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ABSTRACT

This paper describes the initial analyses needed to help institutions of higher education plan majors in nursing and allied health as institutions look for new markets based on demographic and employment factors. Twelve variables were identified and weighted to describe an ideal recruitment market. Using a three-phase process, potential U.S. markets were identified and five were selected as having the highest potential for return. Twenty markets were identified based on inquiry, applicant, and matriculant data from 1993 through 1995 in combination with data on metropolitan areas with populations between 50,000 and 100,000. The next phase identified markets with a strong interest in allied health programs and a projected increase in high school graduates. The third phase included an identification of potential competition within each state on a program-by-program basis and an analysis student recruitment costs in each potential new market. The final analysis applied psychographic generalities to the still remaining markets. These facts included: the relative non-mobility of first-time college students; the role of socioeconomic background on student mobility; and regional differences in mobility. The final result identified five potential new markets: Lehigh Valley (Pennsylvania), Scranton (Pennsylvania), Harrisburg (Pennsylvania), Mercer County (New Jersey), and Baltimore (Maryland). (JLS)

COST EFFECTIVE ANALYSIS OF NEW MARKETS: FIRST STEPS OF ENROLLMENT MANAGEMENT FOR NURSING AND ALLIED HEALTH PROGRAMS

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Jean Endo
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Abstract

Institutions that offer majors in nursing and allied health have enjoyed strong enrollment for almost the last ten years. The dramatic changes in employment patterns of healthcare professionals over the last few years, however, has started to affect the prospect pool for these majors. It is vital for institutions to look for new markets based on general demographic factors and employment opportunities. This study describes the initial analyses that are needed before resources are committed. The result is the identification of five new markets and four test markets for new recruitment activities.

Introduction

As the undergraduate component of a major eastern academic health center, the college has supported the institutional mission by enhancing public awareness of nursing and the allied health professions and by recruiting, retaining and successfully graduating individuals who meet the needs of the healthcare system. The undergraduate college is an upper-division institution that accepts students in the junior year upon completion of specific prerequisite courses. An admission program for high school seniors is also offered where highly qualified students are guaranteed acceptance for a future term.

Over most of the last decade, as the healthcare industry grew, so did the demand for healthcare professionals. This positive occupational outlook, specifically in nursing and allied health, led many individuals to consider a health career. At our college, the result was record enrollments in the late '80's and early '90's.

In the early 1990's, dramatic changes occurred in the healthcare system throughout the country. These changes included the method of financing health care, the growth of managed care, the closure of hospitals, the shrinking length of stay in acute care hospitals, and pressures to contain costs. All of these factors altered the nursing and allied health employment situation and consequently the student recruitment picture. Many traditional markets for prospective students, especially in the Mid-Atlantic area and other major metropolitan areas of the Northeast, are experiencing a surplus of nursing and allied health professionals, creating drops in interest among likely students.

New markets, particularly those where the employment climate was more favorable and where competition was less formidable, needed to be discovered and cultivated. This paper explains the methodology used to identify new markets when no additional funding is available to retain services or purchase new software.

Methods

Twelve variables were identified and weighted to describe an ideal recruitment market. In a three-phased process, potential markets in the United States were identified and narrowed down to those five with the highest potential for superior returns.

Phase I

Phase I included sorting by zip code all inquiry, applicant and matriculant data from 1993 through 1995. The number of prospects, applicants, and matriculants from each state was tallied and ranked, as were the yields in converting prospects to applicants and applicants to matriculants. The team devised the following weighted system giving priority to yields over actual numbers: 1. conversion of applicants to matriculants (x 1) 2. conversion of prospects to applicants (x 1.1) 3. total number of matriculants (x 1.2) 4. total number of applicants (x1.3) 5. total number of prospects (x 1.4) If results from the Intended College Major section of the *1995 Profile of SAT Program Test Takers* indicated significant interest in health and allied services (threshold = most popular major) these states would be further evaluated to identify specific markets in the Metropolitan Statistical Areas (MSA), urban areas or cities with a minimum of 50,000 residents and a total overall population of 100,000. The final step in Phase I involved plotting this data geographically, resulting in the identification of approximately 20 specific markets to begin the search.

Phase II

Phase II involved five steps that relied heavily on historical and demographic data. In Step I, we searched for markets that historically showed at least a 15% conversion of prospects to applicants. Fifteen percent was selected since this is the lowest prospect to applicant yield experienced in the college's primary markets. A weighted ranking system was used for each category in the yield analysis, with those markets meeting the set criteria awarded up to 5 points. Points were distributed at

the end of Phase II in the following manner: ranks 1-5, five points, ranks 11-15, three points, ranks 6-10, four points, ranks 16-19, two points.

Step II focused on two changes that have affected enrollment at many Mid-Atlantic and Northeast private institutions in the past few years. First, colleges are competing for a pool of students that has not increased. The second is the significant cyclical shift in students' career goals from business in the 1980's to healthcare in the early 1990's (Coyne, Donovan, Strup, 1994). Although interest in nursing and allied health careers has been very strong in this decade, it was important to prepare for a possible downward shift in interest in healthcare careers. Our next goal was to identify markets that currently indicate a strong interest in allied health programs and project an increase in the number of high school graduates over the next few years. Projected growth in the high school demographic was measured by comparing the distribution of the age groups of 10 through 14 and 15 through 19 (Sourcebook for County Demographics, 1994).

The importance of a strong employment situation to our students has been well-documented over the years. For example, in our 1993 Matriculant Survey, 96% of students responded that the availability of job openings were either "essential" or "very important". This percentage has decreased consistently each year to a low of 88% in 1996. One reason for this drop in the level of expectation about job opportunities might be the increasingly negative employment situation and outlook for health professionals in our immediate market. As a result, step III was to identify markets that displayed "moderate or better" employment opportunities. Data regarding the healthcare job market in these prospective sites, relative to our programs, were obtained through a phone survey conducted by the Career Development Office of 38 major hospitals within the remaining twenty markets.

Department supervisors rated the conditions of the job market for the following health professionals: sonographers, x-ray technicians, entry level registered nurses (RNs), experienced RNs, occupational therapists, physical therapists, biotechnologists, cytotechnologists, cytogenetic technologists, and medical technologists. Conditions were rated with the following system: critical shortage area (1), wide open job market (2), moderate hiring (3), or market saturated (4). An average describing the job market was computed to identify those markets with an overall rating of 3.3 (moderate hiring or better) as seen in our local job market. After compiling an overall market average, territories were ranked and awarded points based on the following system: ranks 1-6, three points, ranks 7-13, two points, ranks 14-18, one point. Since the number of seats in each of our programs varies, a weighted average was also computed giving priority to those programs with more seats. The weighted system was used as a secondary measurement if a tie in rank resulted between markets. For example, the nursing program (our largest program) offers seats to 60 students compared with the cytogenetics class of 5 seats. Therefore, the nursing to cytogenetics weighted ratio is 1:12. The complete weighted system used is as follows: sonographers (x2.4), x-ray technicians (x6), entry level RN (x1), experienced RN (x2), occupational therapists (x1.3), physical therapists (x1.25), biotechnologists (x6), cytotechnologists (x6), cytogenetic technologists (x12), and medical technologists (x6).

Step IV involved a geodemographic analysis of our matriculant pool from 1993 to 1995. Geodemographic market segmentation information is based on the idea that people within a neighborhood are unique and have distinctive consumer and demographic characteristics. To conduct this phase, our team used the ACORN Consumer Classification System developed by CACI. In addition to utilizing neighborhood clusters, each matriculant was coded based on the Standard Industrial

Classification (SIC) system. SIC codes identify the dominant industry within a zip code as measured by the total number of employees and businesses. The team hypothesized that the majority of our students would reside where health services (SIC Code 80) was the dominant industry. This step in the analysis began by coding, sorting, and tallying all matriculant data (n=1004) by neighborhood cluster and SIC code. With the knowledge that 75% of our student population is from a 50 minute radius around the campus, neighborhood clusters between our local (primary) market and outside markets needed to be compared. From these profiles the team could determine the unique groups that the institution successfully attracts, and awarded two points to potential markets having similar neighborhood profiles.

As a private institution with limited resources for financial assistance, targeting markets with a higher household income also becomes a factor. In doing so, more resources would be available to support those students with greater need. The ACORN Classification System provides this pertinent information in the form of an average household income of families within a zip code.

Through previous matriculant surveys, we learned that over 60% of our students attended the institution based on the reputation of our college and/or hospital. In addition, 80% of our current students first learned of the college through some sort of word-of-mouth source. In step V the team identified markets with higher concentrations of alumni who may already be responsible for some of the word-of-mouth and could be enlisted in efforts to develop an awareness campaign in these territories (Threshold = 100 University alumni, 30% of which were graduates of the undergraduate division). Markets were awarded one point for meeting set criteria.

Each step in Phase II concluded with the awarding of weighted points for meeting our set criteria. The top ten to fifteen markets that met the most criteria were selected for further analysis in the next phase.

Phase III

Phase III would evaluate the cost effectiveness of new recruitment initiatives and the role of competition from other institutions. In evaluating our current competition, we learned that there has been a significant increase in cross-applications with less expensive institutions, and that all of our chief competitors are within a 75-mile radius of the University. In step I we identified two and four year institutions, as well as hospitals, that offer programs in direct competition with our own. Top competitors were further evaluated based on cost and amount of interest by in-state students as indicated in the state reports of the*1995 Profile of SAT Program Test Takers*. Conversely, since our school is an upper-division institution, these data would allow us to identify those colleges that could serve as an affiliate school. The schools selected were located within the markets evaluated, and dominated the market share of the local students as determined by the SAT reports previously mentioned. Much of this information was shared confidentially by institutions with which we have discussed potential articulation. As such, these data will be withheld from the Results section. When data were not available through our potential affiliates, a general evaluation of the school's in-state market share relative to SAT scores was used instead.

The next step was to complete an analysis of costs to recruit in each of the potential new markets. Factors considered included transportation, accomodations, promotional activities, advertising, and association fees. Finally, it was imperative to understand the regional differences of these new markets and how these differences affect college choice. Some basic geodemographic generalities (i.e. - students in the East and the Midwest tend to enroll in colleges closer to home) completed our analysis.

Results

Phase I

Sorted zip code data on the inquiry, applicant and matriculant level identified the top twelve states (New Jersey, Pennsylvania (excluding Philadelphia), Maryland, New York, Massachusetts, North Carolina, Virginia, California, Florida, Connecticut, Colorado, and Georgia) for further market segmentation. Potential for market penetration was supported by state editions of the *1995 Profile of SAT Takers* which indicated that that the majority of test takers in each of these states were interested in pursuing a major in allied health.

Further zip code analysis identified 19 greater metropolitan areas within these 12 states as potential markets worthy of additional analysis - California (San Diego, Oakland, Sacramento, and San Jose), Colorado (Denver), Connecticut (New Haven), Florida (Tampa/St. Petersburg, Miami), Georgia (Atlanta), Maryland (Baltimore), Massachusetts (Boston), New Jersey (Greater Trenton Area/Mercer County), New York (Central Long Island), North Carolina (Greensboro, Raleigh), Pennsylvania (Lehigh Valley, Harrisburg, Scranton), and Virginia (Richmond).

Phase II

Historically, the lowest conversions of prospects to applicants in our primary recruiting territories was a minimum of 15%. Therefore, the criteria used for the first step in phase II were to identify those markets displaying at least a 15% yield with a minimum of 50 prospects between 1993 and 1995 (Table 1).

In Step II, the maximum number of points awarded for markets that projected growth in the high school demographic would be four, two of which were automatically awarded based on measured interest in health careers on the state level discussed in phase I. Markets were awarded the two remaining points if the majority of counties within the MSA specfied a .5% increase between the 15 through

19 and 10 through 14 age brackets. Noteworthy counties within designated MSAs that indicated significant growth included Douglas (Denver, CO), Gwinett and Paulding (Atlanta, GA), Howard (Baltimore, MD), and Chesterfield (Richmond, VA)

Table 1: Yield Analysis - Potential New Markets

St	Cities	Prospect	Applicants	Matric	Conversion Prospect to Applicant	Meets Criteria
CA	San Diego	61	11	1	18.0%	Y
	Oakland	62	12	0	19.0%	Y
	Sacramento	26	3	0	11.5%	N
	San Jose	33	5	4	15.2%	N
CO	Denver	90	10	2	11.1%	N
CT	New Haven	71	15	1	21.1%	Y
FL	Tampa/St. Petersburg	24	2	1	8.0%	N
	Miami	44	6	2	13.6%	N
GA	Atlanta	67	10	1	14.9%	Y
MD	Baltimore	302	81	10	26.8%	Y
MA	Boston	152	36	2	23.7%	Y
NJ	Mercer County	346	90	18	26.0%	Y
NY	MidIsland Long Island	320	102	1	31.8%	Y
NC	Greensboro	36	3	0	8.3%	N
	Raleigh	55	14	3	25.5%	Y
PA	Lehigh Valley	272	91	16	33.5%	Y
	Harrisburg	227	71	14	31.3%	Y
	Scranton	130	35	4	26.9%	Y
VA	Richmond	51	14	2	27.5%	N

Legend: Y = Met criteria N = Did not meet criteria

Phase II, Step three involved the identification of those markets with a geographic employment average of 3.3 or better. Under these guidelines, all but three of the territories (Denver, CO, Atlanta, GA, and Long Island, NY) met our standards (Figure 1.)

Based on ACORN Classification Data, we were able to identify five neighborhood clusters predominant in both local and outside markets, as well as those primarily prevalent in outside markets. These data also revealed that two of our four dominant consumer types are among the wealthiest households nationally with median household incomes ranging from $48,000 to $95,000 (Table 2).

Figure 1: Geographic Employment Conditions Relative to College Programs

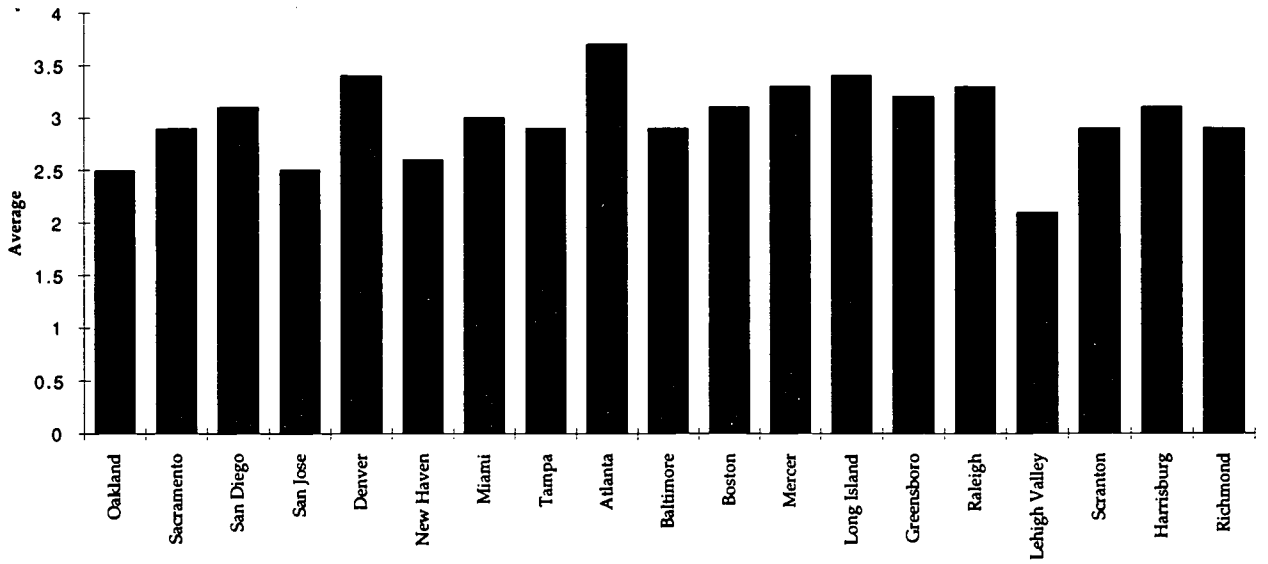

Table 2: Dominant ACORN Consumer Types in Local / Outside Markets

ACORN Consumer Type and Name	% Local Market	Dominant SIC	% Out Market	Dominant SIC
(1E) Prosperous Baby Boomers	4.8%	80	10.6%	73
(1F) Semirural Lifestyles	3.0%	82	9.7%	na
(6C) Newly Formed Households	2.6%	80	5.5%	80
(7A) Middle America	0.3%	na	14.0%	80, 82
(7F) Rustbelt Neighborhoods	11.1%	80	12.3%	23, 82

LEGEND: na- No identifiable dominant industry 23 - Apparel
73 - Business Services 80 - Health Services 82 - Education

While the health services industry (SIC Code 80) was the dominant industry overall in both local and outside markets, it was more prevalent in our dominant ACORN Consumer Types from local markets than those from traveling distances of greater than 50 minutes (Table 3).

Table 3: Top Three SIC Clusters in Local and Outside Markets

SIC Classification	Code	% Local Market	% Out Market
Health Services	80	32%	17%
Educational Services	82	19%	13%
Business Services	73	7%	7%

In Phase II, Step V, seven markets (San Diego, Miami, Baltimore, Boston, Mercer County, Lehigh Valley, Harrisburg, and Scranton) were identified as having over 100 University alumni, 30% of which were from the undergraduate division. Each of these markets was awarded one point in the final tally.

Phase II concluded with the awarding of points for those markets meeting our set criteria in each step. Those markets that earned the most points and advanced to Phase III included San Diego, California, Sacramento, California, New Haven, Connecticut, Atlanta, Georgia, Baltimore, Maryland, Boston, Massachusetts, Mercer County, New Jersey, MidIsland, New York, and the Lehigh Valley, Harrisburg, and Scranton, Pennsylvania. As a result of a tie in points, Sacramento was selected over other markets based on the superior weighted job market average.

Table 4. Phase II Results

ST	MSA	Overall Yield	Interest & Growth	Job Market	ACORN Income	Alumni	Total Pts	Phase III
CA	San Diego	Y(4)	N(2)	Y(3)	Y(2)	Y(1)	12	Y
	Oakland	Y(3)	N(2)	Y(2)	N(0)	N(0)	7	N
	Sacramento	N(2)	Y(4)	Y(2)	Y(2)	N(0)	10	Y
	San Jose	N(3)	Y(4)	Y(3)	N(0)	N(0)	10	N
CO	Denver	N(3)	Y(4)	N(1)	Y(2)	N(0)	10	N
CT	New Haven	Y(4)	Y(4)	Y(3)	Y(2)	N(0)	13	Y
FL	Tampa	N(2)	N(2)	Y(1)	N(0)	N(0)	5	N
	Miami	N(2)	N(2)	Y(2)	N(0)	Y(1)	7	N
GA	Atlanta	Y(4)	Y(4)	N(1)	Y(2)	N(0)	11	Y
MD	Baltimore	Y(5)	Y(4)	Y(3)	Y(2)	Y(1)	15	Y
MA	Boston	Y(4)	Y(4)	Y(2)	N(0)	Y(1)	11	Y
NJ	Mercer	Y(5)	Y(4)	Y(1)	Y(2)	Y(1)	13	Y
NY	Long Island	Y(5)	Y(4)	N(1)	Y(2)	N(0)	12	Y
NC	Greensboro	N(2)	N(2)	Y(2)	Y(2)	N(0)	8	N
	Raleigh	Y(3)	N(2)	Y(1)	N(0)	N(0)	6	N
PA	Lehigh Valley	Y(5)	Y(4)	Y(3)	Y(2)	Y(1)	15	Y
	Harrisburg	Y(5)	Y(4)	Y(3)	Y(2)	Y(1)	15	Y
	Scranton	Y(4)	N(2)	Y(2)	Y(2)	Y(1)	11	Y
VA	Richmond	N(3)	N(2)	Y(2)	Y(2)	N(0)	9	N

Legend: Y = Meets criteria N = Does not meet criteria

Phase III

Phase III began with the identification of our competition within each state based on a program-by-program analysis, as well as potential affiliate schools. Institutions selected as agreement schools were evaluated based on location, course availability to meet our prerequisite requirements, as well as market share as measured by the number of in-state SAT scores sent to the institution. The institution selected in each territory would have a higher relative market share than our competitors. Table 5 highlights one example of an analysis completed for a potential affiliate in New Jersey.

Table 5: Relative Market Share Comparison Based on SAT Score Senders Within New Jersey

	Market Share	Relative Market Share (Market Share/ Largest Competitor)
University X	6.4%	6.4 % / 3.3% = 1.94
Competitor I	3.3%	3.3% / 6.4% = .51
Competitor II	6.3%	6.3 % / 6.2% = 1.01

Phase III, Step two involved a cost analysis for our recruiting efforts. While a set sum was allotted for recruiting and promotional efforts within these five new markets, and a cost-by-cost estimate could have been completed, our plan was to ignore bottom line figures and evaluate based on costs relative to each expense category. Anticipated expenses included mileage reimbursement, auto rental, airfare, meals, hotel accomodations, registration fees, promotions and advertising, and association fees. Each category was rated using the following scale: three for high expenses, two for medium expenses, one for low expenses, and zero for no expenses. Expenses were significantly different between markets and, as a result, points were awarded to those markets where the least expenses would be incurred.

The final step in phase III applied relative psychographic generalities to the remaining markets (Snowmass Institute, 1996). Some of these market facts include:

1. In contrast to the prevailing opinion that students are extremely mobile, in excess of 90% of all first-time college students attend an institution within 500 miles of their homes. Moreover, students tend to enroll in their first-choice when it is near their homes.
2. The degree of mobility appears to be influenced to a great extent by the socioeconomic background of the family, and the number of colleges located within a particular region of the country.
3. Students in the West either travel very few miles or considerable distances. Apparently, this is a reflection of the community college system within the State of California as well as the market position of Eastern schools.

Upon completion of Phase III, the team identified five MSAs as new markets. They included the Lehigh Valley, PA, Scranton, PA, Harrisburg, PA, Mercer County, NJ, and Baltimore, MD. In addition, since data tend to indicate significant opportunities in other markets, the following areas have been selected as test markets. New Haven, CT, San Diego, CA, Sacramento, CA, and Long Island, New York.

Discussion

Many arguments can be made about the methodology used in this study. One challenge is that our sample (n=1004) is too small to draw comparisons or to make generalizations. However, while our population is relatively small when compared with most institutions, the consistency of the data on a year-to-year basis tends to support its reliability. Others may suggest that a prospect to applicant / applicant to matriculant geodemographic would paint a more accurate picture about our ability to convert students from specific neighborhood clusters. However, because we are an upper-division school and require very specific coure prerequisites prior to enrollment, the team recognized that our level of interest at the inquiry level can best be described as "soft". A relatively small percentage (less than five percent overall) of our total prospect pool historically follows through with applications. Further, since our admission requirements are so rigid and competitive, with only 35% of our applicant pool being admitted, and with approximately 85% of accepted students actually enrolling, matriculant data appeared to offer the most accurate demographic information for drawing comparisons.

Since our college is an upper division institution, students do not enroll until their junior year in college. As such, one possible flaw in comparing student populations with our own is the age variable. While the mean age in most of our programs is approximately 29, the mode is still 21 years of age. A small percentage of our population does apply through a program for qualified high school seniors to reserve a seat in the junior class.

Since our primary focus was on attracting more students for this program, our original plan was to isolate this relative data to create a profile of this specific population. In doing so, a true comparison could be made with these potential markets. Our decision to utilize all matriculant data was based on the fact that the

majority of our students are still recognized as being dependent with regard to their financial aid status. This also allowed us to use a sample nine times larger than the homogenous population.

Conditions of the job market in these territories were obtained in an extremely non-scientific, subjective manner. The decision to use descriptions by supervisors at major health institutions was based on two reasons. First, previous in-house studies indicated that our students learned about the healthcare professions through other health professionals. The impact of these word-of-mouth sources should not be underestimated. Further, these same supervisors are often contacted for quotes in newspapers and magazines. Our other reason for using these sources was that there simply was not enough data available relevant to all of our programs. Additional data regarding future employment trends obtained through the U.S. Department of Commerce and Bureau of the Census were incorporated into the final steps of Phase III. Should the conditions of the job market prove to be as strong a variable as hypothesized, future methodology would include a market analysis as a primary variable in Phase I.

Our strong belief that the conditions of the job market influences interest in healthcare careers tends to contradict our selection of the Mercer County area for further recruiting efforts. While Mercer's job market is similar to our own, the weighting system utilized still prioritized this county as a new market. As a result, Mercer will serve as the control county for comparison in the follow-up study occuring over the next recruitment season. In the future, a new weighted average may be used relative to the number of students who matriculate into each of our programs.

One philosophical challenge could be that if there is already some interest in these areas, why would they not be considered an existing tertiary market? In the past, these territories were not believed to offer opportunity, little or no recruiting

efforts have been initiated. Perhaps the term cultivation is more appropriate than establishing a new market. Market growth, as we have defined it, will be measured in the same manner used to prioritize variables in Phase I of this study. We do anticipate a continuous improvement in results, as the institution has committed funding for recruitment efforts over the next three years. Results will be monitored, and the reliability of this methodology will be reevaluated on an annual basis. Future studies will incorporate any changes noted throughout the process.

Much of the analysis performed in this study can be performed, admittedly in a more accurate fashion, through utilization of software and CD-ROM. The simple reason why the study was completed in this manner was that there was no funding available for the purchase of software or consulting assistance. All references used were available through libraries and the Internet. However, software that exists today, at least to the knowledge of this marketing team, does not incorporate the value of alumni and current job market conditions in the recruiting of students. In addition, we were unable to identify any studies that met the needs of an upper-division, specialized institution. It was our goal to create a simple methodology for prioritizing and ranking markets for the untrained statistician, which could be applied to any type of specialized institution. As such, a system utilizing a simple weighted ranking system based on available references and human resources was created.

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