Bernardino	San Bern	CA	6		292	18	*	7000			
Caldwell College	Caldwell	NJ	5	458		27	*	800	810		70
California Coll Health Scie	Nat City	CA	5	350	450	28	*	4000			
California St U Northridge	Northridge	CA	6		505	8	*	250			
California St U Fullerton	Fullerton	CA	6		283	28	*	1500			
California St U Hayward	Hayward	CA	6		332	8	*	200			
California U of Penn	California	PA	6		430	2	*	100			
Campbellsville University	Cmpbllsvil	KY	6		295	7	*	202			
Capitol College	Laurel	MD	3		410	8	*	400			
Casper College	Casper	WY	5	59		20	*	972			
Cayuga County C College	Auburn	NY	5	100		8	*	400			
Central Michigan Univ	Mt Pleasant	MI	6	265	345	36	*	2139		19	78
Central Missouri St Univ	Warrnsbg	MO	6	198	242	13	*	1100		19	71
Central Piedmont CC	Charlotte	NC	5	40		29	*	967			
Central Texas College	Killeen	TX	5	43		34	*	18000			
Central Washington Univ	Ellensbg	WA	6	283		10	*	912	880		76
Cerro Coso C College	Ridgecrest	CA	3	165		13	*	2000			
Chadron State College	Chadron	NE	5	358		15	*	700		18	68
Champlain College	Burlington	VT	5	400	440	13	*	800	1000		77
City University	Bellevue	WA	4	220	375	21	*	4000			
Clarion Univ of Penn	Clarion	PA	6	200	321	10	*	1218	820		72
Cleveland State Univ	Cleveland	OH	6		358	12	*	1304			
College of St Scholastica	Duluth	MN	3	274	425	20	*	245		21	82
College of the Albemarle	Elizabeth	NC	5	62		13	*	1000			
College of the Southwest	Hobbs	NM	3	363	325	12	*	300		16	65

Columbia Basin College	Pasco	WA	5	133		21	*	3000			
Columbia College	Columbia	MO	5	185		6	*	4700		19	65
Columbia Union College	Takoma Pk	MD	5	220		37	*	192	760		60
Columbus St C College	Columbus	OH	5	80		26	*	6000			
Columbus State Univ	Columbus	GA	6	138		16	*	785	870		70
Comm College of Denver	Denver	CO	5	65		20	*	2000			
Concordia Univ Wisconsin	Mequon	WI	6		420	12	*	400			
Concordia University	Portland	OR	6		490	8	*	250			
Concordia University	Irvine	CA	4		390	3	*	33			
Concordia University-St P	Saint Paul	MN	4	350	395	8	*	665		18	66
County College of Morris	Randolph	NJ	5	260		27	*	1000			
Creighton University	Omaha	NE	6		416	7	*	325			
Crown College	St. Bnfcs	MN	3	260	273	6	*	130		19	71
Cumberland University	Lebanon	TN	6		375	7	*	375			
Dakota County Tech Coll	Rosemnt	MN	5	124		7	*	700			
Dakota State University	Madison	SD	6	182	240	16	*	634		19	68
Dallas Baptist University	Dallas	TX	6	449	459	8	*	1026	951		67
Davenport University	Grand Rap	MI	4	375	399	7	*	5500			
Daytona Beach C College	Daytona B	FL	5	86		32	*	2700			
De Paul University	Chicago	IL	4	384		10	*	778		21	84
Delaware Tech and CC	Wilmington	DE	5	82		21	*	2000			
DeVry University Hdqtrs	Oakbrook	IL	4	460	612	6	*	5854			
Dickinson State University	Dickinson	ND	6	195		8	*	500		18	65
Duquesne University	Pittsburgh	PA	6	494	622	10	*	846	1020		87
East Tennessee St Univ	JohnsonCty	TN	6	433	583	16	*	3250		19	68
Eastern Illinois University	Charleston	IL	6	175		12	*	900		19	79
Eastern Michigan Univ	Ypsilanti	MI	6	239	374	3	*	2800		18	71
Eastern NM Univ Main	Portales	NM	6	116	130	8	*	700		16	60
Eastern Oregon Univ	La Grande	OR	6	134		28	*	1800	880		67
Edison State C College	Fort Myers	FL	3	103		19	*	500			
Edmonds C College	Lynnwood	WA	5	63		11	*	2500			
Embry Riddle Aeronauti U	Daytona B	FL	4	177	368	23	*	1488	990		78
Erie Cmty College	Buffalo	NY	5	121		14	*	2207			
Excelsior College	Albany	NY	3	240		36	*	30406			
Fairleigh Dickinson Univ	Madison	NJ	4	363	681	16	*	500	910		74
Florida Atlantic University	Boca Rtn	FL	6		172	6	*	2077			
Florida C Col Jacksonville	Jacksonvil	FL	5	51		27	*	7500			
Florida Institute of Tech	Melbourne	FL	2		415	11	*	500			
Fort Hays State University	Hays	KS	6	122	164	19	*	4033		18	72
Franciscan U Steubenville	Steubenvil	OH	6	175		11	*	300	1020		85
Franklin Pierce College	Rindge	NH	3	265	458	2	*	50	900		63
Franklin University	Columbus	OH	6	224	371	12	*	1403			
Gadsden State C College	Gadsden	AL	5	168		28	*	450			
George Mason University	Fairfax	VA	4		659	16	*	500			
Georgia Southern Univ	Statesboro	GA	6		139	14	*	1432			
Gonzaga University	Spokane	WA	4		525	30	*	320			
Grace College	Winona Lk	IN	3		280	9	*	45			
Greenville Tech College	Greenville	SC	5	115		15	*	4000			
Harford C College	Bel Air	MD	5	75		7	*	1300			
Holy Names University	Oakland	CA	4		430	11	*	159			
Hope International Univ	Fullerton	CA	1	400	400	12	*	331	850		70
Illinois Central College	East Peoria	IL	5	64		8	*	2000			
Indian River C College	Fort Pierce	FL	5	50		11	*	1000			
Indiana Institute of Tech	Fort Wayne	IN	2	255		24	*	300		18	62
Indiana State University	Terre Haute	IN	6	208	262	37	*	2000	840		70

Indiana Univ Northwest	Gary	IN	6	120	186	11	*	4000	790		62
Indiana Wesleyan Univ	Marion	IN	6	325	400	10	*	1900	919		85
Iowa Western C College	Council Blfs	IA	5	115		13	*	1100			
Jacksonville State Univ	Jacksonvil	AL	6	152	182	12	*	7807		17	70
James Madison University	Harrisnbg	VA	6		574	10	*	280			
John Tyler C College	Chester	VA	3	63		9	*	1527			
Johnson County C Coll	Ovrlnd Pk	KS	5	139		31	*	4000			
Judson College	Marion	AL	3	307		30	*	115		19	61
Judson College	Elgin	IL	3	279		8	*	250		20	76
Kansas State University	Manhattan	KS	6	233	445	35	*	7000		21	80
Kettering University	Flint	MI	4		590	24	*	700			
Lakeland College	Sheboygan	WI	3	220	250	9	*	800		17	66
Lehigh Carbon C College	Schncksvil	PA	5	81		11	*	1480			
Lesley College	Cambridge	MA	3		460	10	*	400			
LeTourneau University	Longview	TX	4		513	7	*	768			
Liberty University	Lynchburg	VA	4	210	310	21	*	5802	880		74
Life Pacific College	San Dimas	CA	3	90		65	*	300			
Limestone College	Gaffney	SC	3	220		9	*	1482	880		66
Lincoln College	Lincoln	IL	5	72		12	*	6000			
Lock Haven U of Penn	Lock Hvn	PA	6	204	321	11	*	346	890		72
Loyola University	N Orleans	LA	4	289	420	15	*	100	1130		81
Lynn University	Boca Rtn	FL	4	252	483	8	*	1000	810		59
Madison Area Tech Coll	Madison	WI	5	75		12	*	6500			
Marist College	Pghkpsie	NY	3		562	8	*	313			
Marshall University	Huntingtn	WV	4	465	660	20	*	3526		20	74
Marylhurst University	Marylhurst	OR	6	308	369	10	*	412	940		48
Mayville State University	Mayville	ND	6	150		7	*	227		17	58
Mercer County C College	Trenton	NJ	5	99		8	*	923			
Merritt College	Oakland	CA	3		362	5	*	15			
Metropolitan State Univ	St Paul	MN	4	192	284	12	*	945			
Miami-Dade College	Miami	FL	5	59		9	*	3000			
Middle Tennessee St Univ	Murfrsbro	TN	6	206	312	12	*	4800		20	73
Midstate College	Peoria	IL	3	440		7	*	181			
Midwestern State Univ	Wich Falls	TX	4	149		34	*	2000	860		64
Minnesota State Univ	Mankato	MN	6	188	243	36	*	300		19	78
Mississippi Delta C Coll	Moorhead	MS	5	75		6	*	600			
Mississippi State Univ	Miss State	MS	6	183	233	19	*	1000		20	81
Missouri Southern St Coll	Joplin	MO	5	125		20	*	2100		19	64
Monroe C College	Rochester	NY	5	105		9	*	2032			
Montana State University	Bozeman	MT	6	120	181	14	*	1000		20	72
Montana State U Billings	Billings	MT	6	119	180	8	*	1350		19	54
Montana Tech Univ of Mo	Butte	MT	6	303	751	10	*	390		21	64
Montgomery County CC	Blue Bell	PA	5	84		14	*	1227			
Moody Bible Institute	Chicago	IL	2	189		65	*	5000			
MSU – Moorhead	Moorhead	MN	6	149	229	36	*	300		19	68
Murray State University	Murray	KY	6	191		16	*	3714		21	77
National University	La Jolla	CA	4	332	375	12	*	12941			
Neumann College	Aston	PA	3	395		8	*	200	800		72
New Jersey City Univ	Jersey City	NJ	6		296	9	*	103			
New Mexico St Univ Main	Ls Crces	NM	6	178	190	17	*	1500		18	72
New York Institute ofTech	Old Wstbry	NY	2	594	630	22	*	2019	1020		71
Newman University	Wichita	KS	4	567	455	19	*	250		19	66
North Dakota St Col of Sci	Wahpeton	ND	5	130		38	*	325			
North Idaho College	Cr dAlene	ID	5	63		9	*	600			
Northampton Co Area CC	Bethlehem	PA	5	83		32	*	2064			

Northern Arizona Univ	Flagstaff	AZ	6	216	358	29	*	5950	940		68
Northwest Missouri St U	Maryville	MO	6	185	231	7	*	813		19	70
Northwest Tech College	Bemidji	MN	3	125		10	*	600			
Northwestern College	St. Paul	MN	3	220		12	*	800		21	78
Northwestern Connect CC	Winsted	CT	5	93		9	*	350			
Northwestern Michigan C	TravrsCity	MI	5	106		24	*	914			
Norwich University	Northfield	VT	6		575	9	*	400			
Nova Southeastern Univ	Ft Ldrdale	FL	4		425	23	*	1400			
Odessa College	Odessa	TX	5	113		20	*	2673			
Oklahoma State U Main	Stillwater	OK	6		425	61	*	2000			
Old Dominion University	Norfolk	VA	4	177	263	22	*	4989	960		78
Onondaga C College	Syracuse	NY	5	106		5	*	850			
Oregon Institute of Tech	KlmthFalls	OR	2	125		9	*	497	940		72
Oregon State University	Corvallis	OR	6	188	381	20	*	1644	960		81
Ouachita Tech College	Malvern	AR	3	70		8	*	372		20	75
Pace University New York	New York	NY	4	368	770	11	*	2000	980		78
Palm Beach C College	Lk Worth	FL	5	58		9	*	5000			
Park University	Parkville	MO	6	157	315	10	*	5500		18	70
Peirce College	Philadel	PA	3	392		9	*	1311			
Peninsula College	Pt Angls	WA	3	80		12	*	720			
Pennsylvania C of Tech	Williamspt	PA	5	336		10	*	1000			
Pennsylvania State Univ	Univ Park	PA	6	383	469	7	*	2000	1090		92
Philadelphia University	Philadel	PA	6		662	8	*	70			
Pitt Community College	Greenville	NC	5	40		10	*	2204			
Polytechnic University	Brooklyn	NY	4		950	21	*	50			
Prescott College	Prescott	AZ	5	385	498	28	*	500			
Presentation College	Aberdeen	SD	3	380		12	*	317			
Randolph C College	Asheboro	NC	5	40		8	*	1200			
Rappahannock C College	Glenns	VA	5	60		11	*	1200			
Red Rocks C College	Lakewood	CO	5	100		26	*	1200			
Redlands C College	El Reno	OK	3	64		21	*	950			
Rhodes State College	Lima	OH	3	88		13	*	500			
Robert Morris University	MoonTwnp	PA	4	427		7	*	2000	910		75
Rochester Insti of Tech	Rochester	NY	2	307	613	27	*	1600	1110		88
Rockland C College	Suffern	NY	5	63		21	*	800			
Roger Williams University	Bristol	RI	4	728	344	32	*	101	970		76
Roosevelt University	Schmburg	IL	4		600	5	*	800			
Sacred Heart University	Fairfield	CT	4	345	420	9	*	592	990		80
Saddleback College	MissViejo	CA	3	78		31	*	2000			
Saint Cloud State Univ	St Cloud	MN	4	185	267	31	*	4000		19	71
Saint Francis Med Cen C	Peoria	IL	3		425	6	*	52			
Saint John's University	Jamaica	NY	4	760	730	12	*	478	930		81
Saint Joseph's College	Standish	ME	3	230	280	30	*	4000	920		75
Saint Leo University	St Leo	FL	6	365		8	*	10000	920		69
SaintMary-of-the-WoodsC	St Mary-W	IN	5	342	390	33	*	1300		18	69
Salve Regina University	Newport	RI	4		350	21	*	350			
Samuel Merritt College	Oakland	CA	3		723	5	*	15			
San Bernardino Valley C	San Bern	CA	5	26		10	*	1723			
San Diego State Univ	San Diego	CA	6		900	22	*	971			
San Joaquin Delta C	Stockton	CA	5	11		30	*	4919			
Savannah Coll Art & Desi	Savannah	GA	5	722		3	*	24	970		81
Schiller International Univ	Dunedin	FL	4		430	7	*	94			
Seattle Central C College	Seattle	WA	5	469		16	*	600			
Seattle Pacific University	Seattle	WA	6		394	22	*	441			
Seminole C College	Sanford	FL	5	65		36	*	2500			

Seton Hall University	S Orange	NJ	4	717	696	8	*	300	980		80
Shippensburg University	Shppnsbrg	PA	6		321	8	*	86			
Sinclair C College	Dayton	OH	3	132		27	*	5000			
Skagit Valley College	Mt Vernon	WA	5	74		28	*	2500			
Sonoma State University	Rhnrt Pk	CA	6	295	297	10	*	120			
Southeast C College	Lincoln	NE	3	72		12	*	6000			
Southern Christian Univ	Montgmry	AL	4	400	485	13	*	700			
Southern Ill U Edwrdsvil	Edwrdsvil	IL	6	41		12	*	182		20	73
Southern Methodist C	Orangebg	SC	3		882	38	*	600			
Southern N Hampshire U	Mnchstr	NH	6	250	476	10	*	12000	895		62
Southern Polytechnic St U	Marietta	GA	4		259	11	*	300			
Southwestern A of God U	Wxhachie	TX	4	260	260	23	*	610			
Southwestern College	Winfield	KS	3	229	375	5	*	600		19	68
Spoon River College	Canton	IL	5	80		12	*	420			
Spring Arbor University	Spng Arbor	MI	6		420	8	*	900			
St Paul Tech College	St Paul	MN	3	100		7	*	500			
St Mary's University	San Ant	TX	4		512	9	*	39			
Sthwst Wisconsin Tech C	Fennimre	WI	5	77		17	*	700			
Strayer University	Wash	DC	4	171	228	9	*	16150			
Suffolk Co CCAmmerman	Selden	NY	5	125		17	*	1000			
Suffolk University	Boston	MA	6		860	7	*	300			
Sullivan University	Louisville	KY	6		457	4	*	14			
SUNY At Oswego	Oswego	NY	6	181		11	*	700	1040		76
SUNY At Plattsburgh	Plattsbgh	NY	6	181		16	*	531	950		77
SUNY Empire St College	Saratoga S	NY	5	181	296	27	*	4700			
Taft College	Taft	CA	3	11		9	*	750			
Tarleton State University	Stephenvil	TX	4		235	12	*	3000			
Tarrant County Jr College	Ft Worth	TX	5	150		33	*	8000			
Taylor University	Upland	IN	4	200		65	*	1350		23	89
Taylor Univ Ft. Wayne	Ft Wayne	IN	4	200		65	*	1150		23	89
Teikyo Post University	Waterbry	CT	4	348		9	*	700			
Texas St Tch C Waco/Ma	Waco	TX	5	76		11	*	750			
Texas Tech University	Lubbock	TX	6	124	172	65	*	650	1020		82
The Defiance College	Defiance	OH	5	196		35	*	35		19	68
The University of Findlay	Findlay	OH	6	260	405	8	*	998		19	71
Troy State U Montgomery	Mntgmry	AL	6	117		19	*	1100		17	73
Troy State University	Troy	AL	6		290	8	*	1200			
Tunxis C College	Frmngton	CT	5	146		10	*	1800			
U Denver-Daniels C Busin	Denver	CO	6		374	10	*	375			
U of Hawaii Kapiolani CC	Honolulu	HI	6	146		16	*	430			
U of Ill Urbana-Chmpaign	Urbana	IL	6		338	10	*	250			
U of NC Greensboro	Grnsboro	NC	6	80	135	34	*	1039	940		76
U of North Dakota	Gr Forks	ND	6	506	187	36	*	700		20	75
Univ NC Charlotte	Charlotte	NC	6	72	106	21	*	488			
Univ of AlabamaHuntsville	Huntsville	AL	6	225	235	15	*	5000		22	74
Univ of Cincinnati Main	Cincinnati	OH	6	257	370	22	*	2222		20	76
Univ of Colorado Hlth Sci	Denver	CO	6	220	300	10	*	1500		19	68
Univ of Hawaii West Oahu	Pearl City	HI	6	100		10	*	150			
Univ of Illinois at Chicago	Chicago	IL	6		535	8	*	5935			
Univ of Maryland Univ C	Baltimore	MD	6	407	553	34	*	31400			
Univ of Mass Boston	Boston	MA	6	412	440	5	*	925	930		70
Univ of Mich Ann Arbor	AnnArbor	MI	6		1208	37	*	303			
Univ of Mich Dearborn	Dearborn	MI	6		475	3	*	55			
Univ of Minn-Twin Cities	Minneap	MN	6		349	65	*	4500			
Univ of Missouri-Columbia	Columbia	MO	6	228	274	16	*	1910		23	85

Univ of Northern Colorado	Greeley	CO	6	230	310	65	*	300		19	70
Univ of Texas Medical	Galvstn	TX	6	384	384	17	*	261			
Univ of Texas Permian Ba	Odessa	TX	6	500	590	10	*	1093	860		63
Univ of Wisconsin-Eau Cl	Eau Cl	WI	6	250	550	11	*	700		22	80
Univ of Wisconsin-Plattevi	Plattville	WI	6	250	550	28	*	1000		22	78
Univ of Saint Francis	Joliet	IL	4	425	490	9	*	1297		20	76
Univ of th Incarnate Word	San Anton	TX	4	340	495	6	*	1000	850		68
University of Bridgeport	Bridgeport	CT	6	370	525	9	*	240	760		70
University of Central Flori	Orlando	FL	6	96	230	10	*	5440	1050		81
University of Dallas	Irving	TX	6		466	36	*	500			
University of Great Falls	Gr Falls	MT	6	395	475	27	*	130		19	50
University of Houston	Houston	TX	6		232	23	*	7666			
University of Hou Cl Lake	Houston	TX	6		232	11	*	1253			
University of La Verne	La Verne	CA	6	380	475	10	*	1300			
University of Maine Augus	Augusta	ME	6	132		20	*	2300			
University of Montana	Missoula	MT	6	175	200	17	*	686		20	70
University of Neb Kearney	Kearney	NE	6		225	20	*	500			
University of Neb Om	Omaha	NE	6		260	10	*	494			
University of Nevada LV	Las Vegas	NV	6	107		20	*	4500	890		72
University of Northrn Iowa	Cedar Falls	IA	6	172		65	*	1200		20	82
University of Saint Francis	Ft Wayne	IN	4	500	530	12	*	2341	880		69
University of South Florid	Tampa	FL	6	96	266	23	*	8289	980		79
University of So Indiana	Evansvil	IN	6	183	275	12	*	1564	840		63
University of Texas Tyler	Tyler	TX	6	110	200	15	*	900	968		58
University of Texas Sys O	Austin	TX	6	534	275	6	*	3691			
University of Toledo	Toledo	OH	6	294	392	11	*	3464		18	70
University of Wyoming	Larmie	WY	6	92	155	7	*	3761		20	76
Upper Iowa University	Fayette	IA	6	217		33	*	1800			
Utah State University	Logan	UT	6	163	240	23	*	7200		21	73
Utah Valley State College	Orem	UT	5	135		18	*	10000		18	51
Villanova University	Villnva	PA	6		715	8	*	90			
Washburn Univ of Topeka	Topeka	KS	6	190		7	*	2400		19	73
Weber State University	Ogden	UT	3	125		16	*	7000		18	70
Webster University	Web Grvs	MO	3		515	8	*	2710			
West Virginia University	Mgntown	WV	6	606	675	19	*	2262		20	79
Westchester Bus Institute	W Plains	NY	2	565		8	*	95			
Western Kentucky Univ	Bowling Gr	KY	6	274	358	7	*	2174		18	75
Western Washington Univ	Bllinghm	WA	6	169		65	*	444	1010		82
Westwood College ofTech	Denver	CO	5	535		4	*	350			
WVA Univ At Parkersburg	Parkrsbrg	WV	6	86		7	*	1140			
York Technical College	Rock Hill	SC	5	103		11	*	2120			

***EPI scores omitted per non-disclosure agreement with NRCCUA.**