

## Quality Attributes in Cost Management and Accounting Subjects: the Students' Viewpoint

### Jucelia Appio Tibola

*Ph.D. candidate in Business Administration (Universidade Positivo – UP)*  
*Professor at Horus Faculdades*  
*Avenida Catharina Seger, 970, CEP 89985-000, Palma Sola (SC), Brazil*  
*E-mail: juceliaappio@yahoo.com.br*

### Amélia Silveira

*Ph.D. in Communication Sciences (University of São Paulo - USP)*  
*Professor at Universidade Nove de Julho - Uninove*  
*M.Sc. in Education Management and Practices (Progepe - Uninove)*  
*Rua Francisco Matarazzo, 612, CEP 05001-100 São Paulo (SP), Brazil*  
*E-mail: amelia@floripa.com.br*

### Ilisangela Mais

*M.Sc. in Business Administration (Universidade Regional de Blumenau – FURB)*  
*Professor at Universidade Regional de Blumenau – FURB*  
*Rua Antônio da Veiga, 140, CEP 89012-971, Blumenau (SC), Brazil*  
*E-mail: ili@furb.br*

### Abstract

The aim in this research is to identify the quality attributes students perceive in cost management and accounting subjects. The subjects were 126 students who took the subjects Cost Applied to Administration, Cost Accounting and Cost Analysis, corresponding to all students in the semester during which the research was undertaken. Thus, a census study was adopted. The research institution is a public university that offers graduate (M.Sc. and Ph.D.) programs in Accountancy and Business Administration, particularly in the South of Brazil. An exploratory and qualitative research design was used in the first part and a descriptive and quantitative design in the second. Data were collected with the help of a structured questionnaire with open questions, applying the Critical Incident Technique. Content Analysis was used to classify and categorize the respondents' answers into units of meaning. In the second phase, these categories were transformed into categorical variables and analyzed through statistical procedures. The results evidenced that the quality attributes constituted an Axis. In the Cost Analysis subjects, they privileged the lecturer's quality. In Cost Accounting, the students evidenced the teacher's commitment and the application of practical examples as a relevant attribute. In Cost Applied to Administration, the results indicated that understanding about the subject, clarification of doubts and the lecturer's didactics served as quality attributes.

**Key words:** Quality attributes. Higher education. Cost subjects.

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## 1. INTRODUCTION

Current competition in higher education highlights the importance of teaching quality assessments from students' perspective. Concerned with maintaining and attracting students, Higher Education Institutions (HEIs) aim for high levels of quality, whose assessment by students and external organizations can play a determinant role for their appropriate academic and economic performance.

The aim in this research is to identify the quality attributes students perceive in Cost Management and Accounting subjects.

To assess perceived quality in higher education, researchers tend to use available service assessment models and mechanisms, adapting them to the particularities of the teaching area. Brazilian and international studies exist that measure students' satisfaction, as consumers of educational services, using different methods, including the dimensions proposed by Parasuraman, Zeithaml and Berry (1994), the constructs indicated by Paswan and Young (2002), the Kano Model (KANO et al., 1984) and the improvement gap (TONTINI; SILVEIRA, 2007).

Acknowledging the need to verify how students assess the services they receive, this study adopts the evaluation of quality attributes and the critical incident technique to reach the study objectives.

Higher Education Institutions have adopted quality attribute evaluation models to support and scientifically underpin research, according to literature reviews in Brazilian studies, including Figueredo (2005); Walter (2006); Mainardes (2007) and Deschamps (2007). The reviewed models are adopted in quantitative studies.

The Critical Incident Technique is an appropriate model to assess quality attributes when one intends to develop qualitative research. Mondini (2006) and Mondini, Silveira and Tontini (2007) used this procedure to develop studies. The same authors review studies that adopt the Critical Incident Technique and focus on higher education, investigating the satisfaction attributes graduate Business students appoint in the states of Santa Catarina and Paraná. The study by Zwierewicz (2008) should also be mentioned, as the author adopted this critical incident technique. The Content Analysis Technique was used to treat the obtained answers, with a view to analyzing students' perceptions of quality attributes in graduate Business education services at Furb and UFSC, both institutions located in the state of Santa Catarina.

In addition, quality attribute research in higher education can be identified not only with regard to the courses the HEI offers, but also regarding course subjects. Athiyaman (1997) argues that, in higher education, each subject should be treated as a transaction or service delivery. Based on this argument, the researchers' interest in investigating cost subjects in undergraduate Business and Accounting programs with the help of the Critical Incident Technique is justified.

The choice of the subjects assessed is justified by the relevance of costs in business management and in organizations' competitiveness levels. The cost area has been considered a determinant to grant companies higher competitiveness and profitability levels. Profound knowledge on cost determination and management guarantees precise calculations to identify the prices companies practice, permitting efficiency gains and reliable company indicators. Underlining the relevance of the theme, Ravenscroft, Rebele, Pierre and Wilson (2008) can be cited. In an editorial for the *Journal of Accounting Education*, these authors highlight the importance of Accountancy subjects and their subareas, including cost subjects, among others. The authors' argument is based on the role Accounting plays in corporate, governmental educational and non-governmental organizations, affirming that Accounting contributes to mold society. On the other hand, badly prepared professionals could provoke great damage in the organizations they are inserted in.

## 2. LITERATURE REVIEW

According to a census by the Brazilian National Institute for Educational Studies and Research (Inep) (BRASIL, 2009), in 2007, 798,755 students were taking in-class undergraduate Management and

Administration programs, and 190,971 others were enrolled in Accountancy programs. In the same year, 7,158 students graduated in Administration and 2,492 in Accountancy. The comparison between the number of enrolled students and graduates point towards significant numbers of students who drop out or surpass the deadline set to conclude the course program.

Justifying the need to measure consumer satisfaction, Gonçalves et al. (2008) affirm that this is related with service quality, adding that a point of great difficulty in this measurement is to identify different attributes that can represent quality aspects in the consumers' perspective. The identification of these attributes would permit concentrating efforts with a view to furthering client satisfaction.

In that sense, Souza, Alves and Buss (2008) undertook a study that involved 356 undergraduate Business Administration students at *Universidade Federal de Mato Grosso* and confronted them with two open questions: "What do you like best in the program?" and "What do you dislike most in the program?". When submitting the results to content analysis, those authors found that, for students taking in-class programs, the factor they like and dislike most is related to the Curricular Structure, followed by the Teaching Staff. For distance education students, the ranking is inverted, as the Teaching Staff precedes the Curricular Structure.

Similarly, a study of 130 Business Administration students at *Universidade Federal de Lavras* aimed to identify the students' satisfaction attributes. In that research, the data collection instrument was a structured questionnaire and the results were submitted to statistical analysis. The researchers found that the following variables were significantly correlated with the score the students attributed to the course: a) the motivation the teachers arouse in the students; b) the teachers' mastery of the contents offered in the subjects; and c) the quality of the library available for the Business Administration program (GONÇALVES et al., 2008).

Another quantitative study focused on Accountancy students at *Universidade Federal de Santa Maria*. Involving 224 respondents, the research was based on constructs presented in Paswan and Young's structural equations model (2002). As a result, it was found that the constructs Teacher's Involvement and Student's Interest positively influence students' general satisfaction with the program (VIEIRA; MILACH; HUPPES, 2008).

Another Brazilian study that measured students' satisfaction with their programs focused on Business Administration, Economics and Accountancy programs at the University of São Paulo, using quite a distinct approach. A study of alumni was undertaken to assess students' satisfaction with their program, also assessing its relation with their professional situation on the occasion of the research. The study involved 153 respondents and the instrument was a semistructured questionnaire, mainly based on the Ministry of Education (MEC) and the Coordination for the Improvement of Higher Education Personnel's (CAPES) evaluation criteria. As a result of the research, the authors identified that the item the students found most relevant with regard to the program and the university is the facility to get access to the job market. In addition, students in a better professional situation also score their undergraduate programs higher. The authors suggest that lecturers' actions to influence the students' professional future could arouse feelings of pride after graduation, characterizing alumni's satisfaction with their program and institution (MURITIBA et al., 2008).

The review revealed that researchers have used a range of methods and constructs to assess student satisfaction. This fact may suggest that no conclusion has been reached yet about the most adequate approaches to reach the research objectives.

On the other hand, in function of the competitive situation in Brazil, a consensus exists in all studies included in the review about the relevance of the theme (MURITIBA et al., 2008; GONÇALVES et al., 2008; WALTER; TONTINI; FREGA, 2008; SOUZA; ALVES; BUSS, 2008; VIEIRA; MILACH; HUPPES, 2008).

Also, in other studies, the importance of students' loyalty is demonstrated with a view to the survival and prosperity of Higher Education Institutions (MARQUES; BRASIL, 2008), as well as the fact that loyalty serves as a teaching effectiveness and quality indicator (WALTER; TONTINI; FREGA, 2008). In both studies (MARQUES; BRASIL, 2008; WALTER; TONTINI; FREGA, 2008), satisfaction with the program and perceived quality figures among the factors that most influence students' loyalty. Thus, satisfied students who perceive the quality of their institutions could contribute to promote the entry of new students, enhance students' return for graduate programs and further other relationship forms for institutions to improve their economic and financial performance.

Most studies in the review which assess Administration and Accountancy programs are more focused on the following aspects though: a) teaching and learning, such as teaching practice and training (SALM; MENEGASSO; MORAES, 2007; ANDERE; ARAÚJO, 2007; LACOMBE et al., 2007); b) teaching techniques and methods (SOARES; ARAÚJO, 2008; GUADALUPE AMADORMEZA et al., 2007; CUERVO TAFUR; DUQUE ROLDÁN; GÓMEZ MONTOYA, 2007; GARCÍA RAMÍREZ; CALATAYUD GALINDO, 2007; PADOAN et al., 2007); c) curricula (SILVA, 2007; SCHLINDWEIN; DOMINGUES, 2007; CAPACCHI et al., 2007).

In Brazilian studies, it should be highlighted that, among the studies that analyze attributes in Administration and Accountancy programs, the study by Silveira, Appio and Domingues (2008) is most similar to the present research. The study identified the quality attributes of the subject Cost Applied to Administration, using qualitative and quantitative methods. Eighty undergraduate Administration students participated, who took the subject in one of the five class groups offered at an HEI in the state of Santa Catarina in 2007. The Critical Incident Technique was adopted to collect the research data, which were analyzed with the help of content analysis. The following quality factors, predominantly satisfaction, were found for this subject: teacher's didactics, understanding about the subject and attention to students/clarification of doubts. Dissatisfaction was related to the distribution of the course contents and hour load and one lecturer's posture (very soft and inexpressive talking). The students suggesting making further use of practical classes in the subject, using specific software on the theme, and offering classes at the informatics laboratories.

In international literature, various studies address service users' satisfaction. A study in the United States (MERSHA; ADLAKHA, 1992) was aimed at identifying service quality attributes in different sectors, including higher education. The following were listed as the main attributes of high-quality services: willingness to correct errors, knowledge, level of details/accuracy of the service and consistency/reliability. On the opposite, low-quality services displayed the following attributes: reluctance to correct errors, lack of knowledge, indifference or "I don't care" attitude and rude treatment. The work method started with 25 MBA students listing attributes. The most frequent items were included on a preliminary list submitted to undergraduate students. The respondents marked the attributes they agreed with and were free to include any other attributes they considered appropriate.

In a longitudinal study of students at an Australian university, Athiyaman (1997) found support to affirm that perceived quality derives from students' satisfaction. In the study, the author discussed students' satisfaction with each subject, adding that the most recent experiences more strongly influence the perceived quality of earlier events. Thus, each service offered, which the author mainly considers in terms of the subjects taken, should be interpreted as a new opportunity for the university to improve the quality its students perceive.

These students were asked the following question: "What does teaching quality mean to you?". The obtained results demonstrated that the students value the institutions' lecturers and support network, particularly the former. The students argued that many of the factors that contribute to high-quality teaching are related to private teaching and learning styles, with many students indicating that they value lecturers who are encouraging, constructive, positive and transmitted enthusiasm about their subject very highly.

Although the literature review undertaken in this study did not identify international studies that explicitly cited the use of the critical incident technique in higher education, one study was identified that was aimed at assessing the use of this technique in international marketing literature. As a result, 141 articles were found, published in international journals and proceedings between 1975 and 2003, 43 of which were aimed at measuring consumer satisfaction evaluations, especially service quality and consumer satisfaction (GREMLER, 2004). The author added that this technique is preferred for research involving direct consumer services, which take place in higher education institutions, among others.

Thus, the use of the Critical Incident Technique was considered appropriate in this study as a tool to identify quality attributes in higher education.

### 3. RESEARCH METHOD

In this theoretical-empirical exploratory research, the qualitative method was used in the first phase and the quantitative method in the second.

As the aim of the study was to identify the attributes of Cost subjects in Administration and Accountancy programs, the research was undertaken at the Center for Applied Social Sciences of the university where the research was carried out. After mapping the subjects, the following programs and subjects were identified: in the Administration program, the subject "Cost Applied to Administration"; in the Accountancy program, the subjects "Cost Accounting" and "Cost Analysis". Five different lecturers taught the subject "Cost Applied to Administration" in five class groups; one lecturer taught "Cost Accounting" in two groups; and a sole lecturer taught "Cost Analysis" in a single group.

Initially, to identify and characterize the Cost subjects, a documentary research was undertaken, mainly based on the analysis of the lecturers' teaching plans, which served as primary sources.

In this census study, the research population was intentionally defined, by convenience. The choice of the HEI is justified by the fact that it figures among the largest and most highly considered universities in the state of Santa Catarina. The field research subjects were the students who took these subjects during the semester immediately preceding data collection, totaling 126 students: 80 taking "Cost Applied to Administration"; 24 in "Cost Accounting"; and 22 in "Cost Analysis".

In the second research phase, the critical incident technique was adopted to analyze factors of satisfaction and dissatisfaction with the subjects. In a research to determine factors of satisfaction and dissatisfaction among banking service users, Johnston (1995) highlighted the quality of the answers obtained when the critical incident technique was applied. The author reported that various answers were longer than 100 words and were rich in details. The data collection instrument was constructed in accordance with the determinations for this technique.

According to Hayes (2001), the elaboration of critical incidents involves two steps: first, to obtain specific information on the service, clients are interviewed; then, the information obtained is classified in groups, in which each group reflects a quality dimension. The interviewees should be actual clients, who have interacted with the service provider on different occasions, as they are expected to give specific examples of the quality.

When studying these incidents, according to Esteban (2000), the aim is to identify which phases of a service provision process are fundamental and in which of them problems may arise. Hence, this is an alternative way to understand how clients perceive the quality of a given service (GRÖNROOS, 2003).

According to the author, the focus of the Critical Incident Technique is to obtain information from clients about the services and products they receive. Its main advantage is that the organization's own clients are used to define its needs, not merely trusting organizational standards to determine these needs.

Thus, a structured questionnaire with two open questions was used, asking the students to describe an incident that made them feel satisfied or dissatisfied with the subject taken during the previous semester. At the time of data collection, in addition, the students were asked to indicate solutions for the incident or suggest improvements in the subjects. All students accepted to participate and received sufficient time to answer the questions. The questionnaires were applied in class with the lecturers' consent, in the presence of one of the researchers.

The critical incident technique allows the respondents to express their perceptions in their own words, classifying them into factors of satisfaction or dissatisfaction. On the other hand, its disadvantages are related to the possibility that people change their evaluation of the critical incidents in function of the time passed since the occurrence of the event. In addition, people may not take into account incidents that take place within their zone of tolerance (JOHNSTON, 1995). Hence, their answers tend to be more concentrated in extreme incidents in terms of satisfaction or dissatisfaction.

Data analysis and interpretation took place in two phases: in the first, the answers collected through the critical incident technique were examined with the help of content analysis. According to

Bardin (1977, p. 38), “Content analysis is a set of communication analysis techniques, using systematic and objective procedures to describe message contents”. Thus, the questionnaire answers were interpreted, classified and grouped into attributes that were considered as Units of Meanings (UM). These satisfaction/dissatisfaction categories resulted in ten dimensions, which were considered as categorical variables and supported the continuation of the study.

In the second phase, involving quantitative analysis, these categories were converted into categorical variables, after which Factor Analysis (Principal Components Analysis) was used. This type of analysis usually discloses the relation between variables/attributes that had not been identified in the first qualitative analysis part. According to Hair Jr. et al. (2005, p. 388), this “[...] is a multivariate statistical technique that can summarize information from a large number of variables into a much smaller number of variables or factors”. Factor maps are displayed to visualize the result found. LHstat software (LOESCH; HOELTGEBAUM, 2005) was used to support the quantitative analysis.

#### 4. RESEARCH RESULTS

In the description of the results, statistical analysis results are highlighted. In addition, part of the students’ declarations obtained on the occasion of data collection are presented with a view to better illustrating the present research results.

Initially, the subjects’ general characteristics are presented, whose data were obtained in the documentary research of the study subjects’ teaching plans:

**Cost applied to administration:** 1) Theoretical and practical hour load per semester = Theoretical: 72h and Practical: zero; 2) Theoretical and practical credits = Theoretical: 4 and Practical: zero; 3) Category: Compulsory subjects; 4) Course description: Industrial costs. Accounting for Decision-Making and Planning Costs. Decision and Control. Application Field of Cost Accounting. Cost Accounting Structure in the Company. Absorption and Variable Costing. Material Inventory Control and Registration, End Products and Products under Elaboration. Indirect Cost Appropriation Criteria. Calculation of the Equilibrium Point. Sales Price Formation.

**Cost accounting:** 1) Theoretical and practical hour load per semester = Theoretical: 72h and Practical: zero; 2) Theoretical and practical credits = Theoretical: 4 and Practical: zero; 3) Category: Compulsory subjects; 4) Course description: Introduction to the Evolution of Cost Accounting and Accounting Terminology. Systemic View on Costs. Costs for Inventory Valuation. Basic Costing Scheme and Departmentalization. Costing Systems. Tax Aspects Related to Inventory Valuation.

**Cost analysis:** 1) Theoretical and practical hour load per semester = Theoretical: 72h and Practical: zero; 2) Theoretical and practical credits = Theoretical: 4 and Practical: zero; 3) Category: Compulsory subjects; 4) Course description: Concept, Inventory Management and Control, Analysis Principles, Evolution of Management Methods, Aims and Tools. Analysis of Contribution Margin: Concept, Contribution per Product, Contribution per Department, Limiting Factor. Analysis of Equilibrium Point and Operational Leverage Degree. Use of Costs to Determine the Sales Price: Price Formation, Financial Cost, Fixed Expenditures and Financial Costs.

In the data collection phase involving the students, the critical incident technique was used. The students answered the questionnaire and freely described an incident that made them feel satisfied or dissatisfied with the subject taken in the previous semester. In addition, they were invited to indicate a solution for the incident or suggest improvements in the subjects.

In view of the set of subjects analyzed, the ten topics that stood out among the critical incidents were: Distribution of Course Contents and Hour Load; Understanding about the Course Contents; Practical Examples; Teacher’s Didactics; Available Material; Evaluation Forms; Attention to the Students/Clarify Doubts; Commitment; Quality of the Lecturer; and Laboratory/Computer/Internet facilities.

Noteworthy solutions to improve the subjects are highlighted in Picture 1, including the students’ demand for further practical exercises:

| Subject                        | Course         | Suggestions given   |
|--------------------------------|----------------|---|
| Cost Applied to Administration | Administration | An additional semester for this subject.<br>More tests and exercises.<br>Limit the number of students taking the subject, adapting them to the laboratories and logical abilities to permit teaching. |
| Cost Accounting                | Accountancy    | The teacher should offer specific classes and try to transmit more authority in the classroom.  |
| Cost Analysis                  | Accountancy    | More practical examples as a form of student evaluation.<br>Bring corporate reality into the academic context.  |

**Picture 1: Suggested improvements in Cost subjects**

Source: Research data, 2008

In the next research phase, the satisfaction/dissatisfaction dimensions were identified and defined *a priori* through the content analysis of the data collected from the respondents in the qualitative research phase, addressing each subject: Cost Applied to Administration; Cost Accounting; and Cost Analysis.

To start the statistical treatment of the data, the researchers decided to use ten dimensions of satisfaction/dissatisfaction. Table 1 presents the identified dimensions.

To obtain representative satisfaction/dissatisfaction indices, the attributes were analyzed individually, each indication on the satisfaction question was scored in percentage form, extracting any indications of dissatisfaction from the percentage, when mentioned. For each attribute and subject, positive indicators represent satisfaction, while negative indicators reveal dissatisfaction.

**Table 1: Distribution of satisfaction/dissatisfaction categories/attributes in qualitative research**

| Cases | Attribute                                    | Cost Applied to Administration | Cost Accounting | Cost Analysis |
|-------|--|--------------------------------|-----------------|---------------|
| 1     | AT1 distribution of contents and hour load   | -8.82                          | 9.53            | -4.54         |
| 2     | AT2 understanding about the contents         | 10.07                          | -9.52           | 0.00          |
| 3     | AT3 practical examples                       | 0.23                           | 4.76            | -22.73        |
| 4     | AT4 lecturer's didactics                     | 8.62                           | -9.52           | 13.64         |
| 5     | AT5 available material                       | 0.50                           | 9.52            | 9.09          |
| 6     | AT6 evaluation forms                         | -0.67                          | 14.29           | 9.09          |
| 7     | AT7 attention to the students/clarify doubts | 5.88                           | 0.00            | -0.45         |
| 8     | AT8 commitment                               | 0.61                           | 0.00            | -18.18        |
| 9     | AT9 quality of the lecturer                  | -0.50                          | -38.10          | 18.18         |
| 10    | AT10 laboratories/computers/internet         | -2.61                          | 0.00            | -9.09         |

Source: Research data, 2008

It should be highlighted that other dimensions found during data collection with regard to dissatisfaction were not used in statistical treatment, as they addressed very specific and punctual problems, which were: lecturer talks very soft and fast; teacher's lack of authority; and too many students in the classroom.

The categories were used to produce information in a factor matrix, including the original attributes and the factors found in the qualitative research phase. According to Pereira (1999, p. 124), "The matrix used to interpret factor analysis results is a 'rotated matrix', which is but an artifice to further distinguish among the relations found". Attribute presentation factors near Axis 1 strongly contribute, i.e. they play a more relevant role in the analysis and are attributes with a strong positive correlation. Next, Axis 2 components are investigated, which are less but also significant. The importance of each Axis is measured by the contribution of inertia and its eigenvalue (LOESCH; HOELTGEBAUM, 2005).

In addition, the component matrix was used to evaluate the attributes, within the interval [-1 to +1] (HAIR JR. et al., 2005, p. 396). The higher the absolute factor loading, the more important the factor (attribute) will be. According to administration researchers, for important factor loadings: +/0.30 are considered acceptable; +/0.50 are moderately important; +/0.70 are very important. (HAIR JR. et al., 2005). Next, attributes with communalities (<0.60) were excluded from the analysis.

Next, the attributes that best explain the satisfaction similarities among the subjects are represented more precisely, including correlations among the satisfaction/dissatisfaction attributes of Cost Applied to Administration, Cost Accounting and Cost Analysis, as verified and confirmed in the correlation matrix and the component matrix.

#### **4.1 Correlation matrix and component matrix of satisfaction/dissatisfaction for the subjects Cost Applied to Administration, Cost Accounting and Cost Analysis.**

The existence of four groups of attributes with strong mutual positive correlations can be mentioned.

Vector 1: AT9 – quality of the lecturer;

Vector 2: AT1 – distribution of the contents and hour load; AT6 – evaluation forms; AT5 available material; AT10 – laboratories/computers/internet.

Vector 3: AT8 – commitment of the lecturer; AT3 – practical examples;

Vector 4: AT4 – didactics; AT7 attention to the students/clarify doubts; AT2 – understanding about the contents.

V1 is opposed to group V3 and the attributes of V2 are opposed to the attributes of V4, i.e. the attributes of one group are negatively correlated with the attributes of the other vector. The correlation between the attributes of group V1 and those of group V2 and V4, in turn, is insignificant, and so forth.

Vector 1 (Figure 1) indicates that the students in the subject Cost Analysis (ANÁLCUST) evaluated the attribute AT9 – quality of the lecturer as the main quality attribute of this subject. According to the students' among noteworthy teacher characteristics, "knowledge and mastery of the contents" and "the complexity and logical sequence used to teach the contents" stand out. According to Walter (2006), the students declare that feeling secure about the education received is related to the teachers' knowledge level.

As opposed to this attribute, however, the students evidence high levels of dissatisfaction with attribute AT3 – practical examples, and declare that these are forms of "expressing reality". Domingues and Grande (2007) also concluded that teaching on ABC costing included theoretical explanations and the application of exercises, practical cases and case studies, ratifying the students' request in this subject.

Significant discrepancy was observed when the attribute that is considered a source of great satisfaction for Cost Analysis students (Vector 1) was compared with the Cost Accounting subject (Vector 3). Among the attributes Cost Accounting (CONTCUST) students analyzed, AT8 – teacher's commitment, particularly the "willingness to give classes"; and AT3 – practical examples stood out. The students declare that "the teacher (...) made the subject simple, using practical examples for the sake of illustration". The former are considered quality attributes of this subject, while the latter are opposed to the Cost Analysis subject. It should be highlighted that both subjects are part of the Accountancy program.

The results found, in which student satisfaction is strongly related with teachers' activities, reinforce the results of earlier studies in Brazilian (DOMINGUES; GRANDE, 2007; VIEIRA; MILACH; HUPPES, 2008, GONÇALVES et al., 2008) and international literature (HILL; LOMAS; MACGREGOR, 2003).

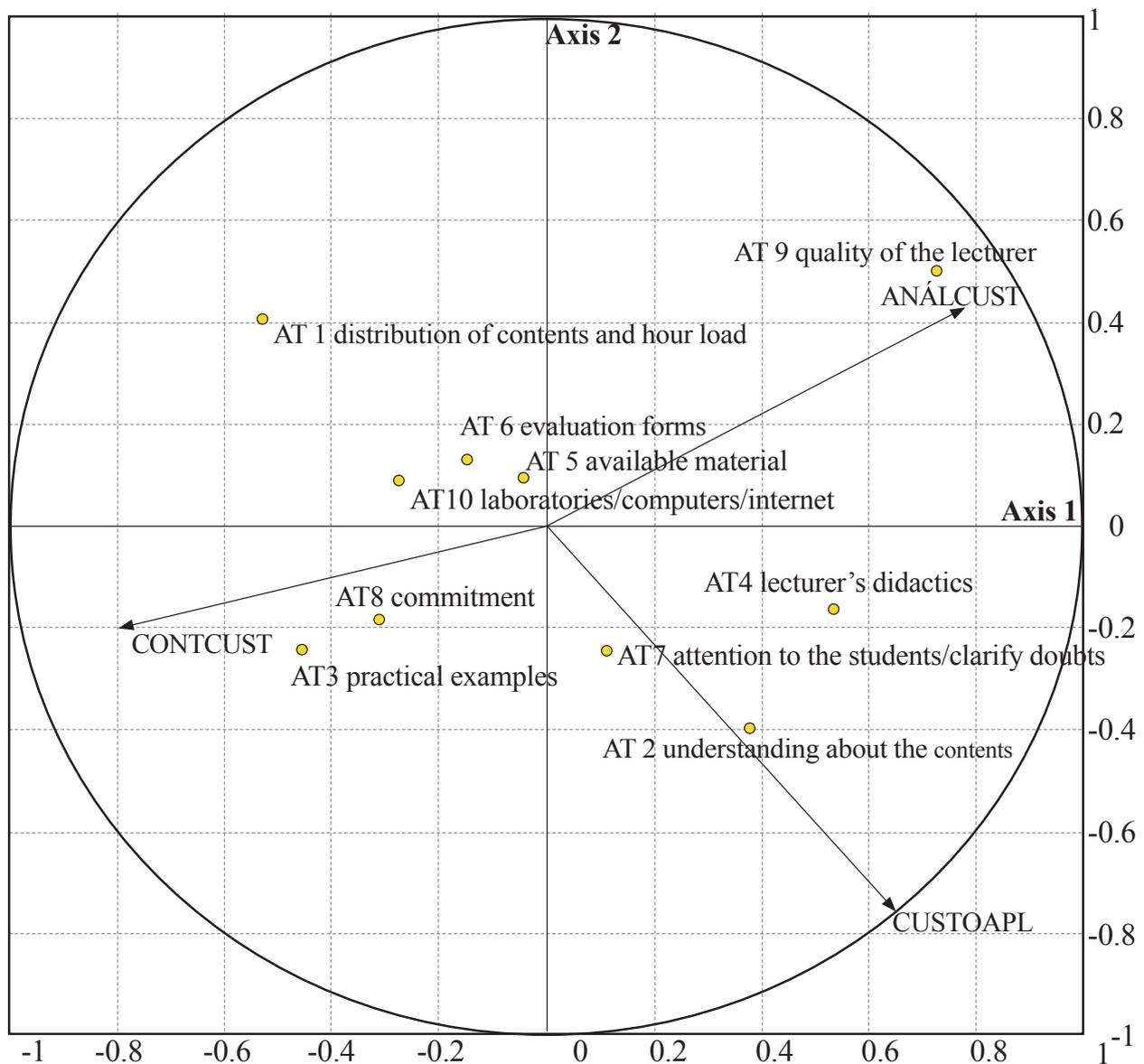
Regarding the subject Cost Applied to Administration (CUSTOAPL), the data appoint (Vector 4) the positive attribute AT2 – understanding about the contents. In the students' statements, it is highlighted that the teacher, "...made the contents of the subject easy to understand and also used examples from daily reality", "...was able to transmit the entire content very clearly, making everyone understand the subject". In addition, the students emphasized attribute AT7 attention to the students/clarify doubts, declaring that the teacher "...answered all questions and was always very obliging"; and, finally, attribute AT4 – Teacher's didactics was underlined, expressed as "...the form of teaching (dynamic), efficient and practical".

Mondini (2006) also found that the events that make graduate students in Administration feel most satisfied include dedication, effort and the teachers' concern with the students; and Walter (2006) found, among aspects of satisfaction, teachers' manifestation that they have free time to help the students.

When analyzing dissatisfaction attributes for this subject (Vector 2), attribute AT1 – distribution of contents and hour load is emphasized. According to the students “one semester is very short to learn this subject...”; “AT6 – evaluation forms of the subject, considering that there are “few test opportunities”. With regard to attribute AT10 –laboratories/computers/internet, dissatisfaction exists with the “structure and availability of the informatics laboratory...”.

The students considered that teaching in an informatics laboratory, with the help of software, would facilitate learning. The results found, in which this aspect is evidenced, reinforce earlier results (CUERVO TAFUR; DUQUE ROLDÁN; GÓMEZ MOTOYA, 2007; SOARES; NAGANO; RIBEIRO, 2007).

One relevant factor in graphical analysis is the fact that Vector 2 attributes are not considered strong points for the subjects analyzed in the study, according to Figure 1.



**Figure 1: Factor map of the components for the subject Cost Applied to Administration in the Business Administration program, and Cost Accounting and Cost Analysis in the Accountancy program**

Source: Research data, 2008

The analysis of the coordinates for the variables of “Cost Applied to Administration” in the Business Administration Program and “Cost Accounting” and “Cost Analysis” in the Accountancy Program reveals the correlation coefficients of the variables and components, with loadings for each Axis, in Picture 2.

| No. of main Axes | Eigenvalue | % Total inertia | % Accumulated inertia |
|------------------|------------|-----------------|-----------------------|
| 1                | 1.6440     | 54.8            | 54.8                  |
| 2                | 0.7873     | 26.2            | 81.0                  |
| 3                | 0.5687     | 19.0            | 100.0                 |

**Picture 2: Eigenvalues and inertias for satisfaction/dissatisfaction attributes**

Source: Research data, 2008

The statistics of the coordinates for the attributes constituted by two Axes (1 and 2) show 81.0% of total inertia for the cloud of points. When Axis 3 is grouped, total inertia represents 100%.

In Picture 3, the representation quality of the categorized attributes is verified. On Axis 1, a very strong correlation exists between attributes AT4 – teacher’s didactics (0.837); AT10 – laboratories/computers/internet (0.722); AT3 – practical examples (0.626); and AT1 – distribution of the contents and hour load (0.622).

The analysis of the combinations reveals that most of the attributes signal factors extrinsic to the lecturer, related to the institution’s physical structure, course description and teaching method.

Second, on Axis 2, a correlation inferior to <0.60 is evidenced for practically all attributes, except for attribute AT7 – attention to the students/clarify doubts (0.760). This attribute refers to the intrinsic aspects in favor of the teachers responsible for the subject “Cost Applied to Administration” in the Administration program. In the critical incidents categorized as quality attributes of the subject “Cost Applied to Administration” in the study by Silveira, Appio and Domingues (2008), the teacher’s understanding about the contents and attention to clarify doubts were also predominant.

On Axis 3, attributes AT5 – available material (0.910) and AT6 – evaluation forms of the subject (0.810) are related. Both attributes belong to vector 2 (Figure 1) and are considered attributes of dissatisfaction in the three subjects analyzed. When evaluating the satisfaction and dissatisfaction factors for the subject “Cost Applied to Administration”, Silveira, Appio and Domingues (2008) also identified the evaluation form of the subject as a factor of dissatisfaction, referring to extrinsic factors.

The attributes that define the students’ satisfaction/dissatisfaction in the subjects “Cost Applied to Administration” in the Administration Program and “Cost Accounting” and “Cost Analysis” in the Accountancy program are available in Picture 3. It is important to highlight that the loadings with negative signs [-1] mean a negative relation with that Axis. Variables +/0.30 are considered acceptable; +/0.50 moderately important; +/0.70 very important.

| ATTRIBUTE                                    | Coordinates |        |        | % of relative contribution |        |        | Representation quality |        |        |
|--|-------------|--------|--------|----------------------------|--------|--------|------------------------|--------|--------|
|  | Axis 1      | Axis 2 | Axis 3 | Axis 1                     | Axis 2 | Axis 3 | Axis 1                 | Axis 2 | Axis 3 |
| AT1 distribution of contents and hour load   | -0.52       | 0.40   | 0.02   | 16.83                      | 21.27  | 0.14   | 0.62                   | *0.37  | *0.00  |
| AT2 understanding about the contents         | 0.37        | -0.39  | -0.03  | 8.68                       | 20.22  | 0.21   | *0.47                  | * 0.52 | *0.00  |
| AT3 practical examples                       | -0.45       | -0.24  | -0.25  | 12.55                      | 7.35   | 11.49  | 0.62                   | *0.17  | *0.19  |
| AT4 lecturer's didactics                     | 0.53        | -0.16  | 0.16   | 17.43                      | 3.43   | 5.04   | 0.83                   | *0.07  | *0.08  |
| AT5 available material                       | -0.04       | 0.09   | 0.33   | 0.11                       | 1.17   | 19.84  | *0.01                  | *0.07  | 0.91   |
| AT6 evaluation forms                         | -0.14       | 0.13   | 0.40   | 1.27                       | 2.18   | 28.73  | *0.10                  | *0.08  | 0.81   |
| AT7 attention to the students/clarify doubts | 0.11        | -0.24  | 0.07   | 0.75                       | 7.34   | 1.01   | *0.16                  | 0.76   | *0.07  |
| AT8 commitment                               | -0.30       | -0.18  | -0.25  | 5.81                       | 4.19   | 11.74  | * 0.48                 | *0.16  | *0.34  |
| AT9 quality of the lecturer                  | 0.72        | 0.50   | -0.32  | 31.99                      | 31.80  | 18.14  | * 0.59                 | *0.28  | *0.11  |
| AT10 laboratories/computers/internet         | -0.27       | 0.08   | -0.14  | 4.51                       | 1.01   | 3.62   | 0.72                   | * 0.07 | *0.20  |

\*variables excluded due to low communalities (<0.60) or lack of conceptual coherence with the Axis.Picture

**Picture 3: Statistics and Coordinates of Attributes for the subject Cost Applied to Administration in the Business Administration Program and Cost Accounting and Cost Analysis in the Accountancy Program**

Source: Research data, 2008

## 5. CONCLUSION

This study was developed to identify the quality attributes the students perceived in Cost Management and Accounting subjects at a public university in Santa Catarina. The use of the critical incident technique allowed the respondents to freely express their perceptions in their own words, reporting remarkable factors in terms of satisfaction or dissatisfaction with the subjects analyzed.

For each specific subject, the following stood out among the critical incidents categorized as quality attributes:

- Subject “Cost Applied to Administration”: the data signaled attributes of satisfaction, related to the student’s understanding of the contents and the teacher’s attention, among which the teacher’s didactics stood out. These attributes were also reported in the study by Silveira, Appio and Domingues (2008).
- Subject “Cost Analysis”: predominance of students’ satisfaction with the lecturer’s quality. On the opposite, students reveal high levels of dissatisfaction with practical examples, considering them as fundamental for learning.
- Subject “Cost Accounting”: students’ predominant satisfaction was related to the teacher’s commitment and the application of practical examples. This result reaffirms findings by Domingues and Grande (2007), in which the application of exercises, practical cases and case studies contribute to learning.

The analysis of these results suggests that students’ satisfaction is more related to the teaching methods and the teacher’s performance than to aspects related to contents, hour load or the institution’s physical structure. These results help managers with regard to the most relevant aspects to guarantee students’ satisfaction with educational services, underlining the lecturers’ role, but demonstrates the institutions’ relative weakness by concentrating students’ general assessment of their subjects or programs on individual persons.

In that sense, higher education institutions should invest in teacher training, offering pedagogical support and promoting discussions among teaching staff members with a view to identifying and disseminating innovative and effective teaching techniques, contributing to students’ learning and satisfaction.

Students' demand for practical exercises and the relation between theories and practical cases can also be understood as a personality trait of contemporary students, who are continuously exposed to new contents and want to play an active role in the teaching-learning process, especially when the contents discussed in class can be combined with information and activities that are part of daily reality.

This observation can be particularly applicable to the cost area, as it represents a relevant area for organizations that is considerably complex for people starting in this activity. Besides calculations, it includes the correct interpretation of data and the identification of values that support pricing and, at bottom, help to determine organizations' general performance.

Regarding the adopted teaching methods and techniques, the qualitative study, with the help of the critical incident technique and content analysis, was adequate to collect and categorize the students' understanding in terms of satisfaction/dissatisfaction.

Further studies are recommended, reviewing and further elaborating the results presented here. Similarly, new research is recommended, focusing on cost teaching in distinct courses, in order to contribute to studies on the theme through a focus on higher education quality attributes.

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