

Análisis de satisfacción de universitarios mediante la minería de datos

Analysis of satisfaction of University students using data mining

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Resumen

Estudiar la calidad del servicio que ofrecen las instituciones educativas es sumamente importante ya que estas en su mayoría se hacen cargo de la formación de los profesionales que requiere el mundo.

La variedad de conceptos sobre calidad abre el camino a distintas tendencias e interpretaciones dentro del ámbito de la educación superior.

El propósito de la presente investigación es obtener indicadores de satisfacción de los servicios institucionales que brinda la Universidad Autónoma de Coahuila, tanto en área administrativa como en la académica; para tal efecto, la investigación se realizó mediante una encuesta dirigida a la comunidad estudiantil atendiendo el escalamiento de Likert.

Palabras clave: satisfacción, análisis, servicios educativos, software, indicadores educativos.

Abstract

To study the quality of service offered by educational institutions is extremely important as mostly of them take care of the training of professionals who the world requires.

The variety of concepts of quality opens to different trends and interpretations in the field of higher education.

The purpose of this research is to obtain indicators of satisfaction of institutional services offered by the Autonomous University of Coahuila, in both administrative and academic areas; for this purpose, research was conducted by a survey of the community of students meeting Likert scaling.

Key Words: satisfaction, analysis, education services, software, education indicators.

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Introduction

To give a definition of quality, it is necessary to know their different theoretical approaches [CITATION Con08 \l 2058]. Example: a) quality as prestige speaks of the academic reputation of the educational institutions, b) quality based on resources considered as university institutions of quality to those that have the resources and means above the usual, c) the quality as a result thinks that a university institution is successful based on the success of its graduates, d) quality as change (added value) values the incidence of the institution about the students behavior change; thus an institution with such characteristics is considered of quality, e) the quality of the universities is valued on

the basis of what is taught in them, their educational level, its curriculum, its educational system and institutional climate. Currently it is essential that universities are aware about how satisfied their students feel regard to the institutional services provided, since it may be the only way of indicating the survival of the institution in the medium and long term. In recent years, the institutions of higher education have performed studies of satisfaction of students, in order to meet their expectations in order to establish relevant indicators that allow them to retain their students (Alves and Raposo, 2005).

Student satisfaction reflects the efficiency of academic and administrative services. For this reason, it is important for students to express their opinion about learning units, the interactions that they have with their teacher and classmates, as well as facilities and equipment (Jimenes, Terriquez and Robles, 2011).

For Mejías and Domelis (2009), student satisfaction is defined as the level of mood of students with respect to their institution as a result of their perception about the fulfillment of their needs, expectations and requirements. Lately the concern for the quality of university education has increase. Indeed, all the universities focus on students and on meeting their needs, responding to external factors. On the other hand, at the same time there is stagnation in the admission of students and a certain competition for attracting new students (Fernandez Gonzalez Fernandez Segura, 2010).

Similarly, Alves and Rapson (2005) believe that the satisfaction of students in college has become vital to the institutions of this sector, since it depends on the positive assessment to make students of mouth, ie The positive comments to others about the services offered by the institution. In this sense, it is extremely important to find reliable ways of measuring student satisfaction in higher education, thus enabling educational institutions to know their reality and then compared with those of its competitors.

The objective of the research

According to the Ministry of Education, along our country we exist about 3186 universities, 106 corresponding to the state of Coahuila. This amount has created a highly competitive environment among students and universities. Currently the institutions that compete

directly or indirectly with the UAdeC offer the same educational careers, causing students are inclined to evaluate in greater depth certain factors to choose the best option where they can make or complete their studies.

Universities and colleges must constantly monitor their students' perception regarding the services they receive. So, it was conducted this research for indicators on the following issues: How satisfied are the students with the services offered? How are administrative processes? What are the aspects that are most attractive and what they consider less attractive? What is the general opinion of the student community UAdeC about making some kind of study in this university ?, and so on. This situation leads us to the following statement: "Determining how the perception of the student community of the northern unit is UAdeC regarding services provided by the university."

Analyzing the quality

Currently the term quality is used in all areas of modern life and is linked to the economic sector. However, if the quality study moves the field of education as a phenomenon that encompasses the complex social world, takes on a special character.

University quality

Define the quality of university education is complicated not only by the vagueness of the term or relativity-reflected in the famous quotation from the philosopher R. Pirsig-, but by the difficulty of finding consensus on the definition of the product of university education . Santos (1990, pp. 49-50) notes that "quality of education is a topic that is handled with alleged uniqueness". The problem appears when specifying what quality "can not understand the quality of teaching back to the institutional, ideological and technical requirements, which are based on a conception of the university, attentive to the reconstruction of scientific knowledge, research of basic character and the preparation of people from mixed backgrounds and different expectations, want to do some learning aimed at professional training and personal and social enrichment. "

Similarly, it is important to know the quality in relation to resources. Three types of resources are important: teaching staff, facilities and student population.

Models

There are three models to assess the quality. The first, George Kuh Integrative Model of the institution analyzed from a global perspective, as regards all the elements of the institutional environment organized into three categories. The second, the Model of Quality Criteria William Bergquist notes the quality requirements successful careers or educational programs. And third, the Model of Effective Teaching Practice of Arthur Chickering has seven principles on which effective practice is based on undergraduate teaching.

Model W. Bergquist

William H. Bergquist states that an educational program that can be described as good quality must prove the extent that the institution has granted what he calls "value added" to the student in terms of desired characteristics, skills needed or sought professional results and achieved. Thus, the author suggests seven criteria that must be present in any educational program attempting display quality. The first five criteria are focused on the program itself, while the last two focus on the student. So Bergquist states that a program is motivating when it causes the interest of applicants, parents and the community in general. A program that is attractive also happens to be quantitatively successful, as it attracts not only good students but also helps financially and provides institutional recognition. To be attractive and motivating therefore, must respond to the needs and interests of current and potential students. A program is beneficial when considering the reality of their environment in terms of the problems and needs of the society in which it is embedded; therefore, display quality to the extent that benefits the interests of the community, reflected in their students and teachers, and that profit is projected beyond the institutional limits.

Methodology

For this investigation was built and implemented an assessment tool that would provide indicators on the perception of the student community of the North Unit about the various institutional services offered by the Autonomous University of Coahuila using tools specialist software analysis management for decision-making. The process followed in conducting this research can be seen in Figure 1.

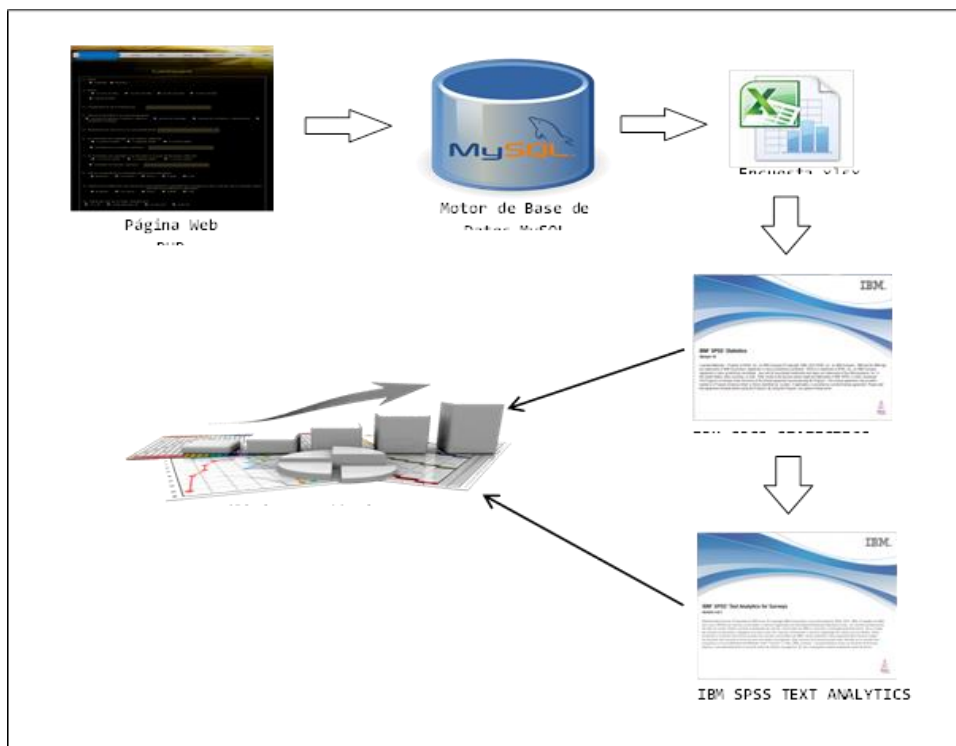


Figure 1. Process followed to analyze the information (prepared).

Sample selection

The objective of this study population consisted of students enrolled undergraduate level in any of the powers or UAdeC schools; such that the total sample was composed of the quantities observed in Table 1.

Table 1. Distribution of the sample according to the faculty.				
Escuela o Facultad	N	Género		%
		% Femenino	% Masculino	
Facultad de Ingeniería Mecánica y Eléctrica	209	31.5	68.9	32.4
Escuela de Psicología	148	78.4	21.6	22.9
Facultad de Contaduría y Administración	105	61.9	37.1	16.3
Facultad de Metalurgia	183	36.1	63.9	28.4
Total	645			100

Selecting assessment tool

After reviewing various studies and methodologies used in previous studies, an instrument of self-evaluation with 28 reagents which allows a set of indicators on the perception of the student community on the different institutional services was developed.

Validity and reliability of the instrument

To assess the internal consistency of the assessment instrument reliability tests they were conducted through Cronbach's alpha coefficient, which is the internal consistency method to estimate the reliability of a measuring instrument through a set of items that are expected to measure the same builder or theoretical dimension.

Thus, the internal consistency showed a range of between zero and one. A rule is commonly accepted that describes the magnitude of internal consistency it is as follows:

Cronbach's Alpha	
> 0.9	Excelente
> 0.8	Muy Bueno
> 0.7	Bueno
> 0.6	Aceptable
> 0.5	Pobre
< 0.5	Inaceptable

After analyzing the internal consistency of the instruments through Cronbach's alpha coefficient a score of 0.76 was obtained, this being an acceptable value according to Oviedo and authors Campos (2005) to consider an instrument with good internal consistency and valid.

On the other hand, to estimate the level of driveability assessment tool based on the characteristics that presented the research, the internet program used "Raosoft sample size calculator", by which it was estimated that the instrument has a confidence level 98% with a margin of error of 4% and 50% heterogeneity, making a valid and reliable instrument according to the results of the techniques.

Development

Process design collection, processing and analysis of information

A site specifically for the assessment instrument developed, which consisted of 28 reagents which 8 were designed remaining open questions and 20 multiple choice, thereby providing an effective, fast and easy access to students solution. With the information generated was achieved populate the instrument coded IBM SPSS Statistics 19; and analysis of multiple choice questions and open questions was made by IBM SPSS Text Analytics for Surveys 4.0.1 tool.

Coding of the evaluation instrument through IBM SPSS Statistics 19

Once the information generated is fed SPSS and proceeded to codify the instrument Statistic SPSS 19 program.

Preparation of information for analysis by IBM SPSS Text Analytics for Surveys 4.0.1

Once generated the database in IBM SPSS Statistics 19 and populated with information from Excel, proceeded to export the file to IBM SPSS Text Analytics for Surveys 4.0.1, to begin the analysis of the open questions. See Figure 2.

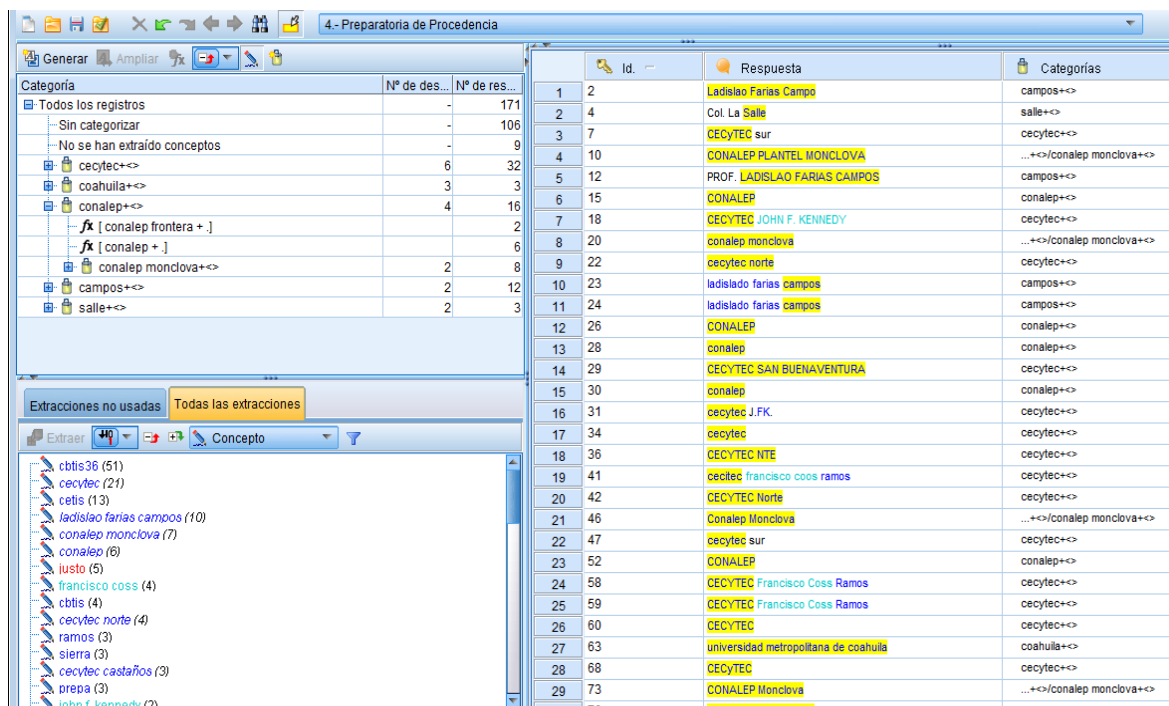


Figure 2. Panel results taken before and after extraction.

Results

Table 2 shows the results of the frequency distribution and percentages on levels of student satisfaction with the institutional services offered by the University are presented. There you can see which areas of strength include mainly aspects of preparation having the teaching staff, teaching effectiveness, student mentoring support and prestige of the university. As for the areas of opportunity or challenge for its puntuaciones obtained

correspond to the aspects related to the way in which administrative procedures, infrastructure, care provided to the students and campus security take place.

Table 2. Levels of student satisfaction regarding the institutional services offered by the UAdeC, according to the areas evaluated

Área	Excelente		Muy bueno		Bueno		Regular		Malo	
	n	%	N	%	n	%	n	%	n	%
Preparación de maestros	214	33.2	323	50.1	93	14.4	15	2.5	0	0
Atención alumnado	99	15.3	153	23.7	248	38.4	129	20	16	2.5
Infraestructura	29	4.5	190	29.5	254	39.4	81	12.6	91	14.1
Efectividad de la enseñanza	60	9.3	337	52.2	187	29	58	9	3	0.5
Procedimiento administrativos	54	8.4	144	22.3	284	44	140	21.7	23	3.6
Seguridad en el campus	48	7.4	237	36.7	257	39.8	63	9.8	40	6.2
Tutorías académicas	120	18.6	203	31.5	200	31	122	18.9	0	0
Prestigio de la UAdeC	153	23.7	255	39.5	181	28.1	50	7.8	6	0.9

According to students, the infrastructure is one of the main factors that make their university activities enjoyable.

	Área	Total		%
1	Infraestructura	225		34.88
2	Maestros	196		30.39
3	Nivel académico	155		24.03
4	Oferta educativa	148		22.95
5	Pagos de inscripción, cuotas y finales	135		20.93
6	Prestigio	106		16.43
7	Ambiente institucional	71		11.01
8	Horarios	52		8.06
9	Atención alumnado	40		6.20
10	Actividades culturales, deportivas, académicas y otros eventos	39		6.05
	Abstenciones	40		6.20
	Registros sin calificar	6		0.93

CONCLUSIONS

According to the results on the perception of the student community in relation to the institutional services provided by the University, it can be concluded that: 83% of students said be satisfied with the academic preparation of most teachers. Also, 63% acknowledged that flew into the recognition and prestige of the college or university.

Areas of opportunity or challenge for the student community identified were those designed to support the learning process: the infrastructure gained 33.8%, standing as the main area of opportunity. For its part, the areas for the care and administrative procedures students obtained 39% and 30.7% respectively.

According to the opinion of the student community regarding UAdeC as an educational option to study an undergraduate or graduate, the result shows that 78.45% of the students maintained a positive stance, positioning it as the best university in the state and one of the best from the country.

Note that according to the information, 54.3% of the student community of the different schools and faculties of the North Unit widely recommended to the Autonomous University of Coahuila to study higher level.

It is recommended widely known what students think about the university where they are registered, because if continually looking indicators of student satisfaction universities can establish strategies and make appropriate modifications that strengthen and improve areas of opportunity or challenges identified, assuring provide better educational services to students.

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