

2006-609: INCREASING INTERNATIONALIZATION AND DIVERSIFICATION OF THE STUDENT BODY: CASE STUDY OF A PROVEN PROACTIVE RECRUITING MODEL AND STRATEGIES FOR FURTHER ENHANCEMENT

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Increasing Internationalization and Diversification of the Student Body: Case Study of a Proven Proactive Recruiting Model and Strategies for Further Enhancement

Abstract

International student enrollment at U.S universities is on the decline after experiencing healthy growth in the last decade of the twentieth century. Competition from Europe, Australia and other countries, along with the culmination of conditions which discourage foreign students from coming to the U.S has played a significant role in reducing enrollment numbers. Globally, more and more students strive to achieve a higher degree from renowned institutions of learning, and if U.S universities desire to have a major part of this market, they will have to adopt a comprehensive set of recruitment strategies to attract overseas students.

This paper presents identified best practices that can be adopted by our institutions based on a student survey and recruitment experiences of faculty members involved in international student recruitment efforts. A model for recruiting foreign students was created from the effort and it is hoped that this model can be adopted by traditional U.S universities in enhancing results of their overseas recruiting efforts. U.S institutions of higher learning should find this model useful in creating a long-term strategy for internationalization and diversification of their student bodies. Also, the model should serve well as a starting point for a university's recruiting efforts, which can then be further enhanced through interactions with current students and alumni.

Introduction

As educational systems are developing rapidly in many parts of the world, worldwide competition for international students has increased and become fierce. Figure 1 is derived from excerpts of the Institute of International Education's (IIE) Opendoors 2005 Report.¹ These statistics show that the total enrollment of international students in U.S universities reduced by 1.3% between academic year 2003-2004 and academic year 2004-2005. International enrollment in the fields of engineering during the same time period reduced by 2.4%.² However, the reduction in fields of engineering technology and related fields reached an unprecedented 42.1%.³ This should be a wakeup call to colleges and universities who teach these fields. These over a longer period could translate into substantial reduction in the U.S academic base at those institutions.

Further, statistics provided by American Society of Engineering Education (ASEE) shows foreign student participation of only 5 % in engineering technology and related studies as shown in Figure 2.³

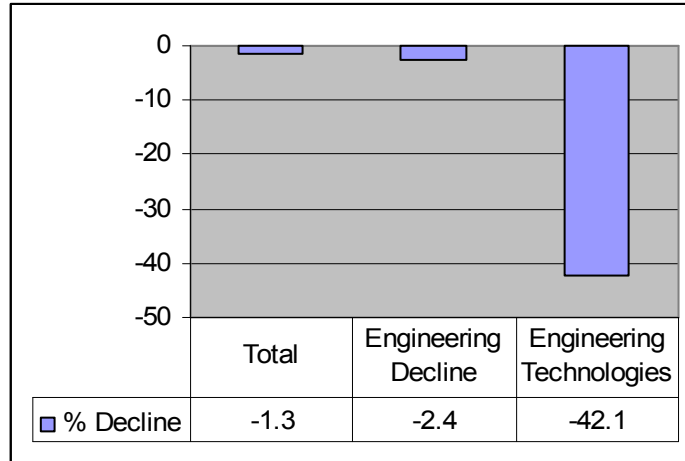


Figure 1: Reduction in International Student Enrollment in the U.S from 2003-2004 to 2004-2005, Source: IIE OpenDoors Fast Facts 2005 ¹

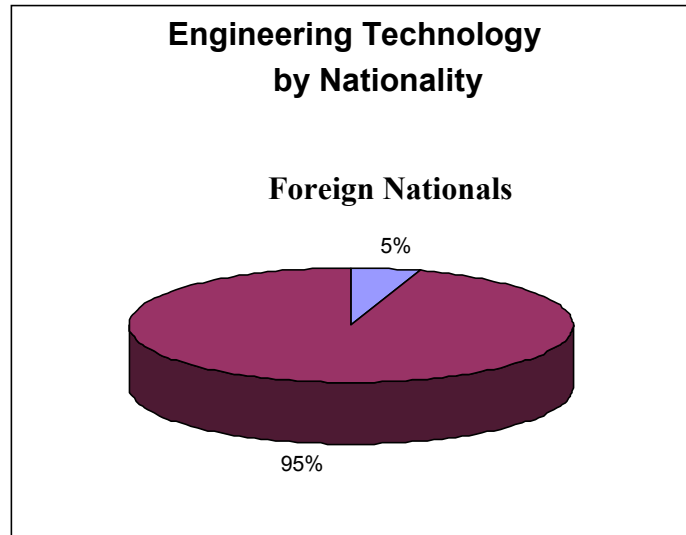


Figure 2: Foreign student participation in engineering technology studies compared to domestic students. Source: ASEE Report on Engineering Technologies. ³

Declining enrollments at universities go well beyond shrinking only academic institutions. International students eventually become immigrants to play key roles in technological advancement, research and innovation on which the US economy has relied for several decades. Even students who return home to their native countries often emerge as spokespersons for U.S ideas of democracy and capitalism, and eventually play vital roles in promoting U.S interests. Hence, declining numbers of overseas students are bad for our entire nation.

All these factors have raised the need for universities and educational institutions to bolster student diversity by developing initiatives and providing resources for recruiting and retaining a multicultural and diverse student body. Moreover, given the situation of engineering technology enrollments, special efforts have to be made to attract international students in engineering technology related fields.

Background

As per the ASEE Report on Engineering Technologies³, Industrial/Manufacturing Technology programs ranked seventh in the nation, graduating only 325 students as shown in Figure 3. This is only 18% of Electrical Engineering Technology, which was the leader in the pack.

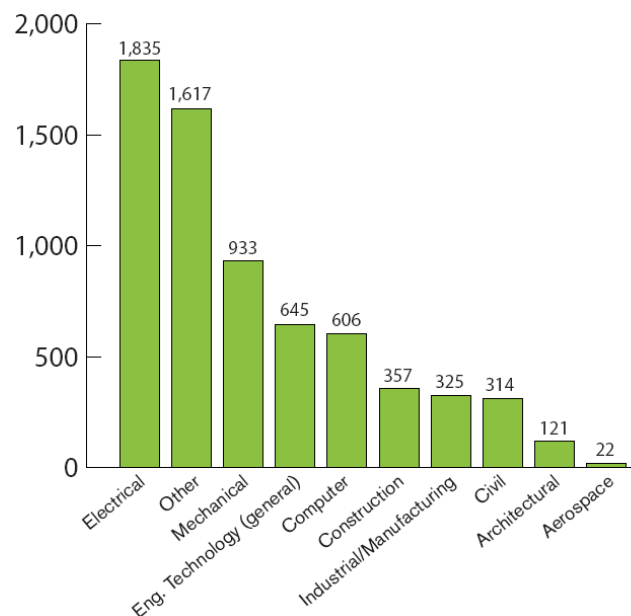


Figure 3: Engineering Technology Degrees by Discipline
Source: ASEE Report on Engineering Technologies.³

The motivation for the study came from the realization that if the newly restructured Department of Technology Systems⁴ at the authors' university is to grow, proactive strategies will have to be adopted before it is too late. This was enhanced by the recognition that of all the degrees that are given in engineering technology, only 18% are in industrial and manufacturing technology. The Department of Technology Systems graduates students in Industrial Engineering Technology as one of the degrees offered.

The approach that was taken was first to evaluate which country presently sends the most students to the U.S., and see if strategies can be put in place to attract more students from the leading countries to the authors' university. It was also decided to pursue a strategy to research and adopt best practices utilized by others in recruiting overseas student talent.

Approach

Table 1, shows that the two top sources for students in the academic year 2004-05 for the U.S. were India and China with over 80,000 students coming from India and over 62,000 students coming from China. Also, the two top sources for North Carolina,^{1, 4, 5} were again China and India, with over 1,500 students coming from China and over 1,200 students coming from India. Considering that only a total of 59 students came from India and China to the authors' university as shown in Table 3, (which is around 0.26% of the university population), it was felt that a substantial potential exists for recruiting students from these two countries. As the authors felt more comfortable with India, it was felt that recruiting from there should be tackled first, with a second phase of implementation focused to recruiting from China, where the lessons learned in India can be applied.

Rank	Place of Origin	2004/05
1	India	80,466
2	China	62,523
3	Korea	53,358
4	Japan	42,215
5	Canada	28,140

Table 1: Top Sources for Foreign Students in U.S. Source: IIE Opendoors 2005

Country of Origin	% Total	Total Number
China	16.7	1,512
India	13.9	1,251
Korea	8.3	749
Canada	4.9	438
Japan	4.3	388

Table 2: Top Sources for Foreign Students in N.C. Source: IIE Opendoors 2005

Country of Origin	Total Number
India	30
China	29
United Kingdom	15
Canada	9
Nigeria	8

Table 3: Top Sources for Foreign Students at Authors' University.
Source: East Carolina University, North Carolina, USA

Methodology and Model

Driven with a need to develop an effective data driven recruitment model ⁶ that can be easily duplicated by different departments within our university and by other universities, a survey instrument was developed based on the authors' past recruitment experiences in India. Feedback from prospective students was then utilized to fine tune the questionnaire. The questionnaire covered all the stages for applying to foreign universities from the inception of student contact during the initial recruitment meeting, to the final point of admission to the university. The variable being queried and the description of the question posed are as shown in Table 4 below.

Variables	Description
1. Word of Mouth	Was the word of mouth a criterion for your choice?
2. Faculty	Did contact with a faculty member during the application process induce you to choose the institution?
3. Status	What level where you applying for? (Graduate: 1, Undergraduate: 0)
4. Financial Aid	Did financial aid or a promise of financial aid Induce you?
5. Application Fee	Did any form of application fee waiver affect your choice?
6. Processing time	Was application processing time a reason for your choice?
7. Gender	What is your gender? (Male: 1, Female: 0)
8. Alumni	Did contact with alumni during the application process influence your choice?
9. Website	Was the website of the Institution a reason for you to choice?
10. Web-inquiry	Was a pre-application process important to you?
11. Documents	Was the application packet complete when you initially applied?
12. Choice	Did you finally choose the institution and decided to appear for the Visa interview?

Table 4: Variables Utilized for Developing the Recruitment model

The data was then categorized as a set of eleven variables representing the entire population of student feedback. Questions to the survey were queried as a probabilistic value; true being "1" and false being "0." Variables numbered 1 through 11 were used as input variables to the model, and variable 12 was chosen as an output variable which influenced the overall decision of the student to enroll or not. Sample size of twenty-four prospective students was utilized in this study. Table 5 and Figure 4 show the mean and standard deviation of each factor in the recruitment model.

Variables	Mean	Standard Deviation
1. Word of Mouth	0.83	0.41
2. Faculty	0.67	0.52
3. Status	0.83	0.41
4. Financial Aid	0.50	0.55
5. Application Fee	0.83	0.41
6. Processing time	0.67	0.52
7. Gender	0.50	0.55
8. Alumni	0.67	0.52
9. Website	0.83	0.41
10. Web-inquiry	0.41	0.17
11. Documents	0.55	0.50
12. Choice	0.52	0.67

Table 5: Mean and standard deviation of factors in the recruitment model

Sensitivity analysis was conducted on the model to extract the cause and effect relationship between the eleven inputs and the twelfth variable which was considered the output of the model. Conducting the sensitivity analysis involved varying each input variable across the entire numeric range while holding all the other input variables constant, so that the individual contribution of each field can be assessed. This isolated the significance that each variable plays in affecting the output. Sensitivity indicators of the model are provided in Figure 5 and Table 6.

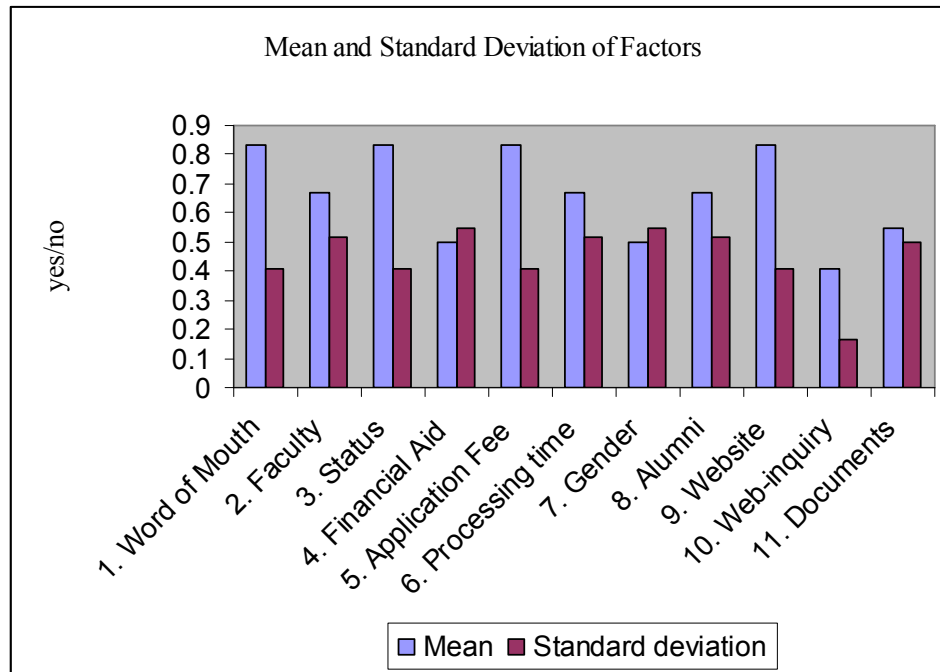


Figure 4: Mean and standard deviation of factors in the recruitment model

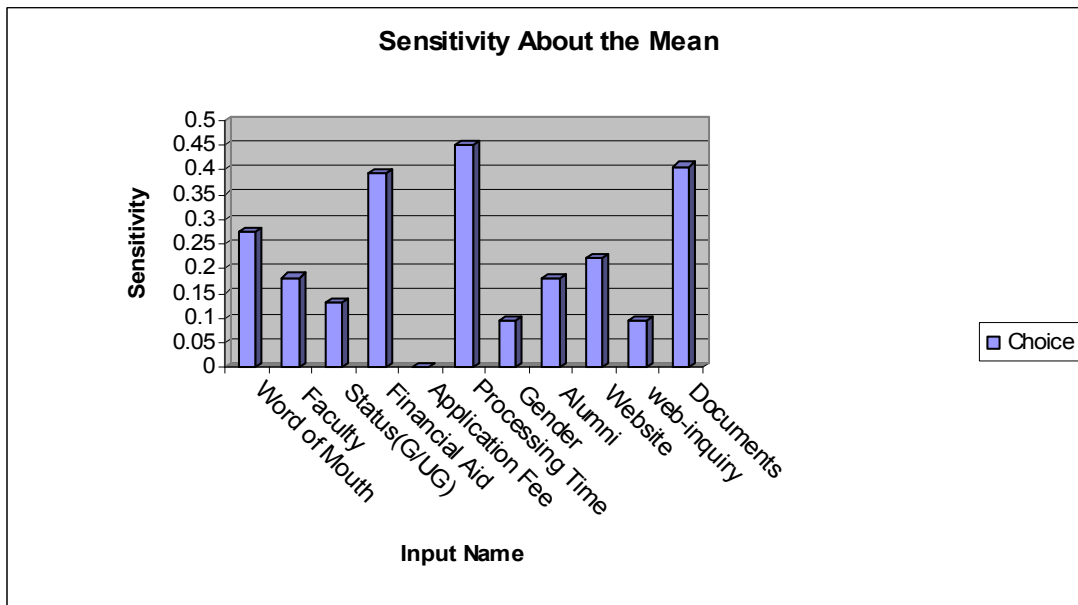


Figure 5: Graphical interpretations of Sensitivity Analysis data

Sensitivity	Choice	Rank
Word of Mouth	0.27	4
Faculty	0.19	6
Status(G/UG)	0.13	8
Financial Aid	0.39	3
Application Fee	0.00	11
Processing Time	0.45	1
Gender	0.09	10
Alumni	0.18	7
Website	0.22	5
web-inquiry	0.01	9
Documents	0.41	2

Table 6: Sensitivity Analysis data

Recommendations and Strategies

Based on the observations and the sensitivity analysis, input variables affecting the overall recruitment model are ranked in order as shown in the 3rd column in Table 6. The overall deductions and recommendations for the model have been listed below starting with the variable ranked the highest:

Rank 1: Processing time:

It was found that application processing time is the most important factor for overseas students. This may be due to the fact that foreign students have to obtain visas far in

advance to make travel plans to the U.S. Hence, the recommendation is to make the admission processing time as short as possible by eliminating all wasted activities that do not add value in the eyes of the student. This can have a significant effect on the students' choice of one university over another.

Rank 2: Documents:

It was learned that the complexity of documents ranks only second to the amount of application processing time for overseas students. More complex documents tend to confuse students, who without face-to-face guidance from universities tend to discourage them into looking at other universities with simpler paperwork. Also, this leads to the arrival of the application to the university in an incomplete form, which further results in delay. Delay in international mail can also compound the problem.

For alleviating these problems, we recommend streamlining the application documents as much as possible, preferably making the student fill out the application online, and provide live interaction through the web to guide the student through the application process.

Rank 3: Financial Aid:

Contrary to the belief that financial aid is the most critical factor swaying a foreign student's decision to join a university, it was found not to be true. There seems to be more and more disposable dollars available to business persons in foreign countries that they could use for their offspring's education. Based on interaction with students, making a substantial up front down payment seems to be more of a problem than being able to pay the entire fees over an extended period of time. Hence, we recommend colleges and universities should consider development of payment plans for international students to enable them to pay bills over a longer period of time without penalty.

Rank 4: Word of Mouth:

It was found that word of mouth is a substantial factor in a student's choosing one university over another. In discussion with students, it was realized that the group of students in major overseas cities who are all attempting to go abroad for higher studies is a very close knit group who freely share the pros and cons of various universities. This also explains why there is a substantial influx of students found presently at certain universities from certain foreign cities. We hence recommend providing a level playing field with the same rules for all applicants.

Rank 5: Website:

The next factor that was found to have the most effect on the student's choice of an institution was the quality and utility of the website. Ease of obtaining information on financial aid, opportunities to network with their peer group, the quality, extent and type

of research conducted by the institution, and easy review of the degrees offered were found to influence students' choice significantly. We recommend that as the use of the World Wide Web as a source for obtaining information by potential students is expected to increase, institutions would be well served to ensure that their websites are attractive, up-to-date, and provide extensive information regarding topics of interest to incoming foreign students.

Rank 6: Faculty:

Next, it was found that students liked to interact with the faculty to some extent through the use of email or mail before they send in their application to a university. It was seen that a couple of email exchanges gave the students an idea as to the research interests of the department they were pursuing and whether they stood a chance to get funding after the initial semester. Most students were ready to bear the full cost of the first semester.

Hence, universities would be well served to train their faculty members in how to interact with prospective students, and to provide faculty with links and resources to answer questions that the students might ask of them. In the eyes of the students, the faculty is the window to the university and they have come to believe that the faculty should be the one-stop answer to all their questions. Even if the faculty did not have all answers at their fingertips, it would be good if they were trained to send students to a minimum number of other places to get their answers.

Rank 7: Alumni:

It was found next that students prefer some form of alumni interaction or input before making up their mind in applying to a university. Mention of alumni chapters on the institution website if existing in a particular country, or quotes by alumni on the departmental website with email contact information if possible, would help students get a better feel for the university and the department. Also, in what capacity the alumni are presently working who graduated from the university was one of the items of interest that students showed interest in.

Rank 8: Status:

Of the students in the study, it was found that more students seeking a graduate degree as compared to an undergraduate degree come to the U.S. In probing further with the students, the reasons for this seemed to be: (1) parents' apprehensions about the maturity and development of their sons and daughters at the age they are ready for undergraduate studies, (2) parents' perception of a higher status for a master's degree from a U.S. university, and (3) the availability of graduate research assistant and graduate teaching assistant positions after the first initial semester. Learning from this finding, it would serve well for U.S. institutions to structure their graduate programs more with an eye to attract foreign undergraduates. Clear instructions on what tests

they have to undertake like the TOEFL, GRE, GRE (advanced) etc., would go a long way in simplifying things for overseas students.

Rank 9: Web inquiry or Pre-application:

Based on the findings, it was found that students do not appreciate going through a pre-screening process.

This also was brought out by new students in informal discussions as they felt that they were made to undergo the application process twice. However, from the universities' point of view, it would be good to pre-qualify students before the universities put in substantial time to evaluate the application. However, for mutual saving of time we recommend instituting a self-qualifying form that allows the student to self-evaluate how well his/her expectations will be satisfied based on what the university can offer.

Rank 10: Gender:

Gender as a variable playing a role in which university is being selected by an applicant came out as one of the last factors in the sensitivity analysis. This signifies that the leading factors unearthed in the analysis are equally important to male and female students. In discussion with prospective students though, it was found that they would very much appreciate contact information of students who have recently joined a university. Hence, institutions would be well served to create a pool of first and second year students who would be ready to communicate with the prospective students to provide them with insight through their own experiences at an institution.

Rank 11: Application Fee:

It was interesting that several institutions perceived application fee waiver as an incentive for students to apply, whereas the importance of fee waiver came up as the very least important for the students. Although there is a limit to how many institutions a student may be able to apply, shelling out a \$100 application fee for 3-4 colleges does not seem to put undue hardship on many applicants. Taking a cue from this, institutions would be better off utilizing the application fee to upgrade their websites and provide incentives to their admission department to provide superior service to induce students to apply to their educational institutions.

Conclusions

Based on the overall study, it can be concluded that prospective overseas students are no different than any knowledgeable customer that any business would encounter. Considering students as a business customer and taking their wants and desires into considerations, would go a long way in increasing the flow of overseas students into the U.S. We believe that based on the above findings, developing a well rounded marketing strategy taking the main recommendations into consideration can go a long way in attracting and admitting students by U.S. institutions.

A further study to see how the perceptions of the students change over time after they have been admitted to a U.S. university can provide additional insight to better the marketing model, and is being considered by the authors. Also, developing a house of quality based on the above findings to truly identify the voice of the customer through quality function deployment is a next step envisioned by the authors.

References

- ¹ IIE Opendoors, "Opendoors 2005 Fast Facts", *Institute of International Education*, 2005.
- ² Blumenthal, P., and Obst, D., "Trends in International Students Enrollments in the United States", *Washington International Education Conference*, Presentation, 2005.
- ³ Grebski, W., "Engineering Technology Programs: Challenges and Opportunities", *Report of Engineering Technology*, ASEE, 2004
- ⁴ ECU Ad hoc Strategic Planning Committee for International Affairs, "Internationalization Goals for 2009 and a Plan for Achieving Them", *East Carolina University*, 2005.
- ⁵ Council of Graduate Schools, "Findings from 2005 CGS international Graduate Admissions Survey: Admission and Enrollment", *CGS*, November 2005.
- ⁶ Peyton, J., "Factors Contributing to the Desire to Study in the U.S.", *GMAC Research Reports, Graduate Management Admission Council*, October 2005.