A system for periodic evaluation of continued education programs with the aid of the QFD methodology.

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Abstract: The proposed methodology, based on the use of Quality Function Deployment (QFD) techniques, was developed to improve progressively the Continued Education Programs in Engineering' quality. Taking into consideration some particularities, inherent to practice, which were indicated during the work, the results obtained were very positive. The methodology has affirmed itself as capable of showing the continued evaluation of a course, reflecting improvements and pointing out new problems concerning quality. The whole methodology, as well as its practice, is detailed in the article.

Index Terms - Continued Education, QFD, Quality Assurance.

1. INTRODUCTION

Quality evaluation is a key-process for the success of most activities. For products as well as for services, it has been fundamental for enterprises to define clearly their current quality rates and the consumer quality expectation. This task can be considered a challenge especially in the education sector due to some particularities. The main difficulties are related to high variability and low definition of students' profile [1] and subjectivity of measurement parameters [2]. It's especially difficult to define quality in the case of sophisticated, complex services, however, everyone agrees that quality is a major element of costumer satisfaction [3].

Pokholkov et al [4], reinforce the increasing concern of the society about education quality at all levels due to its close relation with the society's development. Reference [5] agree that concern about education quality in universities has grown in recent years. It must also be considered that companies are realizing that "an engineer's capabilities are the source of company profit, and that long-term increase in technical capability ensures a competitive edge and contributes to increased profit" [6]. Therefore, the demand for Continued Education Courses by professionals (in particular, engineers) has been increasing, because these courses are highly valued in anyone's résumé. And even companies have raised incentives, not only financial ones, regarding their professionals' experience in this kind of program.

Specifically in Continued Education matters, some issues make quality management a difficult and interesting task. Some of them are:

- The fact that most of these students have already been through other courses gives them a background in terms of quality, which makes the students more demanding;
- The programs are usually expensive;
- The course is not the priority in the students' life, their main concern is work;
- The duration of program is shorter (one to two years), making it difficult to evaluate the satisfaction of the student along.

Quality evaluations through sequential years disclose trends and behaviors that are not noticeable in sporadic ones. Therefore, this work was developed having in mind an annual quality evaluation process of the service offered, which would have to identify progresses and regresses compared to previous years. According to [7], commonly used processes are not always sufficient and/or adequate for these objectives. These evaluation systems result in difficulties and distortions when several consecutive periods are compared.

Considering the information exposed, the methodology presented in this paper was developed and applied to students concluding an Engineering Specialization Course in 2003, 2004 and 2005. Due to good results obtained, it has been incorporated into other processes necessary for program execution and has been applied in a continuous way.

In three consecutive years (2003, 2004 and 2005) opinions of recently graduated students about the whole course were measured and analyzed. According to what was already affirmed above, evolutions of the course were observed through continuous data collection and comparisons during this study period. As the experiment period is still short (three years), the precaution of avoiding wrong conclusions was adopted. The analysis in this three-year period is not enough to obtain conclusive opinions about any subject yet. However, data trends can already be observed.

2. THE UNIVERSITY AND THE PROGRAM

The Polytechnic School of the University of São Paulo (EPUSP) was founded in 1893 and currently has 15 departments of education and research in engineering, distributed in 9 buildings with 141,500m^2 of constructed area; there are 485 professors, 404 of whom have a PhD. The student staff is composed of approximately 4,500 undergraduate students, 4,000 graduate students and 4,000 specialization students in the long-term continued education programs. One institution of Polytechnic School is PECE ("Programa de Educação Continuada em Engenharia", in Portuguese), which offers specialization courses. “Product Management and Engineering” is one of the courses offered by PECE, to which the methodology presented in this paper was applied. This course was created in 2000 and aims at complementing the education of graduates already in the professional market and demanding knowledge update. Target public is professionals in several areas related to new product and business development, and project management, both in public and private sectors. The course is composed by 14 disciplines (30 hours each) selected by the student from a list of 30. The student must complete 420 hours of classes and develop a thesis in order to obtain the conclusion certificate of the course.

3. QFD METHODOLOGY

The Quality Function Deployment (QFD) methodology was conceived in the late 1960s in Japan [8]. From 1966 to 1972 it was experimented in some industries. In 1972, the first paper describing QFD’s terminology and procedures was published. At the same year it was applied at Mitsubishi Heavy Industries, with the developing of the quality charts, which nowadays are the QFD core [8]. Since then, it has been used in several sectors. One prominent application example is in the automobile industry. It has reduced costs and has improved the clients' satisfaction.

The methodology uses a structured approach that aims the planning and performance improvement of quality of products and services. Through strong relationship with the consumer, the method allows changing opinions, rather subjective, in indices. It’s actually possible to compare consumers' desires with products and services performance. Therefore, it’s possible to drive efforts in order to get the consumers' perception concerning product/service good quality.

Another strong point of QFD is to show clearly and precisely the processes that affect each quality item. The tool used for this is the QFD matrix, commonly known as the house of quality. In this way, it’s possible to determine which processes need to be changed in order to modify item’s quality.

It’s important to note that the proposed methodology is close to QFD. The difference between them is some adaptations due to educations’ services, and some added steps that allow periodic evaluation and comparison several years along.

4. PROPOSED METHODOLOGY

The methodology proposed combines a system for periodic evaluation with the QFD methodology. QFD has proved to be an efficient way to evaluate quality in Continued Engineering Education [9]. Therefore, QFD was utilized for data analysis.

The process consists of ten basic phases:

1) Determination of students’ quality requirements – The course coordination is responsible for elaborating this list, so that the quality requirements of students can be determined. Students appraise these items by attributing grades to each one.

2) Determination of importance rates – The “original” QFD methodology defines that importance rates are determined by students in a questionnaire. But for Continued Engineering Programs, it is more appropriate that the program coordination establishes these rates.

3) Determination of the process involved in the course – The course’s coordinator elaborated a chart with every process of the course [9].

4) Definition of the correlations between the student’s requirements and the program process – A matrix was assembled, in which lines show the quality requirements and the columns, the processes. Therefore, each quality item is associated with one or more processes. The relationship levels are: 0 (no correlation), 1 (possible correlation), 3 (some correlation) and 5 (strong correlation). In the QFD methodology this matrix is part of a chart called “House of Quality” [10]. The importance of this matrix is to denote what process should be modified in order to improve a quality requirement.

5) Determination of students’ satisfaction rates – In this phase, the form sent to the students is elaborated and the evaluation criteria are defined. The form elaboration process look likes the process presented by [11]. At first, stakeholders meeting, student focus group and literature reviews are made. In second stage, a draft is proposed. Third, the item set is reviewed by an specialist: this review eliminates linguistic ambiguities and the adequacy of item is analyzed. At the beginning of the form, personal data is identified. Information about marital status, gender, age and sponsorship (by family, by company or partially by the company) is collected. Then there is a topic about motivations. The third and most important topic is the evaluation of 43 items directly related to quality. First, issues with relevant influence on course quality are identified. In this case, the issues were grouped by similarity, originating the following groups: *infrastructure*, *program structure*, *professors*, *support*, *evaluations* and *others*.

A good method to evaluate items is scoring them and using graphs and tables to analyze the results. At this point, it is defined that students would score motivation and quality items by a range between 1 and 6, being 1 “completely unsatisfied” and 6 “completely satisfied”. At the end of the evaluation form, there is a space available for general comments. In 2003, the questionnaire was responded by 28 students; in 2004, by 27 and in 2005, by 34. It is worth saying that the number of answered

questionnaires was equal to half of the number sent. That makes the sample constituted of approximately half of the population.

6) Calculation of the expected, current and relative performance rates – These indexes are calculated by multiplying importance and satisfaction rates by relationship levels. In such case, the expected and current performances respectively were obtained. The relative performance is the ratio between current and expected performance. Analyzing Table III, it is possible to understand how these indexes are calculated. For example for the process "11. School registration/payments" the expected performance (absolute) is: 4.5x3 + 4.8x5 + 5.5x3 + 5.5x3 = 70.5; and the current performance (absolute) is: 4.3x3 + 4.5x5 + 4.8x3 + 5.1x3 = 65.1. So the relative performance for this process is 92%.

7) Calculation of the process impact scale on the course – This item puts in sequence the process that influences the program the most. Some processes, if slightly changed, could affect the whole program. Others would not cause important effects, even if deeply rearranged. This scale is based on the expected performance rates. The process that has the greatest rate is that which impacts most on the course. In the example presented in Table III the process is "6. Allocation of professors".

8) Calculation of the improvement rate – The difference between the importance and satisfaction indexes, divided by the satisfaction index of a certain requirement represents the improvement rate of this requirement. This index indicates how much a satisfaction index should be improved. A negative rate indicates well-evaluated items, but which are not important for students.

9) Analysis of the results – Quantitative data's analysis is the most important step of the methodology. After elaboration of the matrix and appraisal of the indexes, it is possible to assemble the House of Quality. This chart compiles all information, and aids in the visualization of the data.

Now, it is possible to know the best and worst evaluated quality items, the most important process and the relationship between the process and the quality items. Nevertheless, it is still necessary to determine the actions that will be implemented to optimize quality. What items will be focused? Resources should be invested on bad and important quality items. There is a figure used to guide this decision (figure 1).

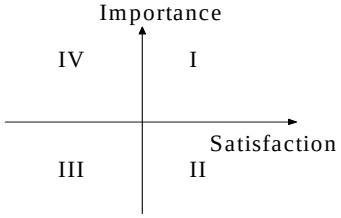

FIGURE 1
IMPORTANCE VERSUS SATISFACTION

According to rates of importance and satisfaction, each item will be inserted in a quadrant. In the diagram, as we can see, there are four quadrants. Each one represents a different situation: in quadrant I there are well evaluated items and of high importance; in quadrant II there are well evaluated items but of no importance; in quadrant III there are badly evaluated items and of no importance; in quadrant IV, the most critical one, there are items with high importance but low evaluation. Therefore, it is advisable to devote efforts to quadrant IV items.

The division in quadrants is a part of the process that requires attention. Reference [12] in his work set the intersection of the importance and satisfaction axes at the central value of rates. Therefore, for instance, the intersection of rates ranging from 0 to 6 will be at value 3. Thus, according to the average obtained for the values of importance and satisfaction, the item is allocated to a quadrant. This method can present a shortcoming. In case most items are evaluated with some bias (with very high or very low rates), this procedure will cause most items to be relocated to a certain quadrant, hindering the evaluation of those that require actions and improvement more urgently or that do not require investments. To minimize this problem, a new method is proposed to determine the intersection of the axes: to add the highest rate to the lowest one and divide the result by two. Once this is done for both axes (importance and satisfaction), it will be possible to determine the values of both axes for the intersection point. This procedure still shows shortcomings in some specific cases and will be reviewed in future applications.

10) Improvement Actions – Now actions have to be selected in order to improve the quality of the program. Improvement actions should be defined by the course coordination, considering the course's budget, aiming at an evolution of items in quadrants IV and III to quadrants I and II, respectively. Figure 2 synthesizes the whole process:

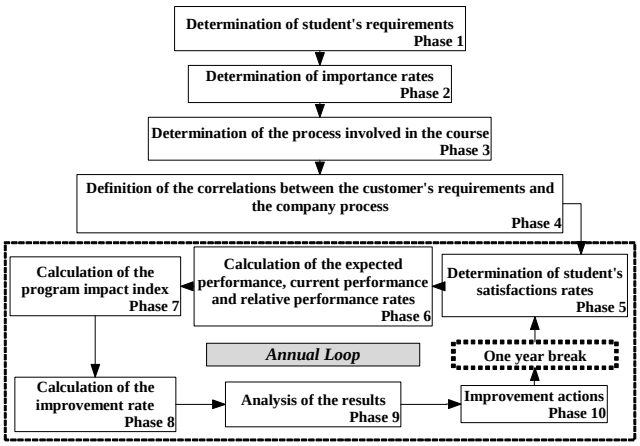

FIGURE 2
PROCESS

5. CASE STUDY

Methodology application in the course of Product Management and Engineering and its results are presented in sequence. It is important to point out that the form is divided in three parts: profile, motivation and quality items. Profile and motivations are defined in order to know the students in more detail. The quality improvement actions are decided based only on the performance of

quality items.

5.1) Personal data

The four questions related to personal information are: marital status, gender, age and sponsorship (Table1).

TABLE I
PERSONAL DATA (%)

		2003	2004	2005
Marital status	Single	46	30	35
	Married	54	59	62
	Divorced / Widowed	0	11	3
Gender	Male	86	78	74
	Female	14	22	26
Age group	20 to 24 years old	0	0	0
	25 to 29 years old	29	22	29
	30 to 34 years old	32	33	35
	35 to 39 years old	14	22	18
	40 to 44 years old	14	19	6
	More than 45 years old	11	4	12
Sponsorship	Sponsored by yourself	54	52	65
	Sponsored both by your company and yourself	29	48	20
	Sponsored by your company	18	0	15

It is visible that, in 2004, the percentage of singles decreased, while the number of married and divorced/widowed increased. But in 2005 just the last one decreased.

The proportion of female has increased but there is still an expressive predominance of males. Around 75% of students are between 25 and 40 years old in the three years.

There was a huge drop in sponsorship by the company from 2003 to 2004. Nevertheless, from 2004 to 2005 the trend was inverted. It is interesting that those totally sponsored by the family have decreased in 2004 and re-increased in 2005. A study to identify root causes of this occurrence is necessary, because this information is important for the planning of new classes.

5.2) Motivation

We can observe reasons that motivated people to take the Product Management and Engineering Course (table II). It is important to notice that if an item was essential in the student's choice for this course, this item was scored with maximum grade, that is, 6. If this item had no importance, its score was 1.Table II shows average (av) and deviation (dev).

Looking at the table, the three least important items were the same every year, with a position change between *Financial Return* and *Network* in 2004. *Company Request* has been graded as the least important when deciding whether to take the course or not. The following least important items are *Network* and *Financial Return*, in this position in 2004 and in the inverse in 2003 and 2005. This oscillation can be considered natural, because there is a large data deviation. Moreover, the differences between the averages are very small. This fact can be highlighted also in the three most important items.

The students were given the opportunity to include motivations other than the specified ones. In 2003, only two other motivations were included, and, in 2004, just one. As these answers were varied and very specific, comparisons could not be made.

TABLE II
MOTIVATIONS (%)

	2003		2004		2005	
	av.	dev.	av.	dev.	av.	dev.
Certificate	4,8	1,7	5,0	1,1	5,2	0,7
Continuous learning	5,5	0,8	4,5	1,4	5,0	1,1
Interest in the subject	5,3	0,8	4,9	1,4	5,1	0,9
Financial return	3,3	1,4	3,6	1,3	3,7	1,4
Network	3,9	1,3	3,2	1,6	3,9	1,3
Company request	1,8	1,1	2,4	1,7	2,3	1,6

5.3) Quality Items

The proposed methodology was applied to the course for three subsequent years. In Figure 2 it is possible to see that some steps were applied every year, while others were defined only once. Table III, the House of Quality, synthesizes the whole process (for 2005):

It is possible to see the students' requirements defined by course coordination. These items were placed in 5 groups: *Infrastructure; Program Structure; Professors; Support; Evaluation* (table III). The next step is the definition of importance rates, in this case, by the coordination. These rates are in the column *Importance*, and are the same every year.

Then the processes involved in the course were determined. The fifteen processes are on the first line of the matrix. The following step is the definition of the correlations between customer's requirements and the company processes. The center of the matrix, filled with numbers 1, 3 or 5, represents the relation between the process and the items. This is the last step that is not modified every year.

The next item, determination of students' satisfactions rates, is made through a questionnaire. The result is in the column Satisfaction, which shows the average amongst students' rates. The results in the three years are shown (Table IV).

Steps 6 and 7 are presented on a scale (absolute and percentage) at end of the matrix. Step 8 is the last column of the matrix.

Step 9 involves the analysis of results and Step 10, improvement actions. The analyses of each year are basically the division of items in quadrants. The best way of observation is the comparison amongst the different years.

As presented previously [11], it is preferable to have items in quadrant I: high importance and satisfaction. Quadrant II is interesting too. We must not have items in quadrant IV and we must avoid items in quadrant III.

These changes were possible due to the awareness of the correct points on which to invest efforts in order to improve quality. With this information, actions were implemented, such as the installation of air conditioners, meetings with professors towards solving organization and evaluation problems, and the redesign of staff organization.

TABLE III
HOUSE OF QUALITY

	Importance	Satisfaction	1. Allocation of rooms	2. Allocation of the day of the week for disciplines	3. Purchases for administrative and support staff	4. Purchases of material for disciplines	5. Training and motivation of the support and administrative employees	6. Allocation of professors	7. Organization of the calendar	8. External dissemination of the program	9. Dissemination of information to students	10. Selection of students	11. School registration/payments	12. Preparation of the course by the professor	13. Administration of the course by the professor	14. Process of student evaluation	15. Equipment and premises maintenance	Improvement Rate (%)
Infrastructure																		
1. Location and access to PECE	**4,3**	**4,8**	1															-11
2. Safety offered by the location	**5,5**	**4,6**	1	1														19
3. Parking easiness	**4,8**	**4,3**	1	3				1										10
4. Thermal comfort of the classrooms	**4,8**	**3,9**	5					1							1		3	22
5. Acoustics in classrooms	**4,5**	**3,7**	5	1				1							1		1	23
6. Comfort concerning the presence of insects	**5,0**	**2,4**	5	1				1							1		3	110
7. Visual comfort	**4,5**	**4,2**	5	1				1							1		1	8
8. Comfort of the chairs and desks	**4,5**	**3,6**	5	1				1							1		1	24
9. Adequacy of the bathrooms	**4,5**	**3,5**	1		3												3	29
Program Structure																		
1. Supply of information regarding the program aims	**5,5**	**4,4**					3				5	1				1		26
2. Degree of previous knowledge that the students must have to follow the program	**4,3**	**4,4**									5	5		1		3		-3
3. Supply of information about prerequisites to follow the program	**4,5**	**4,3**									5	5	3					6
4. Open structure of the program (to be able to choose a course out of a package)	**5,3**	**5,6**	3	5				3	3		1							-7
5. The extension/duration (14 courses plus monograph) of the program	**4,5**	**5,0**	1	1				3	3									-9
6. The number of class hours of each course (30	**4,0**	**4,7**	1	1				1	3					1	5			-14
7. Weekly frequency of lessons per course (once a week)	**4,0**	**5,4**	1	5				3						1	3			-25
8. Convenience of the beginning and end schedules of the lessons (19:20 ~ 22:40)	**4,0**	**5,3**	1	1				3							1			-24
9. Degree of depth of the topics approached in the course	**4,3**	**4,2**						3				1		5	3	5		0
10. Integration among courses of the program	**4,8**	**4,4**		1				1						5	1			8
11. Size of the groups (number of students per room per course)	**4,5**	**4,9**	3	3										3	3	1		-9
Professors																		
1. Mutual respect between professors and students	**5,8**	**5,4**						3				3		1	5			7
2. Punctuality and assiduity of the professors	**5,3**	**5,3**						5							5			-1
3. Exploitation on the part of the professors of the lesson time	**4,3**	**4,9**						5						3	5			-14
4. Preparation of the lessons by the professors	**5,3**	**4,9**				3		5						5	3			8
5. Technological resources used by the professors in the disciplines	**4,3**	**4,7**	1	1		3		5						3	5		5	-10
6. Easiness of communication, on the part of the professors	**5,3**	**5,1**						5				3			5			3
7. Accessibility to the professor out of the classroom	**3,3**	**4,4**					3	3							1			-26
8. Bibliographical material (revision aid, books, etc) made available	**4,3**	**4,5**				5		3						5	3	5	3	-6
Support																		
1. Access to information on the courses (schedule, accomplishment cycle, etc.)	**5,0**	**4,6**					5			3	5							10
2. Access to information regarding grades, courses etc	**5,0**	**4,7**					5				5							7
3. Snacks served	**4,5**	**3,5**			3		3										1	30
4. Registration process	**4,8**	**4,5**			1		5			3	1		5				3	7
5. Efficiency of administrative staff	**5,5**	**4,8**			3		5			3	1		3				3	15
6. Efficiency of classroom support employees	**4,3**	**5,0**			1		5	1									1	-14
7. Friendliness of the Program employees	**5,5**	**5,1**					5			1	3		3				1	9
Evaluation																		
1. Adequacy of evaluation method in general	**4,5**	**4,8**				1		3								5		-7
2. Evaluation criterion demands what the student needs to know	**3,5**	**4,8**						1						3	3	5		-27
3. Level of evaluations compatible with level of given content	**5,0**	**4,9**						3						3	3	5		1
4. Strictness of criterion for evaluations	**3,8**	**4,6**						1				3		3	3	5		-19
5. Stated period for evaluation result delivery is met	**4,5**	**4,0**					1	3							3	5		13
Expected performance (absolute)			*185*	*120*	*53*	*54*	*194*	*317*	*41*	*51*	*153*	*98*	*70*	*186*	*296*	*172*	*135*	
Expected performance (relative) in %			*8,71*	*5,62*	*2,47*	*2,55*	*9,14*	*14,92*	*1,94*	*2,41*	*7,21*	*4,60*	*3,30*	*8,76*	*13,92*	*8,07*	*6,36*	
Current performance (absolute)			*163*	*125*	*45*	*56*	*183*	*331*	*46*	*46*	*141*	*97*	*65*	*197*	*309*	*182*	*119*	
Current performance (relative) in %			*7,73*	*5,95*	*2,12*	*2,67*	*8,69*	*15,72*	*2,18*	*2,21*	*6,70*	*4,61*	*3,07*	*9,35*	*14,69*	*8,65*	*5,66*	
Current/Expected (relative) in %			*88*	*105*	*85*	*104*	*94*	*104*	*111*	*91*	*92*	*99*	*92*	*106*	*104*	*106*	*88*	
Impact on the course			**5º**	**9º**	**13º**	**12º**	**3º**	**1º**	**15º**	**14º**	**7º**	**10º**	**11º**	**4º**	**2º**	**6º**	**8º**	

TABLE IV
AVERAGE

		2003		2004		2005	
	Importance	Average	Quadrant	Average	Quadrant	Average	Quadrant
Infrastructure							
Location and access to PECE	4,3	4,5	II	4,9	II	4,8	II
Safety offered by the location	5,5	4,5	I	3,9	I	4,6	I
Parking easiness	4,8	4,1	I	4,0	I	4,3	I
Thermal comfort of the classrooms	4,8	3,5	IV	4,1	I	3,9	I
Acoustics in classrooms	4,5	3,8	III	4,4	II	3,7	III
Comfort concerning the presence of insects	5,0	2,0	IV	2,0	IV	2,4	IV
Visual comfort	4,5	3,7	III	4,2	II	4,2	II
Comfort of the chairs and desks	4,5	4,1	II	3,8	III	3,6	III
Adequacy of the bathrooms	4,5	3,5	III	3,7	III	3,5	III
Program structure							
Supply of information regarding the program aims	5,5	4,3	I	4,3	I	4,4	I
Degree of previous knowledge that the students must have to follow the program	4,3	3,8	III	4,2	II	4,4	II
Supply of information about prerequisites to follow the program	4,5	3,8	III	3,8	III	4,3	II
Open structure of the program (to be able to choose a course out of a package)	5,3	5,5	I	5,5	I	5,6	I
The extension/duration (14 courses plus monograph) of the program	4,5	5,0	II	5,2	II	5,0	II
The number of class hours of each course (30 hours)	4,0	4,3	II	4,7	II	4,7	II
Weekly frequency of lessons per course (once a week)	4,0	5,0	II	5,2	II	5,4	II
Convenience of the beginning and end schedules of the lessons (19:20 ~ 22:40)	4,0	4,9	II	5,2	II	5,3	II
Degree of depth of the topics approached in the course	4,3	3,8	III	3,9	II	4,2	II
Integration among courses of the program	4,8	3,8	IV	3,9	I	4,4	I
Size of the groups (number of students per room per course)	4,5	4,3	II	5,1	II	4,9	II
Professors							
Mutual respect between professors and students	5,8	5,4	I	5,6	I	5,4	I
Punctuality and assiduity of the professors	5,3	5,4	I	5,2	I	5,3	I
Exploitation on the part of the professors of the lesson time	4,3	4,7	II	4,7	II	4,9	II
Preparation of the lessons by the professors	5,3	4,9	I	4,7	I	4,9	I
Technological resources used by the professors in the disciplines	4,3	4,8	II	4,5	II	4,7	II
Easiness of communication, on the part of the professors	5,3	4,9	I	4,5	I	5,1	I
Accessibility to the professor out of the classroom	3,3	4,2	II	4,3	II	4,4	II
Bibliographical material (revision aid, books, etc) made available	4,3	4,2	II	4,3	II	4,5	II
Support							
Access to information on the courses (schedule, accomplishment cycle, etc.)	5,0	4,4	I	4,8	I	4,6	I
Access to information regarding grades, courses etc	5,0	4,4	I	4,6	I	4,7	I
Snacks served	4,5	3,9	II	3,8	III	3,5	III
Registration process	4,8	3,7	IV	4,1	I	4,5	I
Efficiency of administrative staff	5,5	4,3	I	4,9	I	4,8	I
Efficiency of classroom support employees	4,3	4,9	II	5,0	II	5,0	II
Friendliness of the Program employees	5,5	5,0	I	4,9	I	5,1	I
Evaluations							
Adequacy of evaluation method in general	4,5	4,5	II	4,4	II	4,8	II
Evaluation criterion demands what the student needs to know	3,5	4,4	II	4,5	II	4,8	II
Level of evaluations compatible with level of given content	5,0	4,8	I	4,1	I	4,9	I
Strictness of criterion for evaluations	3,8	3,9	II	4,3	II	4,6	II
Stated period for evaluation result delivery is met	4,5	3,3	III	3,4	III	4,0	II

6. CONCLUSION

The interpretation of the results presented shows that the proposed methodology is adequate to evaluate the Engineering Continued Education Programs. QFD, as can be observed in the three years, reflects satisfactorily the way the student sees the quality of the program. So it can be said that this tool, up to now, was efficient in detecting oscillations through the years. The adaptations and repetitions of the procedure put in practice by the authors have achieved good results.

The efficiency of the method proposed can be evidenced when, following the results, it is noticed that the items that were badly evaluated and were improved by course coordination's actions, received a better evaluation the following year. That happened in most of the items that received any investment from the coordination.

There were quality problems, which were detected and, after that, minimized or even eradicated. The methodology has accomplished its goal.

In the next works, it is expected that some methodology details will be improved. the establishment of the division in quadrants will be analyzed in more depth. A more profound research will assure that the intersection between importance and satisfaction lines achieves its objective. Finally, it can be concluded that the educational institution discussed, in its effort to promote continuous improvement in its services, follows the worldwide trend concerning education quality in order to train more skilled and prepared professionals.

Another important consideration is that the authors believe in the motivation and engagement importance by students in order to a more efficient learning. The procedure to send a form to students makes that they feel as partners at implemented process of continue evaluation.

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