GRADUATE STUDENTS RATE INSTITUTIONAL WEBSITES: THE MUST HAVE, NICE TO HAVE, AND DELIGHTED TO HAVE SERVICES

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ABSTRACT

The graduate students admitted to the online and blended programs in higher education at Texas Tech University and the University of Memphis were surveyed about their respective university websites, or the institution's "virtual face." A total of 42 students rated 30 web-based services as "must have," "nice to have," "delighted to have (but not necessary)," or "I'm indifferent to this service" based on the Kano model of marketing research into customer satisfaction. The majority (11 of 17) of services in the "must have" category are essential for functioning as a student (e.g., course registration, program costs, helpdesk) while the social media services (podcasts and i-Phone applications) were in the "nice to have" category. Items of importance to the institution (history of the university, strategic plan, contributions to community) were in the "nice to have" or "delighted to have" categories. The continuing interest in viewing photos (of the campus, students, athletics) as a "nice to have" is intriguing for students in online and blended programs. Based on this research, several recommendations are offered to institutions.

KEYWORDS

higher education websites, graduate students, Kano model

I. INTRODUCTION

Do higher education institutions offer the web-based services that students want or that they think students should want? Institutions have controlled how their websites look and work; in this way, the websites are the "virtual face" of the institution and the face it has chosen to present to its many publics. This leaves the question open of how actual students judge this face; is it functional for them, does it provide information they value or not, and are the services the ones they want or need? This research asks graduate students to rate the web-based services of their higher education institutions in order to judge how well these websites serve students.

II. REVIEW OF THE LITERATURE

A. Higher Education Websites

The research on institutional websites is comprised of few research studies. Green [1-5] has tracked the implementation of a number of online services (e.g., online course registration, course management systems) through college and university websites in his annual Campus Computing Project. Although extremely valuable for tracking the addition of new online services each year, identifying emerging "hot" issues, or benchmarking the progress of an institution against its Carnegie peers, the Project has not

evaluated how well websites perform. So while Green's annual Campus Computing surveys are valuable for understanding the development of websites, they do not analyze the effectiveness of higher education websites in satisfying the informational needs of students.

An exception to the lack of research is a study described by St. Sauver [6-8]. The study evaluated 172 university websites in 2003 to inform the University of Oregon's design and development of web services. All of the universities were members of the Association of American Universities (AAU) and/or Tier 1 or 2 doctoral universities as established by the *U.S. News and World Report* in 2003. While much of the study looked at technical issues (e.g., popular software products, use of cookies), it also focused on ways university websites were used, such as noting the popularity of audience segmentation (which groups of services were likely to interest "future students," "current students," and "faculty and staff," among others) and different search functions (use of A-to-Z indices or search windows).

In 2008, Gordon and Berhow [9] conducted a content analysis of 232 university websites, drawn from the 2006 edition of the *U.S. News & World Report's America's Best Colleges*. Four coders looked for "dialogic features" that allow the visitor to request more information, sign up for a RSS feed, request an appointment, or send an email to a particular office (such as admissions or financial aid). The number of dialogic features ranged from a low of 6.8 to a high of 53.2 features. They found that liberal arts colleges used more of these dialogic features on their websites than national doctoral universities. They also found a small correlation ($r = 0.146$, $p < 0.05$) between the number of dialogic features and student retention rate.

As for studies investigating the availability of specific types of information on higher education websites, Eduventures [10] surveyed more than 500 adult students in 2006. In this study, only 63% found their search for information useful, which led Eduventures to conclude that higher education websites "come up short with respect to content" [10]. The Eduventures report urged higher education to improve the quality and depth of content, as well as search functions on home pages. This is one of the few studies that asked students about their experiences with institutional websites.

In 2008, Meyer [11] developed a methodology for researching institutional websites. Using an instrument based on criteria for evaluating websites [12], this descriptive study asked how higher education institutions were using their home pages and how well these home pages performed; this was done by investigating all of the links available from the home page, and the number of clicks of the mouse certain information was away from the home page. Findings indicated that 34% of the links on the home pages dealt with student needs (e.g., admissions, registration, and course listings) and another 43% were classified as "functionality" (e.g., providing services to faculty and staff and providing functions aligned with operating the institution). One of the hardest pieces of information to find was tuition and fees, which could be found within three to four clicks of the mouse for doctoral/research institutions, but one to two clicks for community colleges, and not found at all in 15% of the sample. And while many home pages were well designed, others were messy and/or required users to hunt for important services, and were deemed difficult for the inexperienced user. The findings indicated that higher education's "virtual face" may indeed be functional for insiders, but it was confusing to users who were new to higher education or the web.

Using the same methodology, again in 2008, Meyer [13] identified 20 information items that legislators and/or parents were interested in knowing about higher education institutions. Parents are important constituents of higher education and assist potential students in their research on different colleges to attend; legislators are also constituents who make funding decisions affecting public higher education institutions and also receive complaints from the public about actions taken by a local college. A total of 58.5% of the data sought could not be found, and 40% of the data elements found were more than three "clicks" of the mouse away from the institution's home page. In other words, even when some of the information could be found, it took skill and persistence to find it. This could be interpreted as contributing to the perception that higher education is aloof and uncooperative to legislators or parents.

This same methodology was then applied to find information of interest to prospective African-American

and Hispanic undergraduate students by Wilson and Meyer [14]. Findings indicated that about half of the sample of 40 institutions did not provide information on offices for minority students and many other targeted services were missing from institutional websites. This can be interpreted in one of two ways: either these services were offered, but could not be found, or they were not offered. Either explanation is interesting, but could also be important for a planner wishing to know how well competitors were doing in appealing to minority students and what services were being offered by successful institutions. This final question was explored in Meyer and Wilson [15], which proposed a way to use research on institutional websites, as a way for planners at other institutions to explore the "competitive advantage" of particular degree programs of any kind, be they online or traditional.

This methodology – of investigating institutional websites by tracking if information is found and how many "clicks" it takes to find it – allows an external researcher to better understand what these websites offer to students. It does not, however, answer the question of what students want in their web-based services, and this is the goal of the current research.

B. E-recruitment

Noel-Levitz has conducted several studies asking high school students what information they are looking for on a college website. A 2007 study found that college-bound students were interested in information on academic programs, admissions, and financial aid [16]. When the study was repeated [17] in 2010, one in four students reported "removing a school from their prospective list because of a bad experience on that school's Web site" [17, p. 1] and 92% said they would be disappointed with a school or remove it from further consideration if they "didn't find the information they needed on the school's Web site" [17, p. 1]. Clearly, the university website is an essential part of recruiting students – Noel-Levitz calls this "e-recruitment" -- and is perhaps becoming more critical as students rely more on web-based information to make decisions on where to attend college.

When Noel-Levitz [18] asked 1000 prospective graduate students about their e-expectations in 2007, students stated that they wanted "a connection" with the institution and faculty [18, p. 1]. Most of these students want information about programs of study and financial aid in an electronic form (i.e., on the web or email). In other words, "graduate programs need to put as much information as possible within a few mouse clicks of their target audience" [18, p. 1]. Prospective graduate students, in ranking the importance of different types of information from 1 to 5 (extremely important), ranked "graduate program detail" as 4.77, scholarship/assistantship information as 4.62, tuition/cost/fees as 4.38, and details on the faculty as 4.03 [18, p. 3]. These studies support the assertion that an institution's "virtual face" is essential to recruiting students and the last study on graduate students seems especially pertinent to the current study which asks current graduate students to rate their institution's web-based services in terms of their personal needs or desires.

C. The Role of Age

Ever since Marc Prensky [19] coined the terms "digital natives" and "digital immigrants" in 2001, the terms have rapidly been adopted by technology advocates and included in research studies. Despite the rapid and near universal acceptance of these terms, they overlook the reality of youth who do not have access to technologies due to their cost and the innovativeness of adults who may be adventurous or as adept at technologies as some of the young. In other words, the terms may hide as much as they reveal. In fact, Bennett, Maton, and Kervin [20] found that some digital natives felt panic when facing new technologies, a panic that would look familiar to an older student faced with a new tool to learn and master. While it is important to disambiguate and better understand the two digital concepts, it is nevertheless essential to include an accounting of age in the analysis of openness to and evaluation of web-based services. In other words, will age affect the choices of "must have," "nice to have," and "delighted to have" web-based services?

D. The Kano Method

The Kano model or method has become a popular method for analyzing customer satisfaction in the marketing field of business. Kano, Seraku, Takahashi, and Tsuji [21] classified customer preferences for products into five categories: attractive quality, one-dimensional quality, must-be quality, indifferent quality, and reverse quality. *Attractive quality* refers to attributes of the product or service that provide satisfaction, although they may not be expected by the customer. These attributes unexpectedly delight customers. *One-dimensional quality* refers to attributes that result in satisfaction when fulfilled but dissatisfaction when not. *Must-be quality* refers to attributes that are taken for granted when fulfilled, but result in dissatisfaction when not fulfilled. *Indifferent quality* refers to attributes that are neither good nor bad and do not result in customer satisfaction or dissatisfaction. *Reverse quality* refers to differences or preferences that are attributable to individual customers, but was not included in the research study due to it being difficult to identify and measure.

The Kano model assumes a nonlinear and asymmetric relationship between attributes and customer satisfaction. Figure 1 presents the classic Kano model, which presents how these types of quality can help a business create and modify products to have the qualities that create customer satisfaction.

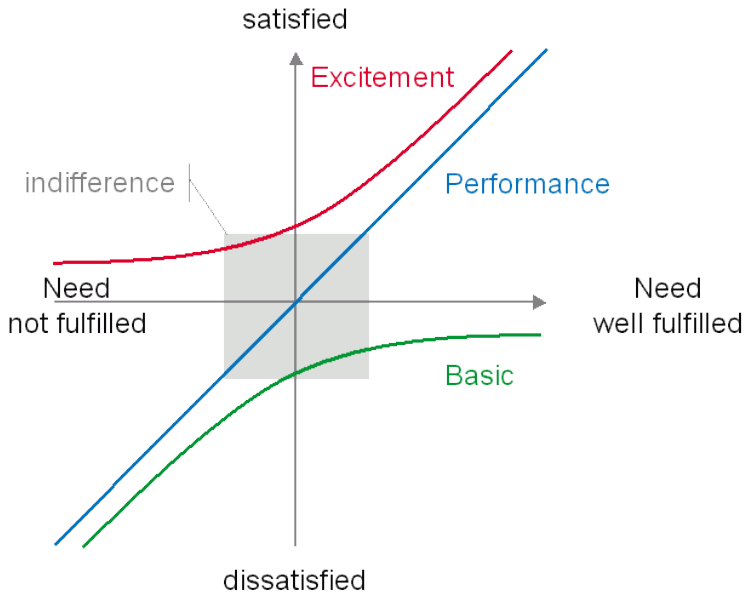

Figure 1. Kano Model

Source: http://business901.com/wp-content/uploads/2010/02/Kano.jpg

Mikulić [22] reviewed research that applied the Kano model in marketing research from 1984 to 2006. This review totaled 46 articles and books, which applied the Kano model or method, but while the model is "well adopted both in research and practice . . . there is still no clear consensus among researchers about the most appropriate assessment method" (p. 7). It is a method and model that is still being tested in the marketing field, but its usefulness in evaluating websites has already been recognized.

Zhang and von Dran [23-25] have used the Kano model to study website designs, more particularly the website of CNN (cnn.com). They found that the model could be successfully used to study quality of websites and that not every feature or attribute is equally important. Furthermore, they found that customers' expectations of what comprises quality changes over time and that no list of what must be included in a website will be stable [24,25]. In other words, it is important to entities such as higher education institutions that provide services over a website to ask customers what they consider to be important and that they ask the question regularly. This is not a question that higher education institutions often ask of students, and that is why the current research was undertaken.

E. Research Questions

Based on this review of the research literature, it is clear that research must be conducted that asks graduate students what services they want in their university websites. This is a perspective that is rarely explored, and should be. Therefore, two research questions guided this research study. First, what web-based services do graduate students who are regular users of institutional websites think are must-be, one-dimensional, attractive, and indifferent quality? Second, based on the widespread perception that the student's age makes her a "digital native" or "digital immigrant," we need to ascertain if the age of the student was a factor in students' assessment of web-based services.

III. METHODOLOGY

A. Design

This research uses survey methodology to answer the two research questions above. It uses an instrument designed by the authors based on the Kano model.

B. Settings

This research draws upon the students admitted and enrolled in two graduate-level programs in higher education and will not, therefore, be generalizable to other graduate students or undergraduate students. Because it was important to ensure that students had extensive experiences with institutional websites, it was decided to focus on students enrolled in online and blended programs and especially the needs of adult, graduate students. Therefore, these students are likely to be relatively computer literate. Two such programs were found. First, Texas Tech University (TTU) offers four graduate-level programs, a blended Ed.D. and Ph.D. in higher education (where some courses are online and others on campus), as well as an online Ed.D. program in higher education with a community college administration emphasis. TTU also offers a blended Master's of Education in Higher Education and Student Affairs. Second, the University of Memphis offers three graduate-level programs online, a Master of Science in Leadership and two Ed.D. programs in Adult Education and in Higher Education. While the institutions are different, they share similarities. Both are located in the southern region of the U.S., with Texas Tech University in the southwest and University of Memphis in the southeast. Both are large, publicly-supported research institutions, offering degrees at the undergraduate and graduate levels. Both are developing online programs to serve a larger regional student population.

C. Sample and Population

The population of graduate students in the online and blended doctoral and master's programs at Texas Tech totaled 91 students; the final sample included responses from 22 students for a 21.2% response rate. The population of graduate students in the online programs at the University of Memphis is 85 students; the final sample included responses from 20 students for a 23.5% response rate. Given that these students are predominantly employed full time (90.9% and 100.0% at Texas Tech and University of Memphis, respectively) as they work on their graduate degrees, these response rates are understandable and extending the time for responding to the survey will not garner additional responses. Table 1 presents a profile of the sample in comparison to the population of both programs based on five data elements.

	Texas Tech University		University of Memphis	
Data Elements	Sample	Population	Sample	Population
Gender				
Female	77.3%	56.2%	42.0%	54.0%
Male	22.7%	43.8%	58.0%	46.0%
I work				
Full time	90.9%	98.1%	100.0%	97.7%

Part time	9.1%	1.9%	0.0%	2.3%
Student Type				
Master's	22.7%	45.1%	10.0%	6.0%
Doctoral	77.3%	54.9%	90.0%	94.0%

Table 1. Sample and Population of Programs (Data as of Spring 2011)

In addition, the students ranged in age from 21-30 (19.5%), 31-40 (31.7%), 41-50 (24.4%), and 51-60 (24.4%), placing our sample clearly within the adult student category with half of the sample in the over 40 category. To further describe our sample, students were asked their reasons for taking courses, and 40% were pursuing the degree for professional development, 25% were trying to advance in their careers, and 30% wanted to prepare for a new career. These responses clearly place the sample in the working professional category. Therefore, based on the profile in Table 1, the sample is relatively representative of the population of students admitted to our separate graduate programs and that they are primarily adult, working professionals.

The Institutional Review Boards of both institutions granted approval to conduct this research.

D. Instrument Development

As a first step, the prior services or information elements included in prior studies on the "virtual face" of colleges and universities were reviewed [11-14] and included, if possibly germane to graduate students in online or blended programs. These include such basic functions as online course listings, degree program information, and online registration among others. Since websites have continued to develop since these earlier studies, the authors brainstormed additional elements that appeared to be popular offerings on university websites (such as podcasts of lectures, Twitter and Facebook connections). The final list included 30 items (see Table 2) that students should have experienced (and therefore might have an opinion about) on the two institutional websites.

Areas University Excels In	University Contributions to Community, State
History of University	Virtual Tour of University
Campus Map	University Strategic Plan
Names, Backgrounds of Administrators	Course Offerings
List of Fully Online Courses	Degree Programs & Requirements
Program Costs	Helpdesk
Faculty & Contact Info.	Faculty Achievements
Online Application	Online Course Registration
Financial Aid Information	Portal to All Services (email, course management, etc.)
Online Payment of Fees, etc.	Podcasts of Lectures
i-Phone Applications	Facebook, Twitter Connections to University
Student-to-Student Chat	Stories about Alumni
Facts about Current Students (e.g., Graduation Rates)	Photos of Students
Photos of Campus	Photos of Athletic Events
Tickets, Info. about Events	Job Openings

Table 2. Web-Based Services Included in Instrument

The instrument used to collect data for this study was developed by the authors based on examples of Kano model questions in several marketing research studies referred to earlier. Four categories were

chosen (the reverse quality definition was dropped since it was considered too difficult to measure). The four categories of quality selected to elicit students' judgments were:

Must-be quality was captured by asking students which web-based services they "must have,"

One-dimensional quality was captured by asking which services they felt were "nice to have,"

Attractive quality was captured by asking which services students felt they were "delighted to have (but were not necessary)," and

Indifferent quality was captured by asking which services students indicated "I'm indifferent to this service."

These four labels – "must have," "nice to have," "delighted to have," "I'm indifferent" – are used in all studies reviewed in preparation for this study and were used in this study. Doing so allows the results from this study to be more comparable to the other Kano studies that have already been completed.

These four different assessments are not conceived to be continuous as in a similar looking Likert-style questionnaire, so questions of difference can only be assessed by using Chi-Square (for dichotomous or discrete variables). This is also consistent with the treatment of these assessments in prior Kano studies and represents the different lines of satisfaction conceptualized by the Kano model (see Figure 1).

As a first step, the instrument reviewed the student's rights in research and, if agreeable, allowed the individual to proceed on to the instrument. If students did not understand their rights or did not agree to participate, they were not allowed to proceed. For those who agreed to participate and understood their rights, students were asked to open the home page to their respective institution so that they could focus on that site as they pondered answers to the survey questions. Since home pages often change, it is not assumed that the students were viewing the same home page as others at their institution; this step was taken to remind students of prior experiences with the home page. Prior experiences with the home page were the subject of the survey.

E. Data Collection

Both institutions create email programs that compile the email addresses for all students admitted into degree programs at the institution and these email programs are available to the author located at the respective institution. Data were collected during the Spring 2011 semester, with emails sent by the authors on January 18 inviting students to participate in the study and providing them with the link to the SurveyMonkey site. After two weeks, a follow-up email was sent to thank individuals who had completed the survey and to invite remaining students to participate in the study; this email also provided a deadline for completing the survey of one week thereafter. A final email announced the closing of the SurveyMonkey site and thanking all of the students for their participation.

F. Data Analysis

The data analysis to answer the first research question is based on a simple frequency of responses by the four categories of service quality: "must have," "nice to have," "delighted to have," and "I'm indifferent to this service." The frequency of responses is reported as a percentage and grouped into three groups from highest to lowest percentage in the first three categories. Calculating an average would not be appropriate since doing so would assume that the four categories are equidistant. This allows us to see how strong the responses are for each service in a particular category and to identify similarities or differences and propose explanations for the analyses. Both researchers played a role in proposing and challenging explanations; explanations that both felt were important are included in the discussion.

The analysis undertaken to answer the second research question was to compare the number of students choosing a response for each service (separated into the "must have," "nice to have," "delighted to have," and "I'm indifferent to this service") against the age categories of 21-30, 31-40, 41-50, and 51-60. A Chi-Square Goodness of Fit was calculated and a *p*-value of less than .05 was selected based on the number of respondents and the number of categories.

IV. FINDINGS

A. "Must Haves," "Nice to Haves," "Delighted to Haves"

Tables 3, 4, and 5 present the students' assessment of the 30 types of web-based services or information. The tables have been organized so that items garnering the highest percentage of most "must have" responses appear in rank order (highest to lowest) in Table 3, then the items with the most "nice to have" responses appear in rank order in Table 4, and the items selected as "delighted to have (but not necessary)" are in Table 5. For items that were tied (equal percentages at two importance levels), the item is repeated in both importance levels. For no item was "I'm indifferent to this service" the majority response. The percent of responses in each category is given for the number of students responding to the item.

Service	Number of Students	"Must Have"	"Nice to Have"	"Delighted to Have (But Not Necessary)	"I'm Indifferent to This Service"
Degree Programs & Requirements	39	100.0%	0.0%	0.0%	0.0%
Program Costs	40	95.0%	2.5%	2.5%	0.0%
Online Course Registration	39	94.9%	5.1%	0.0%	0.0%
Financial Aid Information	39	92.3%	7.7%	0.0%	0.0%
Course Offerings	39	89.7%	10.3%	0.0%	0.0%
Online Application	39	89.7%	7.7%	0.0%	2.6%
Online Payment of Fees	39	89.7%	7.7%	0.0%	2.6%
List of Fully Online Courses	39	87.2%	10.3%	2.6%	0.0%
Portal to All Services	39	87.2%	10.3%	0.0%	2.6%
Campus Map	39	82.1%	15.4%	2.6%	0.0%
Helpdesk	39	76.9%	20.5%	2.6%	0.0%
Faculty & Contact Info.	39	69.2%	25.6%	5.1%	0.0%
Job Openings	40	67.5%	20.0%	7.5%	5.0%
Photos of Campus	39	51.3%	41.0%	2.6%	5.1%
Virtual Tour of University	41	46.3%	36.6%	9.8%	7.3%
Facts About Current Students	39	41.0%	28.2%	17.9%	12.8%
Photos of Students	39	38.5%	23.1%	17.9%	20.5%

Table 3. Services with Highest "Must Have" Votes

Service	Number of Students	"Must Have"	"Nice to Have"	"Delighted to Have (But Not Necessary)"	"I'm Indifferent to This Service"
Podcasts of Lectures	39	10.3%	53.8%	33.3%	2.6%
Faculty Achievements	39	10.3%	48.7%	33.3%	7.7%
Areas University Excels In	39	25.6%	46.2%	12.8%	15.4%
Photos of Athletic Events	39	28.2%	43.6%	17.9%	10.3%
Names, Backgrounds of Administrators	40	32.5%	42.5%	17.5%	7.5%
i-Phone Applications	39	7.7%	35.9%	35.9%	20.5%
Student-to-Student Chat	39	2.6%	35.9%	28.2%	33.3%
Tickets, Info about Events	40	32.5%	35.0%	27.5%	5.0%
University Strategic Plan	39	17.9%	33.3%	33.3%	15.4%
History of University	40	22.5%	32.5%	32.5%	12.5%

Table 4. Services with Highest "Nice to Have" Votes

Service	Number of Students	"Must Have"	"Nice to Have"	"Delighted to Have (But Not Necessary)"	"I'm Indifferent to This Service"
Stories about Alumni	39	10.3%	35.9%	38.5%	15.4%
i-Phone Applications	39	7.7%	35.9%	35.9%	20.5%
University Contributions	40	17.5%	30.0%	35.0%	17.5%
Facebook, Twitter Connections	39	7.7%	30.8%	33.3%	28.2%
University Strategic Plan	39	17.9%	33.3%	33.3%	15.4%
History of University	40	22.5%	32.5%	32.5%	12.5%

Table 5. Services with Highest "Delighted to Have" Votes

The results in Tables 3, 4, and 5 lead us to several insights into the services these adult graduate students want from their institutions' websites. First, in no instance did our graduate students select "I'm indifferent to this service" as the predominant answer. In other words, and at least for the web-based services included in this survey and with these students, the Kano category of "indifferent quality" does not apply. These 30 services fell into the other three categories: must-be, one-dimensional, or attractive quality.

The data on students' assessment of web-based services identifies trends that are helpful to understand. Here are five examples. First, social media services (podcasts and i-phone applications) are deemed nice to have, but not a must have. It is important to keep in mind that many of these respondents are older students and they may not be as well integrated into these various services as younger students. However, they are interested in seeing some of these types of services.

Second, the standard information about an institution, which is of essential value to the institution (its history, strategic plan, contributions to the community) also fall in the nice to have category, but not as must have services. Third, in fact, these students may seem a bit indifferent to such important types of information (at least for the insiders of the institution) as faculty achievements and administrator backgrounds; these are both nice to have types of information but not "must haves." Contact information for faculty is a must have to actively enrolled students, but what faculty have published or achieved is not. This is counter to the traditional thinking that students select a graduate program so they can work with a particular faculty person or pursue a specific line of research; perhaps these students are looking for a convenient program first, and the faculty are less important.

Fourth, facts about current students is a must have, but profiles of successful alumni is a delighted to have. Perhaps students can see themselves as fitting among the current students, but not among the successful alumni. And fifth and perhaps most important, what is perhaps clearest from the list of must have services are their clear instrumentality or functionality for students: program and cost information, registering for courses and finding financial aid, what courses are offered, and how to apply to programs, pay fees, get access to the portal, find the map, get to the helpdesk, and contact faculty. These are the day-to-day must have services students depend on to get and stay enrolled in their chosen degree programs. The importance of seeing photos of the campus and having access to a Virtual Tour requires some explanation. Despite all of these students being enrolled in online or blended programs, the online programs were only recently initiated, and on-campus students were transitioned into the online programs. Therefore, most students are within driving distance to the campus. Perhaps this explains the interest in seeing the campus, but perhaps this response captures an interest in seeing the campus even if one will only attend there virtually. This is an interpretation that needs to be monitored over time.

B. Differences by Student Age

Given the focus in the literature on the role of youth in the adoption of new technologies, students' opinions of the online services were tested for significance differences based on the age of the respondents. Because age was not continuous but a grouped variable and the Kano categories were also discontinuous, the analysis used a Chi-Square Goodness of Fit test. There were no significant relationships for eight services, including Areas University Excels In, University Contributions to Community and State, History of University, University Strategic Plan, i-Phone Applications, Facebook and Twitter Connections, Student to Student Chat, and Stories About Alumni.

However, for the remaining 22 services, age did appear to have a significant relationship to how the service was viewed. These services (and the χ^2 calculation and *p* value) are in Table 6.

Service	Chi-Square (χ^2)	*p* value
Virtual Tours	29.15	<.0001
Campus Map	113.98	<.0001

Names, Backgrounds of Administrators	12.17	<.0068
Course Offerings	141.75	<.0001
List of Fully Online Courses	131.74	<.001
Degree Programs and Requirements	183.86	<.0001
Program Costs	166.46	<.0001
Helpdesk	98.02	<0001
Faculty and Contact Information	76.11	<.0001
Faculty Achievements	10.08	<.0179
Online Application	141.3	<.0001
Online Course Registration	161.9	<.0001
Financial Aid Information	151.6	<.0001
Portal	131.74	<.0001
Online Payment of Fees	141.3	<.0001
Podcasts of Lectures	15.57	<.0014
Facts About Current Students	15.65	<.0013
Photos of Students	11.95	<.0076
Photos of Campus	40.32	<.0001
Photos of Athletic Events	8.2	<.0421
Tickets and Information about Events	11.72	<.0084
Job Openings	70.37	<.0001

Table 6. Services Different by Age of Student

Two conclusions seem to be appropriate based on these results. First, when a service is important to a student (be it access to information about course offerings or a way to pay fees online), it will be universally important irrespective of the student's age. Second, even adult students, who Prensky characterized as "digital immigrants," are willing to research potential degree programs online, check out photos, access podcasts, and do a job search on the website. Perhaps neither younger nor older students are so clearly for or against technology that they do not find, research, apply to, and enroll in programs through a university website.

V. DISCUSSION AND RECOMMENDATIONS

The findings from this research generate five recommendations that institutions may wish to consider. First, given how quickly things change among students and the online world, it is important that this research be duplicated among all groups and classifications of students: online students and campus-based students, older adults and the traditional college-aged student, students at liberal arts colleges and community colleges, students who are not computer literate, and those who have advanced skills. It is recommended that such research be conducted regularly, as part of a regular program of website evaluation, perhaps every two to three years.

Second, conducting this type of research, or research quite like it, will help prioritize investments of time and effort, as well as prioritize the development of new services for the institution's virtual face. The must haves must be there and should be done first and kept up to date and functional. The nice to haves can be invested in after the must haves are operational. Similarly, the delighted to haves can be invested in only after the must haves and nice to haves are in place. The items students are regularly or predominantly indifferent to can be left until resources in time and staff are available.

The challenge will be to continuously monitor the changing preferences of students who are exploring new services all of the time. So someone – perhaps an individual with close ties to students as well as

technologies – should be appointed to monitor the changing situation and propose new services for the next survey. Also, watching one's competitors (see Meyer & Wilson, 2010, for a discussion of a methodology for assessing competitive advantage for programs or institutions) will help institutions identify emerging new web-based services that students might like, if they were offered. In other words, this is a rapidly changing challenge for institutions and only vigilance and a willingness to keep adjusting the institution's virtual face will ensure that institutions continue to enroll and keep students in the future.

Another useful direction for this research will be to investigate the differences, if any, between what students say they want and what they actually use. There may be interesting differences in usage that can help institutions improve their websites to better address students' needs.

It is also recommended that institutions explore use of the Kano method further. It appears to distinguish between types or needs of services in a way that can be helpful to institutions as they decide what to offer online. Although not useful in the current study, the "indifferent" category should be maintained, if only because it might discriminate among services with other student populations, even if it was not helpful in this study. The different ways of thinking about quality that are part of the Kano model can help institutions think of their web-based services as evolving parts of the student satisfaction puzzle, never likely the same from survey to survey, but all part of the way students interact with the institution and find that interaction helpful or not.

This is an exciting time for students and institutions alike. More services are offered online so that students can take care of many needs on their own. Institutions have automated processes that once took a team of individuals to register students for a single term. With this new world of online services, higher education students and staff have the opportunity to spend time – be it face-to-face or online, over Skype or phone, or other new tools yet to be developed – in quality exchanges that focus on correcting, challenging, deepening, and broadening student learning. So rather than answer questions about how to register for classes or describing the degree programs offered by the institution for the thousandth time, faculty get to do the things they want to do: to teach students to think and to grow. Despite the difficulties of putting services online, of dealing with glitches and snafus, and of teaching new students how to use these services, these online services may be the key to unleashing the creativity and commitment of faculty and students alike toward learning that is timely, evolving, and continuous. This would represent the true payoff for all of the investments of time, effort, and dollars into higher education's virtual face.

VI. ABOUT THE AUTHORS

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Dr. Stephanie J. Jones is an assistant professor and program coordinator of the blended-delivery Ed.D. in higher education with emphasis in community college administration at Texas Tech University. She has been involved at the state level with distance learning initiatives through the Virtual College of Texas, Texas Leadership Alliance, and the Texas Higher Education Coordinating Board. Dr. Jones' research interests include community colleges, distance learning, and gender issues within working environments for women in professional roles in higher education. Dr. Jones began her career in information technology as a software developer, project manager, and database administration.

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