



INTERNATIONAL JOURNAL OF RESEARCH IN COMPUTER APPLICATION AND MANAGEMENT

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- Schemenner, R.W., Huber, J.C. and Cook, R.L. (1987), "Geographic Differences and the Location of New Manufacturing Facilities," Journal of Urban Economics, Vol. 21, No. 1, pp. 83-104.

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QUALITY FUNCTION DEPLOYMENT FOR SERVICE DEVELOPMENT OF SELECTED PRIVATE COLLEGES/UNIVERSITIES

MA. TEODORA E. GUTIERREZ

ASST. PROFESSOR

INDUSTRIAL ENGINEERING DEPARTMENT

TECHNOLOGICAL INSTITUTE OF THE PHILIPPINES – MANILA

PHILIPPINES

ABSTRACT

The study aimed to identify the preferences of the parents and the senior high school students in private colleges and universities. On the basis of these preferences, House of Quality (HOQ) was then applied to capture the whole picture of the organization relative to the needs of its customers and its strengths and weakness to its competitor. Forty Eight (48) respondents from senior high school students and twelve (12) respondents from the parents of the senior high school students have been asked to accomplish a 21-item survey questionnaire about their requirements in choosing a college/university. The results of this is a prioritize criteria list of six elements namely; Curriculum, Quality of Instruction, Security and Safety, Achievement of School, Technological Advancement, Cost of Education. Considering these criteria, a customer satisfaction survey was developed and was given to thirty-four (34) randomly selected senior college students from University/College X and two focus groups from University/College Y and Z were then asked to fill out the customer satisfaction survey. The data obtained were then transferred to one of the tools in Quality Function Deployment that is the House of Quality. This resulted to competitive-assessment of University/College X. The House of Quality revealed that the percentage passer in board examination is the most critical factor in translating the desirable criteria of the respondents in choosing a University/College. It was followed by the faculty qualification tied with the achievement of the students. Third critical factor is upgraded instructional facilities. On the other hand, Competitive Advantage of the University/College X was also revealed where the cost of education is its current strength. In the end, recommendations were made for service development of University/College X relative to the needs of its incoming customers and current customers.

KEYWORDS

competitive advantage, cost of education, house of quality, quality function deployment.

INTRODUCTION

Customers nowadays, seek more requirements to the product or service being rendered by the business industry. They want more value to the trade-off like money and time they've given in exchange to the service or finished goods they've purchased. Education is one of the biggest budgets that parents allocate in their resources. No doubt parents would like to give the best to their children within their means. Education also is the stepping-stone in the achievement of the parents' dream for their children and also to the child's own goal. However, free education is limited in our country because of lack of public schools and universities within the different regions. That's why parents would stretch their means and ways just so their children will be given their right to education. There are private schools and universities that they might go to in order to finish their studies and consequently, achieved their desired goals.

REVIEW OF LITERATURE

"Quality function Deployment (QFD) is a planning and problem-solving methodology that is renowned for translating customer requirements (CRs) into engineering characteristics (ECs) of product planning and improvement" (Li, et al , 2011). For instance, Dar et al (2011) used Quality Function Deployment in analyzing the customers' requirement in a cement industry and the input data came from the customers, competitors and company's higher authorities through questionnaire. The results revealed that "customers require good quality, strength with nominal price" (Dar, et al. 2010). Li et al (2011),also used Quality Function Deployment- House of Quality in determining the aggregated priority ratings of an engineering characteristics of a product. They included a new approach in House of Quality, which exploits the competition and preference engineering characteristics, which could be used in product planning and improvement. Wang and Zhong (2009) used House of Quality for translating the requirements of enterprises for the graduates in Higher Education. The enterprises' requirements were analyzed and classified into four groups and linking this to the Higher Education's quality dimension, which was categorized into seven groups. A case study was conducted and one university was selected to demonstrate the application of Quality Function Deployment for "identifying the gap between the higher education and the enterprise requirements, and finding the weak points for further improvement"(Wang, 2009). Koksals, et al. (1998) used quality Function Deployment approach to improve the Industrial Engineering Education at Middle East Technical University. Stakeholders requirement were identified through survey from the IE students, faculty and future employers. Then, IE education requirements are identified to meet the stakeholders' requirements. The study revealed a strong initiative to consider improvement in teaching and counseling and curriculum design. (Koksals, et al, 1998). The incoming customers' need in Higher Education have not fully identified yet in the literature. Hence, the aim of this study is to identify the incoming customers' needs and wants in Higher Education so as to improve the Universities'/Colleges' competitiveness. Specifically, the aim of this study is to determine the critical factors that parents of senior high school students and the senior high school students seek in private colleges and universities. From these, their inputs were translated into "technical requirements" that the private colleges and universities had been offering. Then, benchmarking of the different colleges and universities would follow in the study.

PROBLEM STATEMENT

This study sought to identify the top-ranked preference of the parents of senior high school students and the senior high school students in private colleges and universities.

Specifically, it attempted to answer the following questions:

1. What are the factors that influenced the preferences of Senior High School Students in choosing and seeking for admission to a private university?

➤ SCHOOL RELATED FACTORS

- Cost of Education (tuition fee)
- Facilities (building design)
- Technological Advancements (air conditioned room, laboratory room with internet access, audio-visual rooms, etc.)
- Achievement of the School (board exam passers, quiz bee champions, Third Party Accreditation)
- Quality of Instruction (Faculty members with masters degree)
- Curriculum (relevance of subjects being offered in the programs)
- Support Systems of the College/University (different student's organization such as, university choral, theater group, dance group, English and Math clubs, Youth for Christ)
- Scholarship and financial assistance offered by the College/University.
- Security and Safety
- Advertisement of the schools (career talk, brochure, leaflets, newspaper ads)

➤ STUDENT RELATED FACTORS

- Influenced by parents in choosing their course or college/university
 - Influenced by friends to join them to a particular college/university
 - Career choice (availability of the desired course in the university)
 - Income of Parents
 - Proximity to residence
2. What are the strengths and weaknesses, opportunities and threats of University X, Y, Z?

SIGNIFICANCE OF THE STUDY

Surveying the parents and the senior high school students provides information for improvement in the early stage of the educational requirement. This would help the administrators to identify and validate the critical factors that their incoming customers seek in private college/universities. The study would also be a great help to build harmonious relationship to the parents and administrators to have confidence that their desired expectations to the colleges/university would be met by the technical requirements of the colleges and universities. The study would also show the advantage of using Quality Function Deployment as a scientific approach in transforming the voice of the customer into a technical or company terminology, as a result, product or service improvement would emerged.

METHODOLOGY

This study used descriptive research employing correlation. It employed a scientific approach in evaluating the voice of the customer and transforming it to quantitative measures with the help of the Quality Function Deployment tool. The sources of data for the customer’s requirements come from the randomly selected senior high school students and their parents within Metro Manila. Another source of data was the technical requirements or the so-called college/university customers’ requirements. The study used survey questionnaires to identify the preferences of the respondents in choosing a college/university. The survey questions consisted of 21 items that were divided into 3 major categories, which represent their preferences in choosing and seeking for admission in a private college/university, these are:

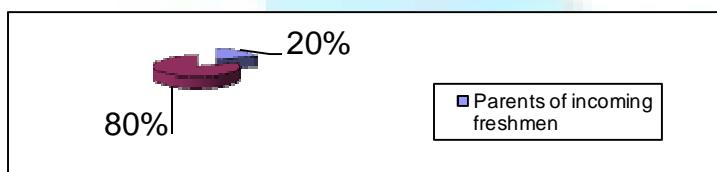
1. Respondent’s Personal Information (6 items)
2. School Related Factors (10 items)
3. Student Related Factors (5 items);

Descriptive statistics was used in this study such as the measurement of central tendency, variability and the correlation analysis.

RESULTS

PROFILE OF THE RESPONDENTS

FIGURE 1: PERCENTAGE DISTRIBUTION OF RESPONDENTS



Sixty respondents answered the 21-item survey questionnaire pertaining to the factors that influenced them to seek admission to a particular college/university. Twenty percent of the respondents were parents of incoming college freshmen and eighty percent were senior high school students in Metro Manila.

FIGURE 2: FACTORS THAT INFLUENCE THE PREFERENCES OF THE RESPONDENTS IN CHOOSING AND SEEKING FOR ADMISSION IN A PRIVATE COLLEGE/UNIVERSITY

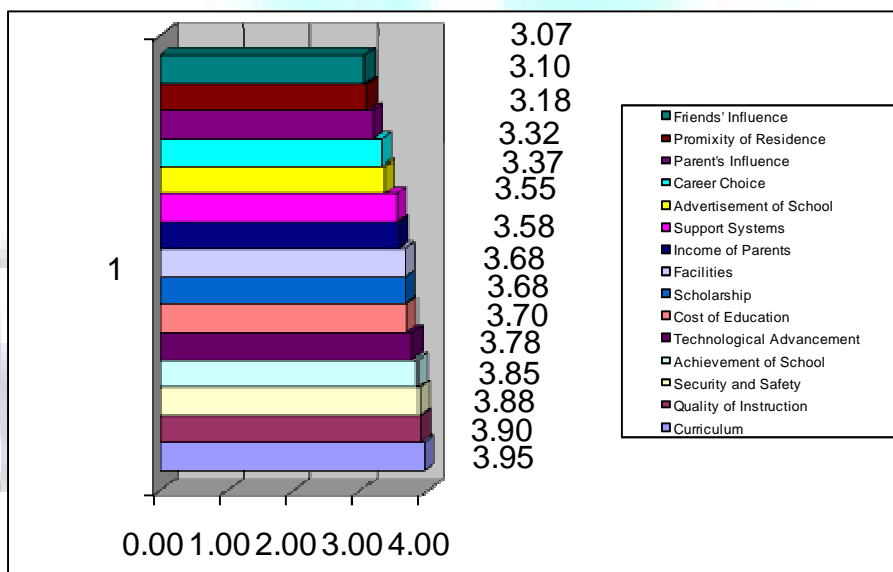


Figure above pertains to the factors that influenced the preference of the parents of the senior high school students and the senior high school students in seeking for admission in a college/university. It is presented in an increasing level of importance. Beside the graph are the mean values resulted in the respondents’ response in the survey questionnaire. It has only one main question stated as: “Does the following factors influenced your preferences in choosing and seeking for admission in a private college/university?”. The rating scale is from 1 to 4. Where value of 1 means Never, value of 2 means Seldom, value of 3 means Often and value of 4 means Always.

The proponent conducted test for significant difference to all the factors mentioned in the survey questionnaire. The results revealed that the top priority no.1 to no.6 namely: Curriculum, Quality of Instruction, Security and Safety, Achievement of School, Technological Advancement and Cost of Education do not have

significant difference among each other with 99% confidence level. Therefore, this means that these are the most influential factors in choosing and seeking for admission in a private university/college.

The needs of the incoming customers were then transferred to the "House of Quality" to further evaluate and assess the university/college in meeting the desired needs of the incoming customers.

CONSTRUCTION OF HOUSE OF QUALITY

There were several phases in constructing a House of Quality in order to capture the position of the organization in relation to the customers' needs and its competitors. In summary, the first step was to identify customers' wants, then it was translated to technical requirements, these are internal engineering restatements of the wants (Eureka, 1998). These became the specification for the overall product or service. Next was the establishment of the interrelationship of the technical requirements. The WHAT items (customer wants) from the House of Quality were mapped into the How items (technical requirements, therefore relationship was defined between them and the strength of relationship was identified through symbol, double circle represents a strong relationship, a circle depicts a moderate relationship and a triangle represents a weak relationship. Values of the technical requirements were determined. Then, construction of Competitive-Assessment was also present in the House of Quality located at the right side in order to depict its position in the market in relation to the performance of the other competitors. Lastly, importance rating was measured to assist in the prioritization and identify most critical factors in the organization.

FIRST STEP: HEARING THE VOICES OF THE CUSTOMERS - Incoming Students Needs (WHAT)

The voices of the customers, in this study are the incoming customers or the senior high school students. The 21-item survey questionnaire was given to them and the results are the top priority 1 to 6 criteria. These were then transferred to the left side of the House of Quality. This is also known as the WHAT of the House of Quality and is considered as the basic foundation of HOQ.

SECOND STEP: TRANSLATING THE NEEDS OF CUSTOMERS INTO TECHNICAL REQUIREMENTS - Measures for Incoming Customers' Needs (HOW)

These needs were then transformed into technical requirements, which were the measures of quality characteristics of the institution. It represents HOW the organization responded to each of the priority criteria stated in the incoming students needs. These were the items that are controlled by the institution to assure that customers' demands are met.

Given the needs of incoming students how to satisfy them were manifested by the following characteristics: Updated Course Syllabi, Faculty Qualification, Number of Course Preparation, Upgraded Institutional Facilities, Instructional Materials, Achievement of Students/Employee, Percentage Passer in Board Exams, Book Collection, Frequency of Incidents or Chaos, Financial Assistance Programs.

THIRD STEP: ESTABLISHING INTERRELATIONSHIP AMONG THE TECHNICAL REQUIREMENTS (HOW) - Interaction (Roof of the House)

It is also called Roof of the House. The entries of this part signify the interrelationship of the technical requirements or quality characteristics of the institution. The strength of the relationship among them was described with the aid of symbols. A double circle indicated a strong relationship; circle indicated a moderate relationship and a triangle indicated weak relationship. The identification of the interrelationship among the technical requirements was done by comprehensive analysis of the quality characteristics of the institution.

It reflected in the study that one of the quality characteristics of an institution is passing percentage in the board exam passer signified that it is interrelated to almost all of the technical requirements or quality characteristics of the institution. This means that a change for all technical requirements affected the outcome of the board exam passing percentage.

FOURTH STEP: ESTABLISHING RELATIONSHIP BETWEEN "WHAT" AND "HOW"

The body part of the House of Quality revealed the relationship of the incoming students' needs (WHAT) to the Quality Characteristics (HOW) of the Institution. The relationship is reflected in symbols. Double circle means a strong relationship of the variables involved; circle means a medium relationship of the variables involved and triangle means weak relationship.

For instance, highly developed curriculum had a strong relationship with updated course syllabi as depicted in figure 3. Moreover, updated course syllabi have a strong relationship with quality of instruction. Faculty qualification had a moderate relationship with the curriculum because the faculty is one of the sources in upgrading the curriculum in the department. Likewise, faculty qualification had a strong relationship with the quality of instruction in the institution. However, it had a moderate relationship with the achievement of the school since there are still other factors that influence the achievement of the school such as the support of the rest of the institution's community. Percentage of Board exam passer has a moderate relationship with the curriculum, had a strong relationship with the quality of instruction and achievement of the school. Further, it had a weak relationship with the technological advancement of the institution because technology itself cannot teach the students but in the presence of these, it required to have a qualified faculty and a right attitude of the students.

FIFTH STEP: IDENTIFICATION OF THE VALUE OF THE TECHNICAL REQUIREMENTS (HOW) - Criticality

The value of the technical requirements of the institution was based on the current specifications of each technical requirement. For example, the updated course syllabi requirements of the institution should be done every semester. The institution's current state in hiring qualified faculty is at least with units in masters' degree or better yet a graduate of master's degree. As for the number of course preparation for each faculty, at present the average is six preparations.

SIXTH STEP: DEVELOP COMPETITIVE ASSESSMENT GRAPHS - Current Customers' Rating

Considering the resulted six criteria in choosing and seeking for admission in private university/college a customer satisfaction rating was developed. The respondents were the thirty-four (34) randomly selected current students of the institution. The customer satisfaction survey was used in evaluating the institution performance based on the set criteria of the incoming customers. The results were then graphed at the right side of the House of Quality. Benchmarking with the competitors was then applied. Two respondents from each competitor were asked to fill up the same customer satisfaction survey in their institution. The respondents were selected in the basis of the criteria that they have at least three years residency in their institution. The result was then plotted and graphed at the right side of the House of Quality.

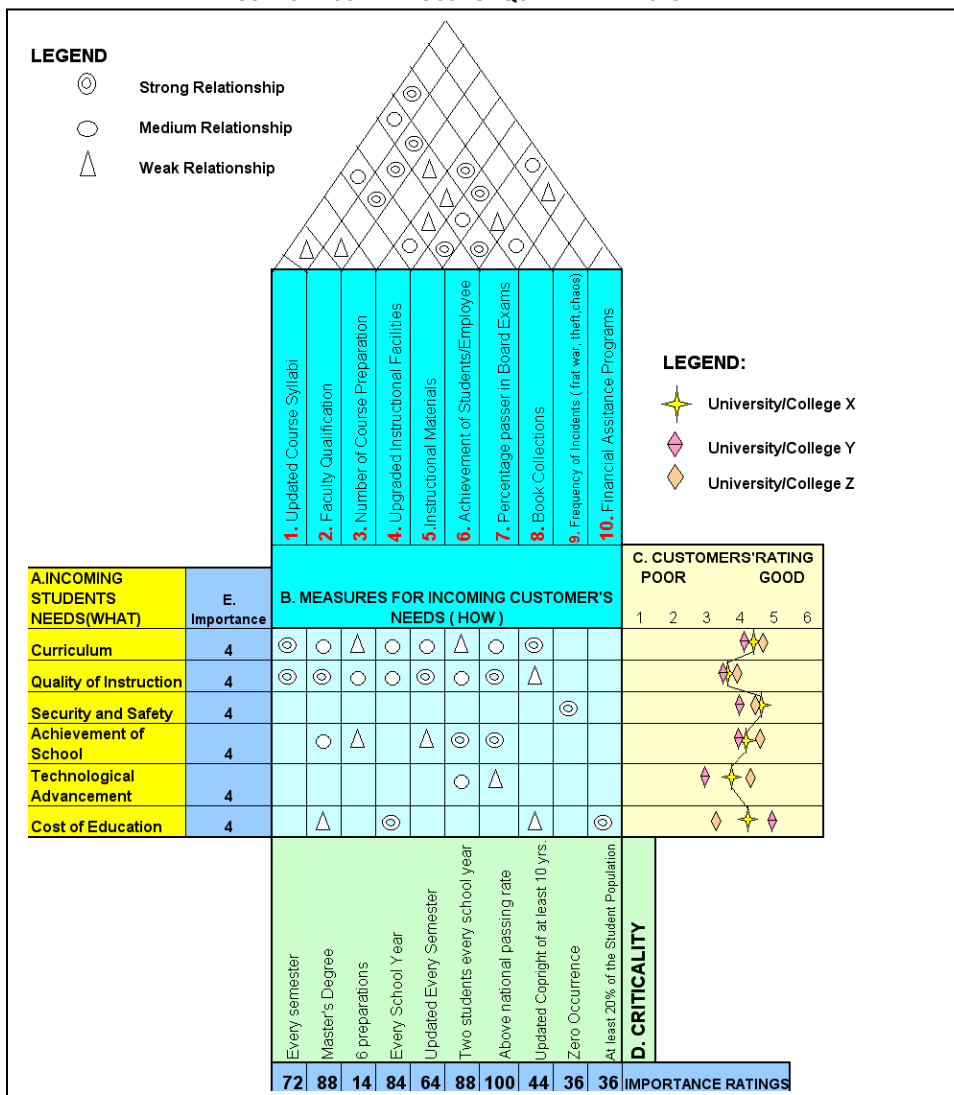
There were three symbols present on the right side of the HOQ. The star symbol with color of yellow is the performance of University/College X based on the feedback of their current students. The other symbol pertains to the level of performance of the competitors, which was also based on the feedback of their current students.

SEVENTH STEP: SET IMPORTANCE RATINGS

The bottom side of the house of quality reflects the importance ratings of the quality characteristics based on their relationship to the desired needs of incoming students. This would help the institution to identify their priority in relation to the needs and wants of the incoming customers. Relationship symbols of double circle had a value of 9, circle symbol had a value of 6 and triangle had a value of 1. Importance ratings were calculated from the summation of the value of relationship symbol multiplied by the value of the rank of importance of the "what" (Incoming customers' needs) criteria. For instance, the value of 72 came from the strong relationship of the Curriculum to the Updated Course Syllabi plus the strong relationship of Quality of Instruction to the Updated Course Syllabi. Thus, the Curriculum strong relationship value of 9 multiplied by 4 which is the rank value of the Updated Course Syllabi plus the Curriculum strong relationship value of 9 multiplied by 4 which is the rank value of the Quality of Instruction. In other words the importance rating came from the summation of the product of equivalent value of relationship times the rank value of the What of HOQ. The rank value for all the What of HOQ is the same because it was previously tested that there was no significant difference between them, hence their priority rank is the same and the rank value is four.

It is noted therefore that the passing percentage of board exam had the highest importance rating with a value of 100. This factor is a critical quality characteristic that highly affected the decision of the incoming students to seek enrolment or admission to the desired university/college. It was followed by achievement of school and faculty qualifications. The House of Quality revealed that the competitive advantage of University/College X to its competitors is the cost of education.

FIGURE 3: RESULTED HOUSE OF QUALITY IN THE STUDY



DISCUSSION

With the above-mentioned result the following are the suggested service development to meet the perceived needs of the incoming customers:

1. Evaluation of all board exam subjects for all courses with board examinations. Currently, evaluation for the University/College X was done randomly in different subjects of a particular faculty member.
2. Although multi-tasking is important, faculty member might be specialized in one or two board exam subjects so faculty member continue to get better, thus achieved expertise in the subject area. For example, Engineering Economy subject is a board exam subject for all engineering courses; one faculty could be tapped to teach these subjects to all engineering courses. On the average, there are five to six engineering economy sections; hence there is only one preparation of faculty of the 18 units that he handled. This would enable the faculty to have adequate time in exploring the subject and have ample time to prepare a good teaching methodology for the subject matter.
3. Organize board exam circle for every course that requires board exam. This is usually composed of the graduating class. Although there is an existing organization for all courses, however it caters to all year level. This one is exclusively for graduating students who will take the board examinations. Just like any other organization, the activities to be done are for the preparation for the upcoming board examination, preparing them physically, mentally and spiritually. This organization will facilitate the sharing of notes and other relevant information about board exams. In effect, they are empowering themselves. There will be elected president, vice president and secretary and adviser for each course that requires board examination.
4. Encourage students to create and implement student's achievement plan. The concept of this achievement plan is to have each and every student take responsibility for his or her own path and assemble a plan of action for success.

SUMMARY OF THE FINDINGS

The study reflected that 48.3% of the respondents' desired courses are offered in the institution. Moreover, 46.7 % of the respondents' do not have a target college/university after graduation from secondary schools. 31.7 % of the respondents' parents have a salary range of 20 thousand pesos and above per month, however, 68.3% of the respondents' parents have a salary range of less than 20 thousand pesos per month.

The study also resulted in six top most criteria in seeking for admission in a university, these are: Highly Developed Curriculum, Quality of Instruction, Security and Safety, Achievement of School, Technological Advancement, Cost of Education. The House of Quality revealed that the percentage passer in board examination is the most critical factors in translating the desirable criteria of the respondents in choosing a university/college. It was followed by the faculty qualification tied with the achievement of the students. The third critical factor is upgraded instructional facilities. On the other hand, competitive advantage of the University/College X was revealed where the cost of education is its current strength.

CONCLUSIONS

Using Quality Function Deployment technique particularly one of its tool, the House of Quality (HOQ), it enable to capture the whole picture of the organization relative to the needs of its customers and its strengths and weaknesses to its competitors. Hence, there is a greater likelihood of meeting the needs of the incoming and current customer and eventually closing the gap. Moreover, identifying the most critical area and set priority to it is a must to avoid an exponential

effect to the institution. These tools helped the institution to evaluate whether the current strategy and action plan are going to the right direction in meeting the needs of the customers.

RECOMMENDATION

The proponent recommends to further validate the target value of each quality characteristics and its future value so that institution will continue to have competitive advantage over the other competitors. Further study is also recommended on the technical requirements of the customers' needs. Lastly, further study is also recommended on identifying the main driver of the most critical factors.

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