The Senior Administrators and Department Chairs' Perspective of the Accreditation Process in Schools of Engineering - The Case of the Universidad Tecnológica Nacional in the Argentine Republic

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ABSTRACT

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Most of the research related to the accreditation process in Latin American higher education institutions, and the particular case of Argentine higher education institutions, focuses on the historical perspective of the quality movement in these countries, the meaning of quality in higher education, the results of external evaluation, and the current debate about the nature of the accreditation process. There is an absence of research identifying the strengths and weaknesses of the accreditation process. In order to understand the strengths and weaknesses of implementation, this research focused on the accreditation process in Argentine higher education organizations and the particular case of senior administrators' and department chairs' perspectives in the Universidad Tecnológica Nacional, the leading engineering education center in the Argentine Republic.

The instrument was a study survey which used a questionnaire that was web-based and available in paper form as well. The researcher designed this questionnaire based on the different factors identified in the literature research. This questionnaire was

the primary source of data collection and it was distributed to all Senior Academic Administrators (deans, vice deans, assistant deans) and Department Chairpersons of 27 schools and academic units, belonging to the Universidad Tecnológica Nacional.

The main finding is that accreditation is perceived as important for the schools. It is also considered as an opportunity to improve the institutions at different levels. Therefore, the resistance factors are minimum and the internal success factors are the predominant ones.

This research in the leading federal engineering university could be used as a reference for further studies to know if the accreditation process is also valuable for other federal and private engineering schools as well as if it is perceived as an opportunity for improvement. Finally, for the academic administrators of engineering schools, members of the National Commission for Evaluation and University Accreditation (CONEAU), and decision makers at the Ministry of Education in the Argentine Republic, it would be significant not only to determine the forces that sustain and resist the accreditation process in the federal and the private university environment but also the recommendations to improve the accreditation process.

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At this stage in my quest I have to thank for all the help I received, for all the debates that opened my mind and made me more conscious of the needs of others, for the day before because it is a source of wisdom, for the day that I live because it is the opportunity to be a better person, and for the day of tomorrow because it is the promise of new challenges. I want to express my gratefulness to the University of Pittsburgh for the opportunity to study here, and make new and faithful friends. Also, I want to state my gratitude to Dr. Dermot McAleese, current Pro-Chancellor of the University of Dublin - Trinity College; to Dr. Suman Modwel, current Director of Research at the Ecole Nationale des Ponts et Chaussées - School of International Management; my advisor – Dr John L. Yeager – and the other members of my doctoral committee; and to the senior administrators of the Facultad Regional Mendoza at the Universidad Tecnológica Nacional - my alma mater - because they believe in me. Finally, I would like to express my eternal debt to my wife, and my son for being the shelter in the storm, and the rest of our family that endured these years far away from our home. For all of you that are now part of my life I give you this special blessing:

May the road rise to meet you,

May the wind be always at your back

May the sun shine upon your face

The rains fall soft upon your fields

And, until we meet again,

May God hold you in the palm of his hand.

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1.0 INTRODUCTION

1.1 PURPOSE

The objective of this research is to investigate the strengths and weaknesses of the implementation of the accreditation process in Argentine Schools of Engineering. This research focused on the particular case of the Senior Administrators and Department Chairs of the Universidad Tecnológica Nacional, the leading engineering center in the Argentine Republic.

1.2 ACCREDITATION IN THE ARGENTINE HIGHER EDUCATION SYSTEM

1.2.1 The Nature of the Accreditation Process in the Argentine Republic

In 1995, the Congress of the Argentine Republic passed the law 24,521 on Higher Education. The main change introduced by this law was the demand for institutional assessment and accreditation, through a committee established by the law, or through private agencies to be recognized by the national government (C. d. l. N. Argentina, 1995; Mollis, 2002; Pujadas, 2000). On one hand, public universities lost some of their autonomy once they had submitted, for the first time, to greater control by government supervision. On the other hand, private

universities must face the mandate for institutional assessment and accreditation. They will be subject to a strict evaluation process, because academic degrees also serve to qualify graduates for various professions, and must therefore be monitored by the government (Pujadas, 2000).

A second reason demanding an accreditation process in the higher university system is the current crisis in the professional sector in Argentina. In particular, there is a relation between the crisis in the engineering professional area and several factors such as: 1) the economic recession (Bendinger et al., 2000), 2) the excessive Balkanization of the different Professional Associations (Bendinger et al., 2000), 3) the absence of clear quality indicators for the preparation of future engineers, and 4) the proliferation of graduate degrees that make it almost impossible to make a clear discrimination of competencies (Bendinger, 1998).

The bases of the current Argentine accreditation process are: 1) those "degrees whose professional exercise could jeopardize the health, the security, the rights, the goods or the education of the people living in the Argentine Republic (article 43 of the Higher Education Act Number 24,521)" (CONEAU, 2003a) must be accredited, and 2) institutions that request the accreditation process must meet or exceed stated accreditation criteria. As indicated early this process is only being applied to medical and engineering schools and programs. In the Argentine system, failure in the accreditation process may lead to the National Commission for Evaluation and University Accreditation (Comisión Nacional de Evaluación y Acreditación Universitaria (CONEAU) to decide to close student enrollments in the institution until all the requisites are satisfied (C. d. l. N. Argentina, 1995).

1.2.2 The Accrediting Agency in the Argentine Republic

The Higher Education Bill determined in its third section the creation of the National Commission for Evaluation and University Accreditation (Comisión Nacional de Evaluación y Acreditación Universitaria (CONEAU)) (C. d. l. N. Argentina, 1995). CONEAU has influenced a wide variety of functions in the higher educational system in Argentina. One of these functions includes the external evaluation not only of all the federal, state and private universities but also the periodic accreditation of public and private undergraduate degrees whose titles correspond to professions regulated by the State. As another function, CONEAU provides technical assistance for the implementation of self-evaluation and the accreditation of Master and Doctorate programs, as well as the evaluation and recommendation of new federal universities. Also, CONEAU oversees the relationships with private institutions for assessment and accreditation (CONEAU, 2003b, , 2003e).

The Ministry of Education determines, in agreement with the Council of Universities, "the list of degrees whose professional exercise could jeopardize the health, the security, the rights, the goods or the formation of the people living in the Argentine Republic" (article 43 of the Law of Superior Education Nº 24,521) (CONEAU, 2003a). The accreditation of such professions has as a starting point the approval of standards of accreditation on the part of both the Ministry of Education and the Council of Universities.

Law 24,521 establishes in its general articles 42, 43 and 46 conditions by means of which the accreditation processes will be carried out (C. d. l. N. Argentina, 1995):

- The curricula must respect not only the minimum hour load anticipated in article 42 but also the basic curricular contents and criteria on intensity of the practical

formation[1] established by the Ministry of Education, in agreement with the Council of Universities in article 43.

- The titles of the undergraduate degrees whose exercise can jeopardize the public interest will be accredited (art. 43).
- The standards by means of which the accreditation processes will be developed will be determined by the Ministry of Education in agreement with the Council of Universities (art. 43).

As one of its functions, CONEAU will carry on the external evaluation not only of all the federal, state and private universities but also the periodic accreditation of public and private undergraduate degrees whose titles correspond to professions regulated by the State (art. 46). In the period 1995 to 1999, two streams of activities were performed by CONEAU. The first was the voluntary accreditation of master and doctorate programs (CONEAU, 2003b), and the second was the development of different activities to initiate the accreditation process itself. These activities included different seminars and workshops with national and international experts in university teaching, university management, and accreditation in higher education. Also, a long negotiation process was developed between the CONEAU and the Consejo Interuniversitario Nacional (CIN)[2] (National University Council) in order to define the accreditation standards (CONEAU, 2003a).

[1] Note of the Author: The criteria on intensity in practical education is related to the number of hours of theoretical classes in relation with the number of hours of classes assigned to problem resolution, applied exercises, or laboratory exercises. The traditional criterion was to develop a curriculum with 60% of theoretical instruction and 40% of practical instruction. The new criteria is to assign 40% of the hours to theoretical instruction and 60% of the hours to practical instruction

[2] Note of the Author: The National University Council was founded on December 20, 1985. Its objective is to coordinate university policies in the Argentine Republic. Federal universities are invited to join them in a voluntary way. The Council of Chancellors is the top authority in this organization and it sessions every four months ((CIN), n.d.).

The actual implementation of an accreditation process in Argentina began in August of 1999 when the title of medical doctor was included in the list of degrees whose professional exercise could jeopardize the health, the security, the rights, the goods or the education of the people living in the Argentine Republic (Resolution 238/99) (M. d. E.-R. Argentina, 1999b). The corresponding standards for medical doctors were approved by the Ministry of Education in the same year (Resolution 535/99) (M. d. E.-R. Argentina, 1999a). In this context, the CONEAU made a call for voluntary participation of schools of medicine in an accreditation process (1999-2000). The institutions that decided not to participate in the first round of accreditation were included in an obligatory round (2000-2001). At the same time that the accreditation process began, CONEAU decided to evaluate the provisory accreditation of new projects in medical undergraduate degrees (CONEAU, 2003a).

In December 2001, the list of degrees included in the accreditation process grew. The Ministry of Education - in agreement with the Council of Universities - approved Resolution 1232/01 (M. d. E.-R. Argentina, 2001), that declared "the inclusion of the undergraduate degrees of Aircraft Engineer, Engineer in Foods, Environmental Engineer, Civil Engineer, Electrical Engineer, Electromechanical Engineer, Electronics Engineer, Engineer in Materials, Mechanical Engineer, Engineer in Mines, Nuclear Engineer, Engineer in Petroleum and Chemical Engineer in the mentioned list of professions regulated by the State". As in the case for medical doctors, the Ministry of Education approved the standards for the accreditation of schools of engineering.

CONEAU planned three calls for voluntary participation of schools of engineering in an accreditation process and one last compulsory call for participation in order to accredit all the engineering schools and engineering institutes (Pérez Rasetti, 2002). The first voluntary process for accreditation began on June 1st, 2002, and 28 engineering schools and engineering institutes

(belonging to 15 universities and university institutes) submitted their papers (CONEAU, 2002b; Pérez Rasetti, 2002). The second voluntary process for accreditation began on August 15th , 2002, and 21 engineering schools and engineering institutes (belonging to 12 universities and university institutes) submitted their papers (CONEAU, 2002c; Pérez Rasetti, 2002). The third voluntary process for accreditation began on March 1st, 2003, and 21 engineering schools and engineering institutes (belonging to 8 universities and university institutes) decided to participate (CONEAU, 2002d; Pérez Rasetti, 2002). Finally, 21 engineering schools and engineering institutes belonging to 17 universities and university institutes decided to participate in the last and compulsory call[3,4] (CONEAU, 2003d).

1.2.3 Accreditation Process in the Argentine Republic

Regulation 32 of CONEAU specifies the accreditation process in the Argentine Republic for schools of engineering. The main steps are: 1) start up of the accreditation process, 2) self-study, 3) on-site evaluation, 4) review and action, 5) periodic review, and 6) appeal procedure (CONEAU, 2002e).

In the Argentine process, the accreditation procedure is compulsory. CONEAU determines the periods for accreditation, and the institution has the option to submit its papers or to face a possible closure of enrollment (C. d. l. N. Argentina, 1995). During the start up of the accreditation process, CONEAU designates the members of the Peer Committee that will visit and evaluate each of the institutions. Institutions going through accreditation process may request

[3] Note of the Author: The estimated starting date for this last step was May 2004
[4] Note of the Author: There are 79 Universities and 15 University Institutes censed in the Argentine Republic in the year 2000 (Universitario, 2001). On 2003, the accreditation process has only four years since the start up point and reached only 124 schools and around 12% of the students in the Argentine Higher Education System (CONEAU, 2002b, , 2002c, , 2002d, , 2003d; Universitario, 2001).

a change of the members of the Peer Committee assigned to its evaluation process (CONEAU, 1997, , 2002a).

After the acceptance of the Peer Committee members, the next step is the preparation of the self-study. The institution has up to four months to prepare it. The criteria for accreditation provides an appropriate basis for the institution to document how it is organized, staffed, and supported to accomplish its purposes and to demonstrate its potential to attain accreditation (M. d. E.-R. Argentina, 2001; CONEAU, 2002a).

When the self study is submitted, CONEAU will schedule the visit of the Peer Committee to analyze the expected impact of each program into the society, the relationship between undergraduate and graduate degree in each program, the faculty structure, the administrative and technical staff structure, the laboratories, specialized equipment, libraries, the physical building, results of ACCEDES[5], the budget allocated to the program, the mission of the institution and its relationship with the academic activities, research activities and community related activities, the academic and administrative procedures, the research policies and their relationship with the community, and the curriculum and its relationship with the academic and physical resources (CONEAU, 2002a).

The Peer Committee will prepare a report based on the self study and the on-site evaluation. This report will have the recommendation for accreditation or not and the

[5] ACCEDE (Análisis de Contenidos y Competencias que los Estudiantes Disponen Efectivamente) is the acronym for Analysis of Content of Curricula and Knowledge that Students really have. The analysis of the formation standards for an undergraduate degree will be made through several indicators such as: 1) the examination of the Curriculum, 2) the analysis of the programs, 3) the evaluation of the curricular activities, 4) the surveys to current students and graduated students, 5) the different tests and written works of the students, and 6) the application of complementary instrument whose acronym is ACCEDES. The objective of ACCEDES is to provide information about the results on the formation standards for an undergraduate degree according to the ministerial resolution 1232/01. This information is considered as one of the input for the process of self-evaluation of the undergraduate degree. The instrument for ACCEDES has the following characteristics: 1) it is anonymous and it personally does not identify the students, but it provides information based on the formation objectives of each student, and 2) it evaluates in a direct way contents and competitions contemplated in the Ministerial Resolution 1232 of December of 2001, which are part of the standards of formation of the students (CONEAU, 2001).

recommendations for improvement for the institution (CONEAU, 2002a, , 2002e). CONEAU will review the report of the Peer Committee and will determine a preliminary accreditation status for the institution. After that, there is a period of 30 days for the institution to appeal the preliminary resolution (CONEAU, 2002a, , 2002e).

Finally, CONEAU will determine a definitive accreditation status for the institution: a) six years accreditation if the institution has the quality level established in the accreditation criteria, b) three years accreditation if the institution can reach the desirable level in the short term, or c) no accreditation. The institution that receives the status of no accreditation will have an appeal opportunity during the next 30 days of the publication of the results (CONEAU, 2002a, , 2002e). During the accreditation process, if any school cannot pass the accreditation process, the National Commission for Evaluation and University Accreditation (CONEAU), as the only accrediting body in the Argentine Republic, may recommend based on the article 76 of the Higher Education Act to close the enrollment activities until all the deficiencies have been overcome (C. d. l. N. Argentina, 1995).

CONEAU will communicate the final result of the accreditation process to the institutions, the Consejo Interuniversitario Nacional (CIN) (National University Council), and the Consejo de Rectores de Universidades Privadas (CRUP)[6] (Council of Chancellors of Private Universities), and the public (CONEAU, 2002a, , 2002e). Table 1 shows a comparative analysis of the steps in the process for accreditation of schools of engineering in the Argentine Republic categorized following the Southern Association of Colleges and Schools (SACS) criteria.

[6] Note of the Author: The Council of Private University Chancellors represents the member organizations that have state authorization to operate, submit an authorized opinion to the Ministry of Education in any case related to private universities, provide support and promote cooperation among the affiliate organizations in order to support the private higher education, plan the planning of the private higher education, and coordinate this planning with the Ministry of Education, and the National University Council ((CRUP), 2002).

Table 1: Comparative Analysis of the Steps in the Process for Accreditation of Schools of Engineering in the Argentine Republic

STEPS IN THE PROCESS (CONEAU, 1997, , 2002e)	INCLUDED IN THE ARGENTINE REPUBLIC PROCESS
First the institution is in compliance with Core Requirements and with the Comprehensive Standard regarding qualifications of its faculty.	
The institution is granted Candidacy status upon the recommendation from the Committee on Criteria and Reports and action by the Commission indicating that it has complied with Core Requirements and has provided evidence that it employs a faculty which meets the Comprehensive Standard regarding faculty qualifications.	
Peer Committee members are designated by CONEAU	✓
Institution going to the accreditation process may request the change of the members of the Peer Committee (in the Argentine accreditation process)	✓
SELF-STUDY	
To engage in comprehensive self-examination following procedures outlined in the Guide	✓
The findings, as well as priorities and strategies for quality enhancement identified through the process, are summarized in a self-study report.	✓
This document is submitted to the Commission together with certain specified institutional materials such as the college catalog and completed data forms	✓
ON-SITE EVALUATION.	
If Candidacy is granted, the institution must document compliance with the Comprehensive Standards of the *Principles of Accreditation* and receive an Accreditation Committee visit within the following two years.	
If the institution is granted Continued Candidacy, an Accreditation Committee will again visit the institution within the next two years of Candidacy.	
Evaluation by an on-site team of peer evaluators, who are administrators and faculty from other accredited colleges and universities.	✓
The team summarizes its conclusions in a written report which addresses not only the institution's success in fulfilling its purposes but also speaks to ways that success can be enhanced. It is considered advisory to the Commission.	✓
REVIEW AND ACTION	
During its scheduled meetings each year, the Commission reviews the self-study, the team report, and any response an institution may make to its report, from colleges or universities most recently evaluated.	✓
With this information, the Commission takes action on each institution's accreditation status.	✓

Table 1 (continued)

STEPS IN THE PROCESS (CONEAU, 1997, , 2002e)	INCLUDED IN THE ARGENTINE REPUBLIC PROCESS
REVIEW AND ACTION	
In addition, the Commission specifies areas where an institution should endeavor to improve its effectiveness.	✓
Disclosure of information about individual colleges and universities resulting from this process is governed by the Policy on Public Disclosure of Information About Affiliated Institutions.	
PERIODIC REVIEW	
Accredited institutions undergo comprehensive evaluations at least every 10 years. Newly accredited institutions are revisited within four years.	✓ 6 Years
The nature and timing of such reviews vary in accordance with the circumstances at a given institution. If an institution undergoes a substantive change or if at any time its educational effectiveness is seriously questioned, the Commission reserves the right to review that institution's accreditation without regard to any previously indicated time pattern.	
RIGHT OF APPEAL	
An institution shall have the right to appeal those recommendations made by a Commission which are adverse to the institution's accreditation or candidacy for accreditation.	✓

Source: *Ordenanza No 12* [Electronic format] [Regulation 12] by CONEAU, 1997, updated 12/19/03. Retrieved 01/07/04 from http://www.coneau.edu.ar/ORDE012.pdf

Source: *Ordenanza No 32* [Regulation 32] by CONEAU, 2002, updated 05/10/02. Retrieved 01/07/04 from http://www.coneau.edu.ar/Orde032.PDF

Source: *Guía para la Autoevaluación - Acreditación de Carreras de Grado - Ingeniería - Convocatoria 2002-2003* [Electronic version] [Self-study guide - Undergraduate majors accreditation - Engineering - Mandatory Call 2002-2003] by CONEAU, 2002, no information about update date. Retrieved 01/08/04 from http://www.coneau.gov.ar/guia_autoevaluacion_ingenieria1.PDF

1.2.4 Accreditation Standards in the Argentine Republic

The criteria for the accreditation of schools of engineering in the Argentine Republic were specifically developed for these kinds of schools. For the purposes of this analysis, the text and categories for the accreditation criteria from the Southern Association of Colleges and Schools (SACS) was considered as a reference. Any new different request not considered by SACS was added to the ad hoc table in order to complete the analysis.

Table 2 shows the main criteria for the accreditation process in the Argentine Republic categorized following the SACS criteria. The Argentine accreditation standards for schools of engineering have a great similarity in content with the SACS regional accreditation standards, but the following SACS components are not included at all: Institutional Effectiveness, Student Support Services, and Quality Enhancement Plan. Also, the Argentine accreditation standards add Program criterion from the professional accreditation, Research Policies and relationship with the community, and Assessment process related to undergraduate engineering major with documented results.

1.2.5 Accreditation and Education Quality in the Argentine Republic

The accreditation process in the Argentine Republic has a starting point when the Congress passed the Higher Education Bill in 1995 (C. d. l. N. Argentina, 1995). This Act states in Article 4 complementary objectives for the Argentine higher education[7]. One of these complementary objectives of higher education is to assure growing levels of quality and excellence in all the

[7] Note of the Author: The Federal Education Act (Bill 24, 195), passed in 1993, states in article 22 specific objectives for the universities: 1) to prepare technicians and professionals according to national and regional demand, 2) to develop knowledge, 3) to spread the knowledge in order to improve the living standards and technological advance, 4) to stimulate the study of national, Latin American, and universal culture, and 5) to provide consulting services to private and federal organizations (C. d. l. N. Argentina, 1993).

higher education institutions. Article 33 of the same act states again this objective for university institutions.

Table 2: Checklist of the Criteria for Accreditation of Schools of Engineering in the Argentine Republic

	STANDARDS	CHECK
Core Requirements	Degree-granting Authority / Governing Board / Chief Executive Officer	✓
	Institutional Mission / Continuous Operation	✓
	Institutional Effectiveness	N/A
	Program Length / Program Content	✓
	General Education/ Contractual Agreements for Instruction	✓
	Faculty	✓
	Learning Resources and Services / Resources	✓
	Student Support Services	N/A
	Quality Enhancement Plan	N/A
Comprehensive Standards	Institutional Mission	✓
	Governance and Administration	✓
	Institutional Effectiveness	N/A
	Educational Programs	✓
	Faculty	✓
	Library and Other Learning Resources	✓
	Student Affairs and Services	✓
	Financial and Physical Resources	✓
	Research Policies and relationship with the community (Not a SACS criterion)	✓
	Assessment process related to major with documented results (ACCEDE) (Not a SACS criterion)	✓
	Program Criterion (Not a SACS criterion)	✓

Source: *Accreditation Policy and Procedure Manual - Effective for Evaluations during the 2004-2005 Accreditation Cycle [Electronic Version]* by Accreditation Board for Engineering and Technology (ABET), 2003, Baltimore, MD.

Source: Education Ministry of Argentina Republic (2001, 08/20/03). *Estándares de Ingeniería - Resolución ME 1232/01 [Engineering major standards - Regulation ME 1232/01]*. Retrieved 08/21/03 from http://www.coneau.edu.ar/que_es/document/leyesynorm/leyesynorm.html

Source: Southern Association of Colleges and Schools (SACS) (2003). *Principles of Accreditation [Electronic Format]* (PDF file).

Also, the Higher Education Bill determines in its third section – article 44 - the creation of the National Commission for Evaluation and University Accreditation (Comisión Nacional de Evaluación y Acreditación Universitaria (CONEAU)) (C. d. l. N. Argentina, 1995; CONEAU, 2003b, , 2003e). CONEAU has influenced quality activities in a wide variety of functions in the higher educational system in Argentina. One of these functions includes the external evaluation not only of all the federal, state and private universities, but also the periodic accreditation of public and private undergraduate and graduate degrees whose titles correspond to professions regulated by the State. As another function, CONEAU provides technical assistance for the implementation of self-evaluation and the accreditation of Master and Doctorate programs, as well as the evaluation and recommendation of new federal universities. Also, CONEAU oversees relationships with private institutions for assessment and accreditation (C. d. l. N. Argentina, 1995; CONEAU, 2003b, , 2003e). One of the missing points in Article 46, which states the objectives of CONEAU, is to promote quality in the higher education system.

According to the Article 43 of the Higher Education Act, the Ministry of Education determines, in agreement with the Council of Universities, the list of degrees whose professional exercise could jeopardize the health, the security, the rights, the goods or the formation of the people living in the Argentine Republic (C. d. l. N. Argentina, 1995; CONEAU, 2003a). These degrees must face the accreditation process and their study plans must meet federal regulations. The accreditation process of such professions has as a starting point the approval of standards of accreditation on the part of both the Ministry of Education and the Council of Universities.

The Higher Education Act (Law 24,521) establishes in its general articles 42, 43 and 46 conditions by means of which the accreditation processes will be carried out (C. d. l. N. Argentina, 1995):

- The curricula must comply with not only the minimum hour load anticipated in article 42 but also the basic curricular contents and criteria on intensity of the practical formation[8] established by the Ministry of Education, in agreement with the Council of Universities in article 43.
- The titles of the undergraduate degrees whose exercise can jeopardize the public interest will be accredited (art. 43).
- The standards by means of which the accreditation processes will be developed will be determined by the Ministry of Education in agreement with the Council of Universities (art. 43).

The Ministry of Education and CONEAU developed a set of resolutions and a General Statement in order to provide an adequate framework to the accreditation process in the Argentine Republic. CONEAU stated in this General Statement, published in 1998, the meaning of accreditation:

> … entendiéndose por acreditación un proceso de evaluación de la calidad académica (complementario de la evaluación institucional), dirigido a su mejoramiento [Accreditation is an evaluation process of the academic quality (which complements the institutional evaluation) and its goal is the improvement of academic quality] (CONEAU, 1998, p. 3)

[8] Note of the Author: The criteria on intensity in practical education is related to the number of hours of theoretical classes in relation with the number of hours of classes assigned to problem resolution, applied exercises, or laboratory exercises. The traditional criterion was to develop a curriculum with 60% of theoretical instruction and 40% of practical instruction. The new criteria is to assign 40% of the hours to theoretical instruction and 60% of the hours to practical instruction

Also, CONEAU developed a set of documents related to the evaluation of the accreditation process, the evaluation of undergraduate students before graduation, and a preliminary report of the accreditation process in the school of engineering. This additional set of documents provides information about the quality perspective in the accreditation process of schools of engineering. The first concept is that the accreditation process provides not only a quality control in higher education institutions but also a quality improvement of the institutions (Guerrini, Rasetti, & Jeppesen, n.a., p. 3). The second concept is that the resources of the institution to provide education (human resources, financial resources, physical resources, and academic programs); and the administration of these resources (administration, organization, quality control and quality assurance procedures) determine the quality of the institution (Guerrini, Rasetti, & Jeppesen, n.a., p. 5). The third concept is that the evaluation of these resources must lead to " evidence about the level of education of the students" (Guerrini, Rasetti, & Jeppesen, n.a., p. 10). In other words, the evaluation through the accreditation process includes measuring the institution's success in achieving its intended educational outcomes. The fourth concept is that the Accreditation body develops the outcome assessment of the institution through a standard examination that all the students who achieved 80% or more of the academic plan must take. This standard examination is ACCEDE (Análisis de Contenidos y Competencias que los Estudiantes Disponen Efectivamente) which translate to "Analysis of Content of Curricula and Knowledge that Students Really Have"[9]. The current criteria for the analysis of the formation standards for an undergraduate degree will is to include several indicators : 1) the examination of

[9] The objective of ACCEDES is to provide information about the results on the formation standards for an undergraduate degree according to the ministerial resolution 1232/01. This information is considered one input for the process of self-evaluation of the undergraduate degree. The instrument for ACCEDES has the following characteristics: 1) it is anonymous and it personally does not identify the students, but it provides information based on the formation objectives of each student, and 2) it evaluates in a direct way contents and competitions contemplated in the Ministerial Resolution 1232 of December of 2001, which are part of the standards of formation of the students (CONEAU, 2001).

the Curriculum, 2) the analysis of the programs, 3) the evaluation of the curricular activities, 4) surveys to current students and graduated students, 5) different tests and written works to the students, and 6) the application of an complementary instrument whose acronym is ACCEDE (CONEAU, 2001; Guerrini, Rasetti, & Jeppesen, n.a.).

As a consequence, the Argentine accreditation process for the schools of engineering adopts a point of view that fits with the perspective that defines quality as achievement in kind and the Theory of Quality within Mission. Also, it includes outcome assessment in the accreditation standards as well as the quality improvement of the institution in future accreditation cycles.

1.3 DIFFERENT PERSPECTIVES ABOUT THE ACCREDITATION PROCESS

Research has shown that in the United States academic administrators and faculty members have different perspectives about accreditation as a quality initiative. Whereas academic administrators are more likely to perceive an accreditation process as a quality initiative and a useful index of institutional quality, faculty members are more willing to use other quality indicators such as feedback from students and the quality of scholarly activities (Abraham-Ramírez, 1997; Andersen, 1987; Clarke, 1997; Peterson, Einarson, Augustine, & Vaughan, 1999; Welsh & Metcalf, 2003). The different perspectives about quality impact the levels of participation in the implementation of the accreditation process as a quality initiative. As institutions become larger and more complex, faculty and academic administrators have more differentiated skills, and they perceive the environment in a different way. This gap increases the traditionally different perspectives between the academic and the administrative culture (Lucas,

1996). Therefore, academic administrators "become identified in the faculty mind with red tape, constraints, and outside pressure that seek to alter the institution" (Birnbaum, 1988, p. 7). And academic administrators see the faculty as "self-interested, unconcerned with controlling costs, or unwilling to respond to legitimate request for accountability" (Birnbaum, 1988, p. 7). Research suggests that academic administrators attribute greater importance to accreditation initiatives than faculty but faculty attribute importance too (Welsh & Metcalf, 2003). Academic administrators agreed, to a great extent, that institutional accreditation – regional or professional– provides a useful index of institutional quality. Also, they agreed to a lesser extent about the utility of institutional accreditation as a tool for self-evaluation and as a stimulus for improvement (Andersen, 1987). In addition, findings related to academic administrators and their quality perspectives are contradictory. Welsh and Metcalf (2003) report that academic administrators are more likely to define quality as student outcome-based but Clarke (1997) reports that they support institutional effectiveness activities because they "perceive effectiveness as highly related to the generation of students credit hours and other budgetary matters" (p. 187) that are included in the outcomes-based conception of quality promoted by accrediting agencies and state coordinating boards. Faculties are more willing to respond to internal motivators related to institutional effectiveness (Peterson, Einarson, Augustine, & Vaughan, 1999) such as quantity and quality of scholarly productivity" (Clarke, 1997) or student feedback (Abraham-Ramírez, 1997). Research also shows the conflict between faculty and academic administrators is a common problem. The first international study conducted by The Carnegie Foundation in 14 countries[10] demonstrated that faculty around the world share similar

[10] The Carnegie International Survey of the Academic Profession, conducted in 1991-93, studied academics in 14 countries: the United States; United Kingdom, Germany, the Netherlands, Russia, and Sweden in Europe; Hong Kong, Japan, and South Korea in Asia; Brazil, Chile, and Mexico in Latin America; Israel in the Middle East; and Australia (Boyer, Altbach, & Whitelaw, 1994). The results from this survey were reported in two Carnegie

experiences and express common concerns (L. S. Lewis & Altbach, 1996) such as nearly universal lack of regard by faculty for administrators; distrust and alienation from administration; academics extreme unhappiness with their institutions; awareness and concern about the trend toward the growing bureaucratization in higher education; very low influence of faculty in helping to shape academic policies at the institutional level; and complete dissatisfaction of faculty with and doubts about the quality of the leadership provided by top-level administrators at their colleges and universities. The survey also shows a common pattern of external forces : a near universal trend toward more emphasis on teaching; demands that faculty members account for their activities, with assessment as a means of measuring the effectiveness of academic effort; and a growing societal discomfort with traditional ideas of university autonomy (L. S. Lewis & Altbach, 1996).

Therefore, academic administrators have to be aware of the different perceptions of the accreditation process among the members of the institution. Because of these different perspectives, the implementation of regional and/or professional accreditation in higher education institutions leads to a change process characterized by forces supporting the implementation of the accreditation process, and other forces resisting the implementation of the accreditation process.

1.4 RESEARCH QUESTIONS

Most of the research related to the accreditation process in Latin American higher education institutions, and the particular case of Argentine higher education institutions, focuses on the

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Foundation publications: *The Academic Profession: An International Perspective* and *The International Academic Profession: Portraits of Fourteen Countries.*

historical perspective of the quality movement in these countries, the meaning of quality in higher education, the results of external evaluation, and the current debate about the nature of the accreditation process. There is an absence of research identifying the strengths and weaknesses of the accreditation process. In order to understand the strengths and weaknesses of implementation, this research focused on the accreditation process in Argentine higher education organizations and the particular case of senior administrators' and department chairs' perspectives in the Universidad Tecnológica Nacional, the leading engineering education center in the Argentine Republic. This study addressed three main research questions:

1. What are the most important aspects of the current accreditation process identified by senior administrators and department chairs of Argentine Schools of Engineering?
2. To what extent do senior administrators and department chairs have different perspectives of the importance, effectiveness, degree of implementation and impact of the current accreditation process?
3. What do senior administrators and department chairs recommend to improve the accreditation process?

1.5 PROFILE OF THE UNIVERSIDAD TECNOLÓGICA NACIONAL

In 1959 the Congress of the Argentine Republic passed law 14,855 on Higher Education Autonomy. This act determined the transformation of the Universidad Obrera Nacional [National Worker University] founded in 1948 by the Act 13,229 into a federal university named

Universidad Tecnológica Nacional [National Technological University] (Nacional, 2003a; Pronko, 2003).

The Universidad Tecnológica Nacional has a predominant role not only in the development and transfer to the community of new technologies but also in the generation of undergraduate and graduate professionals in the engineering field. It is the only federal university in the Argentine Republic with engineering as a central objective of its academic structure (Nacional, 2003a).

The Universidad Tecnológica Nacional (UTN) has three characteristics that distinguish it from the rest of the federal university system: 1) engineering concentration, 2) domestic coverage, and 3) the highest enrollment in the engineering area.

The first characteristic is that UTN is the only university in the Argentine Republic that has engineering majors as a high priority objective. At the present time it is offering 15 undergraduate majors in the engineering area as well as M.S. and Ph.D. in different engineering majors (Nacional, 2003a).

The second characteristic is its domestic coverage. The UTN has 22 Schools of Engineering and seven Academic Units[11] distributed in 13 of the 23 provinces and one federal district (Nacional, 2003a). The third characteristic is that UTN has the highest enrollment in engineering degrees. Its enrollment of 63,284 students is equivalent to more than 89% of the total enrollment in engineering majors in the Argentine Republic (Universitario, 2001).

[11] Note of the Author: Academic Unit is a general category for organization structure in the higher education system in the Argentine Republic. Under this denomination, the most accepted meaning is that a university may have not only different schools but also university institutes and secondary colleges such as: 1) the organization in Universidad Católica Argentina (Weblaboral1, 2003), 2) the organization in Universidad Nacional de la Plata (Plata, 1999), and 3) the organization in Universidad del Salvador (Salvador, 2003). In other cases like the Universidad Tecnológica Nacional, there is a differentiation between Schools (Facultad Regional) and Academic Units. Schools have a higher rank than Academic units based on the number of undergraduate degrees offered, number of faculty, and number of students taking courses (Regulation Number 582 from Highest University Council at Universidad Tecnológica Nacional) (Nacional, 2003b).

Since the foundation of the Universidad Tecnológica Nacional in the year 1959, more than 30,000 professionals graduated with majors in 15 undergraduate engineering disciplines (Nacional, 2003a). Table 3 provides a comparative analysis of the main indicators of the enrollment data of the UTN in relation with the rest of the Argentine University System.

During the accreditation process, if any school cannot pass the accreditation process, the National Commission for Evaluation and University Accreditation (CONEAU), as the only accrediting body in the Argentine Republic, may recommend based on the article 76 of the Higher Education Act to close the enrollment activities until all the deficiencies have been overcome (C. d. l. N. Argentina, 1995).

For any university other than the UTN, the potential consequences of having an engineering school which fails to pass the accreditation process will be a negative impact on the enrollment that may range between 5% and 20%. But for the UTN, the whole university may face a decision to close the enrollment. As a consequence, the UTN was and is still facing a challenging process of organizational change in order to adapt all its administrative and academic structure to the new standards for engineering accreditation.

1.6 SIGNIFICANCE OF THE STUDY

The information collected during this research will help academic administrators of engineering schools, members of the National Commission for Evaluation and University Accreditation (CONEAU), and decision makers at the Ministry of Education in the Argentine Republic to identify the problems during the accreditation process, and to get a summary of

recommendations from academic professionals and practitioners who participated in this process in order to improve this quality initiative.

Table 3: Comparative Data of the UTN with the Argentine University System

	Enrollment (Year 2000)	1st Headcount (Year 2000)	Graduated Students (Year 1999)
Total Argentine University System	1,124,044	289,246	38,471
Total Engineering Students	71,188	17,144	2,410
Universidad Tecnológica Nacional	63,284	13,174	1,942
Contribution of UTN to Total Engineering Students	88.9%	76.9%	80.6%

Source: Adapted from Población Estudiantil [Student population], in *Anuario de Estadísticas Universitarias 1999/2000* [1999/2000 University Statistics Yearbook] by Programa Mejoramiento del Sistema de Información Universitario [System Information Improving Program], 2001, Buenos Aires: Ministerio de Educación - Secretaría de Políticas Universitarias.

1.7 LIMITATIONS

This study was limited to measuring perceptions of the accreditation process at 22 Schools of Engineering and seven Academic Units from the total of current 70 Argentine Schools of Engineering. However, these schools and Academic Units are the core structure of the Universidad Tecnológica Nacional (UTN), which are distributed in 13 of the 23 provinces and

one federal district that serve nearly around 90% of the engineering student population in the Argentine Republic.

1.8 DEFINITIONS OF TERMS

For the purpose of this study, the following definitions were used and appear in alphabetical order:

Accreditation - "a process by which an institution of postsecondary education evaluates its educational activities, in whole or in part, and seeks an independent judgment to confirm that is substantially achieving its objectives and is generally equal in quality to comparable institutions of postsecondary education" (Young, Chambers, Kells, & Cargo, 1983)

Academic Administrator - A faculty member appointed to a position as chancellor, vice chancellor, president, provost, academic vice-president or dean, associate dean, or other professional in the dean's office and academic department heads' office. They are responsible for various administrative duties, but may still be active in teaching and research (Provost, 2002).

Academic Unit - Academic Unit is a general category for organization structure in the higher education system in the Argentine Republic. Under this denomination, the most accepted meaning is that a university may have not only different schools but also university institutes and secondary colleges such as: 1) the organization in Universidad Católica Argentina (Weblaboral1, 2003), 2) the organization in Universidad Nacional de la Plata (Plata, 1999), and 3) the organization in Universidad del Salvador (Salvador, 2003). In other cases like the Universidad Tecnológica Nacional (UTN), there is a differentiation between Schools (Facultad Regional) and Academic Units. Schools have a higher rank than Academic units based on the number of

undergraduate degrees offered, number of faculty, and number of students taking courses (Regulation Number 582 from Highest University Council at Universidad Tecnológica Nacional) (Nacional, 2003b).

American Society for Quality (ASQ) – "The American Society for Quality (ASQ), headquartered in Milwaukee, Wisconsin, USA, is the world's leading authority on quality since 1946. The 104,000-member professional association creates better workplaces and communities worldwide by advancing learning, quality improvement, and knowledge exchange to improve business results. By making quality a global priority, an organizational imperative, and a personal ethic, ASQ becomes the community for everyone who seeks technology, concepts, or tools to improve themselves and their world" ((ASQ), 2004).

Assessment - Assessment is a tool that produces evidence focusing not only on student learning and achievement but also the collection and analysis of evidence of effectiveness for all parts of an institution (Wolff, 1994).

Continuous Improvement - Sometimes called continual improvement. The ongoing increase in quality of products, services or processes through incremental and breakthrough phases (Daniels et al., 2002).

Council for Higher Education Accreditation (CHEA) – It is nongovernmental coordinating agency for accreditation whose primary purpose is to coordinate and to improve the practice of accreditation. It was established in 1996 to replace the Commission on Recognition of Postsecondary Accreditation (CORPA) (Education, n.d.).

Faculty - All university employees with the rank of Instructor, Assistant, Associate or Full Professor who are on tenure track or are tenured, whose primary duty is classroom teaching and/or research (Provost, 2002).

Force Field Analysis - Force Field Analysis is a method for analyzing qualitative data. This method derives from Kurt Lewin's three-step model for change, and it "organizes information pertaining to organizational change into two major categories: forces for change and forces to maintain the status quo" (Huse & Cummings, 1985, p. 72).

Institutional Effectiveness - Institutional Effectiveness is an assessment of the planning and evaluation procedures within an institution ((SACS), 2003). The institution has to use the results of the assessment for program improvements, planning and decision making. The four stages of Institutional Effectiveness are: 1) to establish a clearly defined purpose that supports the mission of the institution, 2) to formulate goals that support that purpose, 3) to develop and implement procedures to evaluate and assess the extent to which these goals are being achieved, and 4) to use the results of the evaluations and assessments to improve services and programs. The concept of institutional effectiveness presumes that an institution is engaged in an ongoing quest for quality and can demonstrate how well it fulfills its stated purpose. In addition, the university is expected to document quality and effectiveness by employing a comprehensive system of planning and evaluation in all major aspects of the institution ((SACS), 2003).

Quality – It is a collection of powerful tools and concepts that are proven to increase customer satisfaction, reduce cycle time and costs, and eliminate errors and rework ((ASQ), 2003).

Quality Assurance – It is the planned and systematic activities implemented within the system and demonstrated as needed to provide adequate confidence that an entity will fulfill requirements for quality ((ASQ), 2003).

Quality Control – It is operational techniques and activities that are used to fulfill requirements for quality. It involves techniques that monitor a process and eliminate causes of unsatisfactory performance at all stages of the quality loop ((ASQ), 2003).

Quality Improvement – It is an action(s) taken throughout the organization to increase the effectiveness and efficiency of activities and processes in order to provide added benefits to both the organization and its customers ((ASQ), 2003).

Quality Management – It is all activities of the overall management function that determine the quality policy, objectives, and responsibilities, and implement them by means such as quality planning, quality control, quality assurance, and quality improvement within the quality system ((ASQ), 2003).

Quality Planning - activities establish the objectives and requirements for quality and for the application of quality system elements. Quality planning covers product planning, managerial and operational planning, and the preparation of quality plans ((ASQ), 2003).

Total Quality Management (TQM) – It is the management approach of an organization, centered on quality, based on the participation of all of its members, and aiming at long-term success through customer satisfaction and benefits to all members of the organization and to society ((ASQ), 2003).

2.0 LITERATURE REVIEW

2.1 INTRODUCTION

The implementation of an accreditation process in a higher education institution challenges not only the ability of academic administrators to deal with an external evaluation organization and to show valid results but also their leadership skills. In this review, the following questions have been employed as guidelines for inclusion of literature relating to the implementation of an accreditation process in a higher education institution:

- How is accreditation related to institutional quality in higher education?
- What are the forces that support the implementation of an accreditation process?
- What are the forces that resist the implementation of an accreditation process?

The implementation of an accreditation process in a higher education institution will be under the influence of forces that will help the process and other forces that will resist its implementation. The balance of these forces will depend on the different perspectives about quality among faculties and academic administrators. This approach was the guide to select all the references included in this section. Figure 1 shows the approach to the literature review.

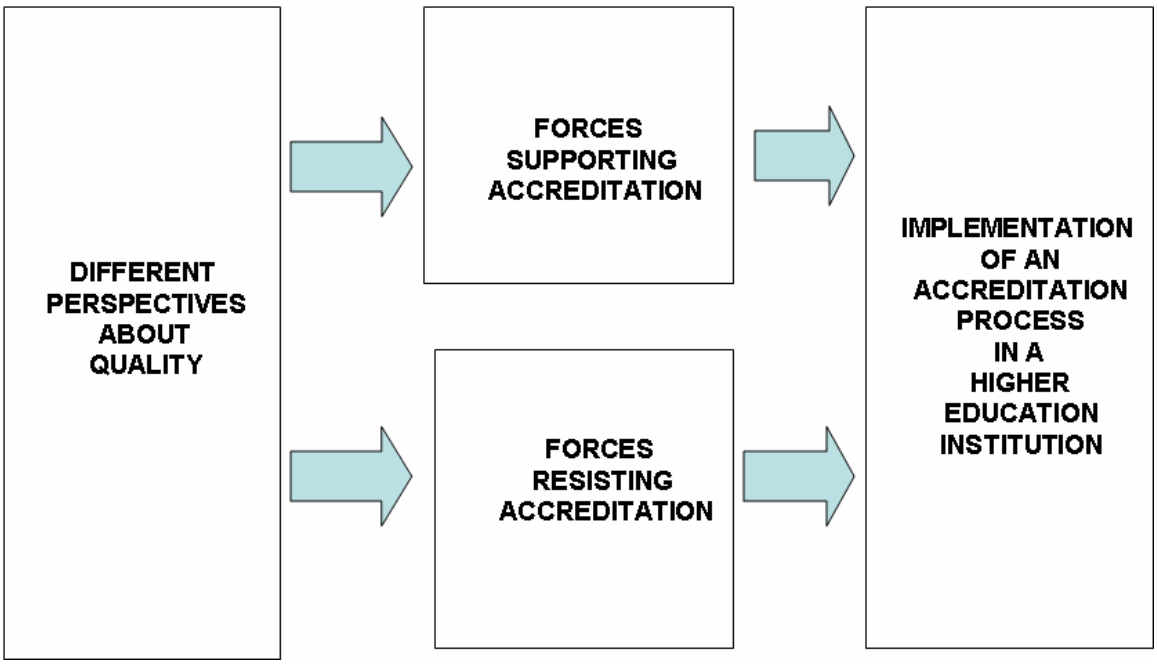

Figure 1: Literature Review for the Implementation of an Accreditation Process in a Higher Education Institution.

Based on this analysis, two organizational areas set the resulting framework to understand the implementation of an accreditation process in a higher education institution: 1) different perspectives about quality, and 2) accreditation process as an organizational challenge. Each organizational area includes one or several domains, and each domain includes related sets of dimensions (see Figure 2).

The first organizational area deals with the different perspectives of quality among the members of a higher education institution. Three different perspectives have played an important role in initiating and shaping improvement initiatives within postsecondary institutions (Bogue, 1998; Dictionary, 1989; Millard, 1994): 1) quality as an ideal model of college or university, 2) quality as achievement in kind, and 3) quality as a degree of excellence. These three perspectives are the key domains for the first organizational area.

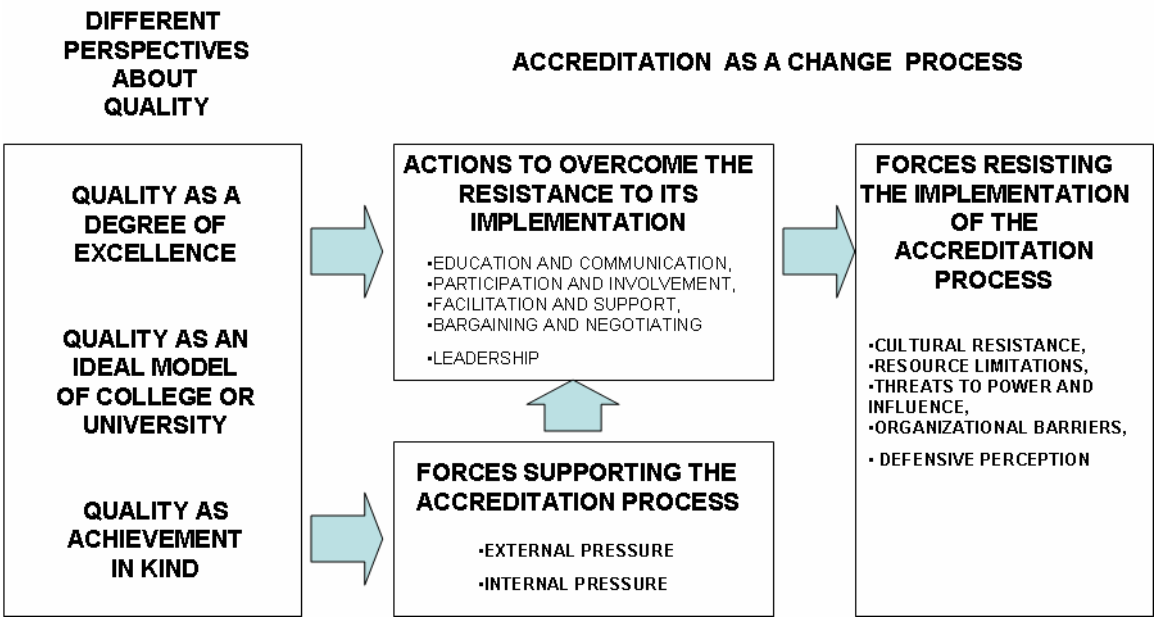

Figure 2: Analytic Framework for the Implementation of an Accreditation Process in a Higher Education Institution

The second organizational area is the accreditation process and the challenges of its implementation. In 1985-86, the Southern Association of Colleges and Schools (SACS), one of the six regional accrediting bodies in the US, took the lead by adopting a major new standard on institutional effectiveness. This concept was adopted by the other five regional accrediting bodies with variations as well as for the undergraduate Argentine accreditation process. Basically, Institutional Effectiveness is an assessment of the planning and evaluation procedures within an institution ((SACS), 2003). The institution has to use the results of the assessment for program improvements, planning and decision making. The four stages of Institutional Effectiveness are: 1) to establish a clearly defined purpose that supports the mission of the institution, 2) to formulate goals that support that purpose, 3) to develop and implement

procedures to evaluate and assess the extent to which these goals are being achieved, and 4) to use the results of the evaluations and assessments to improve services and programs.

The concept of institutional effectiveness presumes that an institution is engaged in an ongoing quest for quality and can demonstrate how well it fulfills its stated purpose. In addition, the university is expected to document quality and effectiveness by employing a comprehensive system of planning and evaluation in all major aspects of the institution. In 2004, this concept was expanded by SACS when the new criteria for accreditation called for the successful implementation of an institution's Quality Enhancement Plan based on Continuous Quality Improvement (CQI) concepts ((SACS), 2001). As a consequence, the accreditation process implies a process of change in the organization from the current state to a superior one. In the context of the Argentine accreditation process in the schools of engineering, there is also the expectation to apply the learning from the assessment process to improve the institution (Guerrini, Rasetti, & Jeppesen, n.a.).

In order to understand this second organizational area, Organizational Theory is an appropriate point of view to study the process of change. Among different schools and techniques for organizational change, the Organizational Development technique is viewed by some researchers as the more suitable one (Wagner & Hollenbeck, 1992). Its application provides the following domains: 1) forces supporting the accreditation process, 2) forces resisting the implementation of the accreditation process, and 3) actions to overcome the resistance to its implementation.

In the first domain, forces supporting the accreditation process can be viewed along two dimensions: external pressure and internal pressure. In the second domain, forces resisting the implementation of the accreditation process can be organized in five dimensions that affect the

accreditation process as a change process: 1) cultural resistance, 2) resource limitations, 3) threats to power and influence, 4) organizational barriers, and 5) defensive perception. In the third domain, actions to overcome the resistance to its implementation can be organized in five dimensions that affect the accreditation process as a change process: 1) education and communication, 2) participation and involvement, 3) facilitation and support, 4) bargaining and negotiating, and 5) leadership (see Figure 3).

In the following sections, the different perspectives about quality, and how accreditation connects with them are analyzed. Then the accreditation process as an organizational challenge showing their different domains and its constituent's dimensions are discussed. This discussion will help to understand the challenge that the implementation of an accreditation process in a higher education institution represents for the members of the institutions, especially the academic administrators.

2.2 DIFFERENT PERSPECTIVES ABOUT QUALITY

In relation to the first variable - the definition of quality - the literature review shows that neither the American nor Argentine accreditation systems provide any formalized definition of quality. The actions and proposal from the governments - in the US and in other parts of the world such as UK, Spain, Mexico, Brazil, Chile, Uruguay, Thailand, Canada, etc (Bogue, 1998; Carter & Davidson, 1998; Maassen, 1998; Mora & Vidal, 1998; Stanley & Patrick, 1998) - are applying the concept of quality from three perspectives: quality as a "limited supply", "quality within mission", and "value-added quality". Each variation is based on different definitions of quality in

order to establish systematic advancement of the education process and to implement quality initiatives.

The Oxford English Dictionary (OED) provides the first accepted definition of quality. This source reports 36 meanings of the word quality[12]. One of them expresses the meaning of quality as "the nature, kind, or character (*of* something). Now restricted to cases in which there is comparison (expressed or implied) with other things of the same kind; hence, the degree or grade of excellence, etc. possessed by a thing" (Dictionary, 1989). This first definition approaches quality from the standpoint of social consensus.

Millard (1994) provides a second meaning of quality in higher education from the Platonic point of view. In the Platonic universe, people discover quality through a dialogue that moved people closer to the universal or the ideal definition of quality. From this perspective, there is a single model of what connotes the ideal college or university.

In the practice, this model has been someone's idea of the best college or the better colleges. As an example of this point of view, it is possible to mention the earliest standards used by accrediting associations that can be described as "definitional-prescriptive". They were quantitatively reportable institutional characteristics that defined "what a "good" institution was. In most areas, these characteristics were input factors, and the implicit norm was "what the 'best' institutions did, how the 'best' institutions were organized, and what the 'best' institutions offered" (Millard, 1994, p. 154-155).

This perspective of quality involves a sense of elitism and rigidity and the result is likely to be "homogenization-leading institutions, copies of leading institutions, copies of copies of

[12] The Oxford English Dictionary provides the following roots of the word quality: kwo ..li ti, sb. Forms: 4-7 -ite, 4-5 -itee, 6 -yte, -itye, 6-7 -itie, 7 quall-, 6- quality. [ME. *qualite*, a. Fr. *qualité* (12th c.), ad. L. *qua lita t-em* (formed by Cicero to render Gr. *poio thj*), f. *qua lis* of what kind: see -ity.] (Dictionary, 1989).

leading institutions and disregard for the excellence in institutions or programs of radically differing types" (Millard, 1994, p. 159). The case of the medical school at Johns Hopkins University and its designation as a prototype of all American medical schools provides a clear example of the search of this ideal model of university. In 1910 the American Medical Association (AMA) in collaboration with the Carnegie Foundation for the Advancement of Teaching (created in 1905) made public the Flexner Report[13] about medical education in the US (Bogue & Hall, 2003; Young, Chambers, Kells, & Cargo, 1983). This report "paved the way for … [its designation] and also set the stage for closing many "inferior schools""(Bogue & Hall, 2003, p. 33).

The Theory of Limited Supply is related to the second definition of quality. This theory is based on the assumption that: "1) only high-cost colleges have quality, 2) only large and comprehensive colleges have quality, 3) only highly selective colleges have quality, 4) only colleges with national reputation have quality, 5) only colleges with impressive resources have quality" (Bogue, 1998). For example, in the United States it is possible to find the origins of this theory at work in a 1911 Bureau of Education report given rating on 344 institutions (Bogue & Saunders, 1992). Such rankings have gained increasing influence as evidenced by the current yearly ranking and ratings by *U. S. News and World Report* (Bogue & Saunders, 1992) as well as *Maclean's Ranking of Canadian Universities* (published since 1991) (Demont, Dwyer, & Driedger, 2002; Shale & Liu, 2002) and *The Gourman Report* (Gourman, 1997).

The third definition accepts the idea of a paradigm, but it defines quality as achievement in kind. This perspective about quality considers that an educational institution or

[13] The name of the report is "Medical Education in the United States and Canada". It has 346 pages and it was published in 1910. It is a comprehensive report to the Foundation, by Abraham Flexner, on medical education in the United States and Canada, with regard to the course of study, financial aspects, medical sects, state boards, post-graduate schools, and other special forms of medical education; with descriptive and tabular accounts of all of the medical schools throughout the United States and Canada; and a general plan for reconstruction (Teaching, 2005).

program quality level is a function of the effectiveness with which the institution or program uses resources to achieve appropriate educational objectives. Therefore all the elements of an education institution are "integral to the quality of the operation, and the key to integration of all these elements in quality is mission or objective and its educational appropriateness" (Millard, 1994, p. 159).

Thus, one can expect quality equally in different kind of education institutions. As a consequence, the standards must be generalizable and their application must be adaptable to many different conditions and situations. What the standards address basically are "the components or factors involved in achieving operationally effective educational synthesis in the light of objectives" (Millard, 1994, p. 160). In this framework, the quality of a student's educational activity has to be determined in their context, and that context includes what students bring with them, their educational goals and objectives, how they use the available resources, how their objectives match with the objectives of the program or the institution, and the extent to which the objectives are attained. As a result, value added, outcomes, results, and the processes for attaining them all become relevant to the quality of education participated in and achieved.

The Theory of Quality within Mission and the Theory of Value-Added are related to the third definition of quality. The Theory of Quality within Mission "sees the potential for high quality in a variety of campus missions and insists on quality in relation to those missions" (Bogue, 1998). This theory limits quality to a conformance to mission specification and goal achievement following the postulates of Philip B. Crosby (Crosby, 1979). Three streams of activities can be included: 1) accreditation: the test of mission fulfillment (Bogue, 1998; Bogue & Saunders, 1992; Young, Chambers, Kells, & Cargo, 1983); 2) academic program reviews: the

test of goal achievement (Bogue & Saunders, 1992); and 3) ISO 9000 certification as a quality assurance program[14] (Peters, 1999; Shutler & Crawford, 1998).

In the particular case of accreditation, this definition became central for the assessment of quality and its continuous improvement:

> The concept of quality as achievement in kind is central to the theory and process of accreditation, both institutional and specialized. It is the basis of accreditation's assessment both of quality and of enhancement of quality. As noted earlier, accreditation attests that an institution or program has clearly defined and appropriate objectives that it maintains conditions under which achievement of these objectives can reasonably be expected, that it appears in fact to be accomplishing these objectives, and that it can reasonably be expected to continue to do so. Thus accreditation recognizes that educational processes are not ends in themselves but means to the end of preparing citizens to cope with life and perform a variety of functions in a complex society. (Millard, 1994, p. 161)

The Theory of Value-Added is in contrast to the views of quality as based upon reputation and quality of resources. Under this theory, the definition of excellence is different: "the most excellent institutions are, in this view, those that have the greatest impact -add the most values, as economists would say- on the student's knowledge and personal development and on the faculty member's scholarly and pedagogical ability and productivity" (Bogue, 1998). Three streams of activities can be included: 1) assessment and outcomes movement (Marchese, 1987;

[14] Note of the Author: ISO 9000 has a wide application in higher education mainly in Europe and Asia but not in the US.

Palomba & Banta, 1999), 2) periodic accountability and performance indicators reports (Bogue & Saunders, 1992; Nedwek, 1996), and 3) systematic approaches to quality management (such as Total Quality Management and Baldrige Criteria for Performance Excellence (BCPE)) (Koch & Fisher, 1998; R. G. Lewis & Smith, 1994; NIST, 2002a, , 2002b; Packard, 1995).

2.3 IMPACT OF THE DIFFERENT PERSPECTIVES ABOUT QUALITY ON THE ACCREDITATION PROCESS

In the American higher education system, the individual programs, institutions or governance systems are responsible for quality assurance and institutional and program integrity. Therefore, educational quality is a characteristic of institutions or programs, and accreditation does not determine institutional or program quality. The crucial role of accreditation is to determine "whether an institution or program has accepted and is carrying out its commitment to quality (…) [and to provide] incentives to encourage enhancement of quality"(Millard, 1994, p. 151).

There is not an explicit definition of quality for each accrediting body, but the emphasis on educational quality in higher education is a clear statement in declarations of the regional and professional bodies. Table 4 summarizes the position about quality for overview organizations, regional bodies, and the professional accrediting body for engineering and technology.

The accreditation criteria evolved according the demands of American society. In 1900, the earliest standards used by regional accrediting associations can be described as definitional-prescriptive; that is,

> They were quantitatively reportable institutional characteristics that defined what a "good" institution was. In most areas, these characteristics were input factors, and the implicit norm was what the “best” institutions did, how the “best” institutions were organized, and what the "best" institutions offered. (Millard, 1994, p. 154-155)

From the point of view of different perspectives about quality, this early standard fits with the Platonic point of view of quality and the related Theory of Limited Supply. But not all the accrediting associations adopted this point of view. In 1910, many specialized or professional accrediting agencies follow a program-professional model. Now, the accrediting body should consider

> the institution's mission or objectives in education for a particular professional field, modified by conditions and expectations of practitioners within the field itself. Thus, this model is designed to assure that the program is both educationally sound and relevant to current practice in the field. (Millard, 1994, p. 155)

This point of view fits with the perspective that defines quality as achievement in kind and the Theory of Quality within Mission. The regional accrediting bodies began to turn to this quality perspective in the 1930s under the leadership of the North Central Association (NCA).

Table 4: Some American Accrediting Bodies and Their Statements about Quality and Accreditation

ORGANIZATION	STATEMENT ABOUT ACCREDITATION AND QUALITY
Council on Higher Education Accreditation	"Accreditation is a status granted to an educational institution or a program that has been found to meet or exceed stated criteria of educational quality" ((CHEA), n.d.)
New England Association of Schools & Colleges	The accreditation process we have developed over the years is a major vehicle that can and should be used to bring about educational improvement at all levels of schooling. "NEASC is poised to be a partner in the effort to reform and improve education in the region."((NEASC), n.d.)
North Central Association of Colleges & Schools	For over 100 years, our focus has been to advance the quality of education.((NCA-CASI), 2003)
Northwest Association of Schools & Colleges	"It recognizes higher education institutions for performance, integrity, and quality to merit the confidence of the educational community and the public".((NWCCU), 2003)
Middle States Association of Colleges & Schools	"The accrediting process is intended to strengthen and sustain the quality and integrity of higher education, making it worthy of public confidence. The extent to which each educational institution accepts and fulfills the responsibilities inherent in this process is a measure of its concern for freedom and quality in higher education and of its commitment to strive for and achieve excellence in its endeavors"((CHE/MSA), 2003).
Southern Association of Colleges & Schools	"Accreditation enhances educational quality throughout the region by improving the effectiveness of institutions and ensuring to the public that institutions meet standards established by the higher education community. Accreditation is a common denominator of shared values and practices among the diverse range of institutions within the higher education community" ((SACS), 2003).

Table 4 (continued)

ORGANIZATION	STATEMENT ABOUT ACCREDITATION AND QUALITY
Western Association of Schools & Colleges	"The WASC accreditation process aids institutions in developing and sustaining effective educational programs and assures the educational community, the general public, and other organizations that an accredited institution has met high standards of quality and effectiveness" ((WASC), n.d.)
ABET	"The quality and performance of the students and graduates are important considerations in the evaluation of an engineering program"(Commission, 2002)

In 1936, the regional accrediting bodies began to adopt a mission-objective model approach. The new set of standards considers as one of the conditions for accreditation the effective fulfillment of the mission of the institution instead of an arbitrary set of standards (Young, Chambers, Kells, & Cargo, 1983). With this model, the concept of accreditation changed from a process primarily of comparison with a top school to a process of assessment that provided institutions with external stimulation to fulfill their mission. "With this development, the analytic self-study gained new importance, as did the role of the visiting team as a group of peer consultants" (Millard, 1994, p. 155). Therefore, they adopt a point of view that fits with the perspective that defines quality as achievement in kind and the Theory of Quality within Mission.

Although the Middle State Commission on Higher Education (MSC) suggested the inclusion of outcome assessment in the accreditation standards as early as 1958 (Morse & Santiago, 2000), its inclusion was not possible until the late 1980s.

The shift from an "evaluation of the processes intended to achieve the institution's purpose and mission (administration, financial resources, organization, academic programs,

student services, and physical resources) to an evaluation that includes measuring the institution's success in achieving its intended educational outcomes" (Young, Chambers, Kells, & Cargo, 1983, p. 348) appeared in the late 1970s. In 1978, the Council on Postsecondary Accreditation (the overview organization for the American Accreditation system at that time) published the results of the Project to Develop Evaluative Criteria and Procedures for the Accreditation of Nontraditional Education[15]. One of the many findings was the strong recommendations of the 1,500 educators, who responded to a national survey, to move the accreditation process toward the assessment of educational outcomes

The same report presented the development of taxonomy for the classification and determination of the nature of nontraditional and traditional institutions[16]. The classifications consist of institutional characteristics (purpose, sponsorship, students, faculty, degrees offered, student costs, and financial data) and program characteristics (purpose, curriculum, faculty, delivery system, learning methods, admission requirements, completion requirements, advanced standing processes, advising, evaluation systems, learning resources, and costs), which may be identified as either traditional or nontraditional. Therefore, any institution has a place on a

[15] Note of the Author: Seven research reports showed the final result of the Project to Develop Evaluative Criteria and Procedures for the Accreditation of Nontraditional Education. They are: "Nontraditional Certificate Programs," by John Harris and Philip N. McCullough; "Salient Points for 'A Study of the Acceptability and Negotiability of External Degrees,'" by John Harris; "Institutional Accreditation and Nontraditional Undergraduate Educational Institutions and Programs," by John Harris; "Critical Characteristics of an Accreditable Institution, Basic Purposes of Accreditation, and Nontraditional Forms of Most Concern," by John Harris; "A Review of Nontraditional Graduate Degrees," by Paul L. Dressel; "Analysis of the National Survey on Accreditation and Nontraditional Education," by John Harris and Grover J. Andrews; and "Regional Accreditation Standards," by Kay J. Andersen. The reports include the rosters of participating institutions as well as the letters and questionnaires used in surveying degree recipients and administrators.

[16] Note of the Author: The objective of the study was to identify those characteristics, components, and elements that should be common and essential to any postsecondary institution and program, and to frame them into a single taxonomy. On one side, a traditional institution offers all or most of its program on campus, using processes and procedures well established in postsecondary education. On the other side, nontraditional institutions are those who offer off campus programs such as "external degrees, competency-based education, mediated instruction, learning contracts, the weekend college, college-sponsored experiential learning, education brokering, education contracts, the awarding of degrees and credits by examination, and the assessment of prior learning from life and work experience" (Young, Chambers, Kells, & Cargo, 1983, p. 343).

traditional-nontraditional continuum. In this continuum, predominant traditional institutions will emphasize structure and process, with minimal attention to educational outcomes; while those predominant nontraditional institutions will emphasizes educational outcomes, with minimal attention to structure and process (Young, Chambers, Kells, & Cargo, 1983). In response to this report, several regional accrediting bodies began to review the state of art of outcome assessment and their own procedures to assess their effectiveness in dealing with all types of postsecondary educational institutions.

In the late 1980s, the call from state legislatures, federal policy makers, and the National Governors Association for increased institutional accountability (Wolff, 1994) triggered a new step in the accreditation criteria. In 1985-1986, the Southern Association of Colleges and Schools (SACS) set a new major criterion on institutional effectiveness as part of an effort to more consciously link outcomes assessment to the accreditation process ((SACS), 2001, p. 22; , 2003, p. 16; Wolff, 1994, p. 105). In the following ten years, the other five regional accrediting organizations developed accrediting criteria calling for outcomes assessment ((CHE/MSA), 2002; (NASCU), 1999; (NCA/HLC), 2003, p. 28; (NEASC), 2001, p.18; (WASC), 2001, p.21; Wolff, 1994). Finally, outcome assessment became part of the accreditation standards and every higher education institution seeking accreditation must engage in assessing the quality of their teaching and learning process[17]. The National Center for Postsecondary Improvement conducted a national research study in 1999 related to the institutional support for student assessment. One of the many findings in this study shows that around 80% of the respondent institutions had completed a regional accreditation requiring student assessment with no differences in the

[17] Note of the Author: At this point it is important to remark that each regional accrediting body has a unique and distinctive history implementing assessment policies due to unique state customs, traditions, geography, and cultural heritage. So these elements and the implicit or explicit acknowledge that the diverse purposes and goals of their members' institutions demand diverse assessment approaches and processes explain "why the outcomes measured and processes used by the six regional associations are so broadly defined".

occurrence across institutional types or in the proportion of public and private institutions (Peterson, Einarson, Augustine, & Vaughan, 1999).

Basically, Institutional Effectiveness is an assessment of the planning and evaluation procedures within an institution ((SACS), 2001). The institution uses the results of the assessment for program improvements, planning and decision making. The four stages of Institutional Effectiveness are: 1) to establish a clearly defined purpose that supports the mission of the institution, 2) to formulate goals that support that purpose, 3) to develop and implement procedures to evaluate and assess the extent to which these goals are being achieved, and 4) to use of the results of the evaluations and assessments to improve services and programs. The concept of institutional effectiveness presumes that an institution is engaged in an ongoing quest for quality and can demonstrate how well it fulfills its stated purpose. In addition, the university is expected to document quality and effectiveness by employing a comprehensive system of planning and evaluation in all major aspects of the institution. In the year 2001, SACS expanded this concept when the new criteria for accreditation requested the successful implementation of an institution's Quality Enhancement Plan based on Continuous Quality Improvement (CQI) concepts for the accreditation cycle in 2004 ((SACS), 2001).

2.4 IMPACT OF THE DIFFERENT PERSPECTIVES ABOUT QUALITY ON THE PERCEPTIONS OF ACADEMIC ADMINISTRATORS AND FACULTY ABOUT THE ACCREDITATION PROCESS

The different perspectives about quality impact the level of participation in the implementation of accreditation as a quality initiative from the point of view of Institutional Effectiveness. As institutions become larger and more complex, faculty and academic administrators have more

differentiated skills, and often they perceive the environment in a different way. This gap increases the traditional antagonism between the academic and the administrative culture (Lucas, 1996). Therefore, academic administrators "become identified in the faculty mind with red tape, constraints, and outside pressure that seek to alter the institution" (Birnbaum, 1988, p. 7). And academic administrators tend to see the faculty as "self-interested, unconcerned with controlling costs, or unwilling to respond to legitimate request for accountability" (Birnbaum, 1988, p. 7). Research suggests that academic administrators attribute greater importance to institutional effectiveness initiatives than faculty, but faculty attribute importance too (Welsh & Metcalf, 2003). Academic administrators agreed, to a great extent, that institutional accreditation – regional or professional – provides a useful index of institutional quality. Also, they agreed to a lesser extent about the utility of institutional accreditation as a tool for self-evaluation and as a stimulus for improvement (Andersen, 1987). In addition, the findings related to academic administrators and their quality perspectives are inconsistent. Welsh and Metcalf (2003) reports that they are more likely to define quality as student outcome-based, but Clarke (1997) reports that they support institutional effectiveness activities because they "perceive effectiveness as highly related to the generation of students credit hours and other budgetary matters" (p. 187) what are included in the outcomes-based conception of quality promoted by accrediting agencies and state coordinating boards. Faculties are more willing to respond to internal motivators related to institutional effectiveness (Peterson, Einarson, Augustine, & Vaughan, 1999) such as quantity and quality of scholarly productivity" (Clarke, 1997) or student feedback (Abraham-Ramírez, 1997).

The perception about the balance between the external and internal forces that shape the process of accreditation as a quality initiative in higher education affects not only the view of

administrators about the importance of the accreditation process but also the view of faculty (Peterson & Einarson, 1997). The increased authority by the states is a major force limiting the institutional autonomy of higher education organization due to the involvement of state executives or legislative agencies in program review, administrative operations, budgeting, and planning (Birnbaum, 2000; Bogue & Saunders, 1992; McKeown-Moak, 2000). This shift in the balance of power creates an image of the academic managers more like middle-managers than campus leaders. Faculty may respond to this centralizing situation by collective bargaining or by concentration around a program or department (Birnbaum, 1988, p. 16).

Faculty are more willing to respond to internal demand for improvement than to the pressure of external agents (Peterson, Einarson, Augustine, & Vaughan, 1999; Welsh & Metcalf, 2003) . Faculty will be "more involved in, and committed to, student assessment if they believe the primary purpose of these efforts is to promote institutional improvement and that internal or external accountability requirements are of secondary importance" (Peterson & Einarson, 1997, p. 28). Otherwise, the data about academic administrators is contradictory. While some research shows that academic administrators are more likely to support institutional effectiveness activities based on external motivators (Thomas, 1997), other research suggests that academic administrators are more likely than faculty to view institutional effectiveness as internally motivated (Welsh & Metcalf, 2003).

The extent to which institutional effectiveness activities are actually implemented and promote change at an institution will determine the status of accreditation and its renewal (a first or second order change[18]). Research shows that "those faculty in leadership positions reported

[18] Note of the Author: From the point of view of Organizational Development (OD) theory, it is possible to consider a First-order change in the accreditation process when the school decides not to go to the accreditation process or the final result is no accreditation or the school cannot renew the accreditation status. Quality is not improving as a result of this process. From the same point of view, it is possible to consider a Second-order change in the

higher usage of adoption processes [of institutional effectiveness] and higher adoption levels than faculty members" (Thomas, 1997, p. 157) because those are more likely to believe that these activities actually affect the institution. The research of Welsh and Metcalf (2003) also supports that academic administrators are more likely than faculty to view institutional effectiveness activities as more deeply implemented. But even when state agencies and accrediting bodies stimulated the use of assessment activities in higher education organizations, there is not a general application of the assessment results to improve academic performance, "to make academic decisions, to link goals to educational improvement, and to monitor the impact of assessment – internally or externally – on institutional performance" ((NCPI), 1999, p. 56).

Finally, the perception of the level of involvement of faculties will impact the actions that academic administrators will take in order to overcome the resistance to the accreditation process as a quality initiative. Without the cooperation of faculty, it is not possible to support institutional effectiveness activities. "As the group responsible for devising academic, professional, research, and service programs within the framework of an institution's educational mission and goals, faculty members are the heart of the process of outcomes assessment" (Morse & Santiago, 2000, p. 32). The research of Thomas (1997) and Welsh and Metcalf (2003) support the finding that the higher the level of faculty involvement, the higher the adoption of institutional effectiveness, and the higher the perception of the importance of institutional effectiveness. Another finding of Welsh and Metcalf (2003) is that academic administrators are more likely than faculty to perceive greater levels of personal involvement.

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accreditation process when the school decides to go to the accreditation process and the final result is the accreditation. The school keeps renewing the accreditation status and the quality is improving through this initiative.

2.5 ACCREDITATION AS A CHANGE PROCESS

2.5.1 Introduction

In the Argentine system, the higher education institution should use the result of the accreditation process as well as the outcome assessment results to find improvement points in the education process (Guerrini, Rasetti, & Jeppesen, n.a., p. 14-16). As a consequence, the accreditation process implies a process of change in the organization from the current state to a superior one in order to fulfill its mission. This subsection will develop the second organizational area in the literature review: accreditation as a change process. In this organizational area, Organizational Theory will provide the domains and the dimensions to understand the dynamic of the implementation. The application of Organizational Theory provides the following domains to this organizational area: 1) forces supporting the accreditation process, 2) forces resisting the implementation of the accreditation process, and 3) actions to overcome the resistance to its implementation.

In the first domain, forces supporting the accreditation process, there are two dimensions: external pressure and internal pressure. In the second domain, forces resisting the implementation of the accreditation process, there are five dimensions that affect the accreditation process as a change process: 1) cultural resistance, 2) resource limitations, 3) threats to power and influence, 4) organizational barriers, and 5) defensive perception. In the third domain, actions to overcome the resistance to its implementation, there are five dimensions that affect the accreditation process as a change process: 1) education and communication, 2) participation and involvement, 3) facilitation and support, 4) bargaining and negotiating, and 5)

leadership. Figure 3 shows the domains and their dimensions related to accreditation as an organizational change.

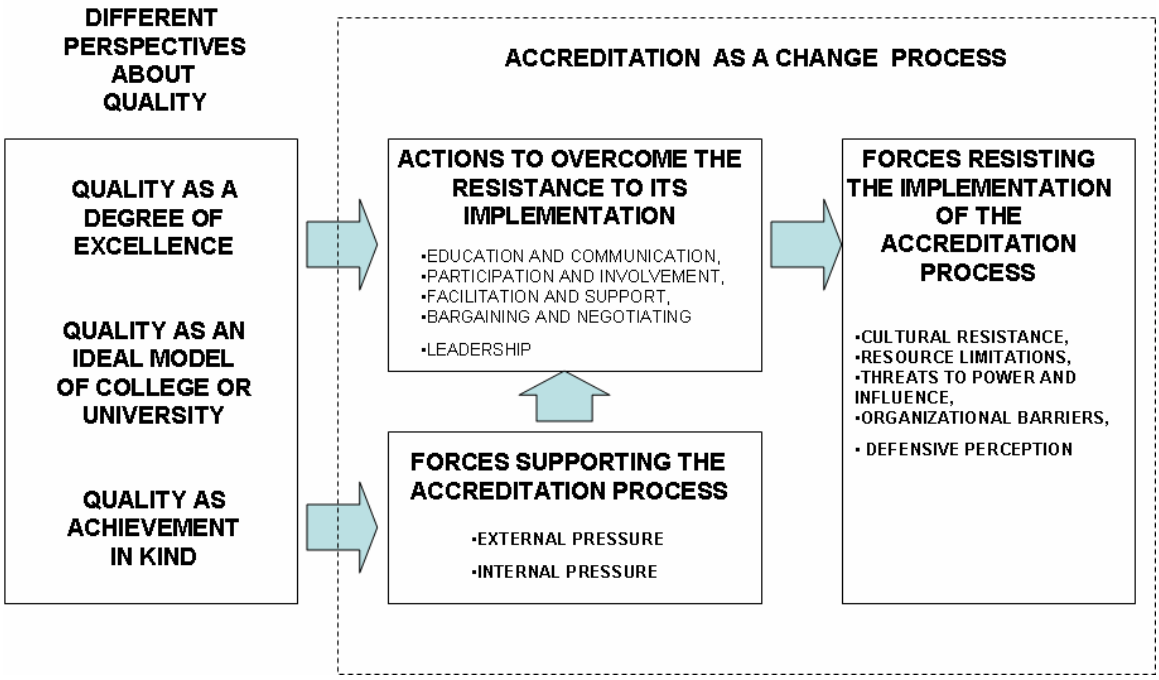

Figure 3: Highlighting the Accreditation as a Change Process into the Analytic Framework for the Implementation of an Accreditation Process in a Higher Education Institution

2.5.2 Organizational Change Theory and Higher Education

The implementation of quality initiatives implies a process of change from a current state in the organization to a better one, but there is no straightforward method for implementing a change in business or education organizations. The process of change has been extensively studied in business organizations from different points of view like the process approach (Caluwé & Vermaak, 2003; Dawson, 1994; Essentials, 2003; Kotter, 1998); psychology of change (Kegan &

Lahey, 2002); strategy of change (Martin, 1998); organizational behavior (Northcraft & Neale, 1994; Wagner & Hollenbeck, 1992); and as a continuous process (Moran & Avergun, 1997; Sauser Jr. & Sauser, 2002).

The process of organizational change in higher education has been studied from different points of view like organizational behavior theory (Horst, 1989; Huse & Cummings, 1985; Wagner & Hollenbeck, 1992); the psychology of change (Cooper, 1989; Pappas, 1989; Riley, 1989); the strategy of change (Rowley & Sherman, 2001); and the process approach (Baldridge, 1975b; Gorman, 1989; Hughes, 1989; Katz & Kahn, 1975; Turk, 1989). Also there are some well documented cases such as facing a crisis situation like New York University (Baldridge, 1975a) and Antioch College (Baldridge & Deal, 1975); the search for excellence like the case of Reed College (Clark, 1975) and the University of Wisconsin-Stout and the Baldrige Award (Green, 2002); a program change like Swanthmore College (Baldridge & Deal, 1975); the implementation of innovative teaching and learning strategies in Hampshire College (Birney, 1993) or interdisciplinary academic plans in University of Wisconsin – Green Bay (Weidner & Kuepper, 1993) and University of West Florida (Chaet, 1993); a mentor-base approach in Empire State College (Hall & Bonnabeau, 1993) and the Metropolitan State University (Fox & Harvey, 1993); the development of a community culture like the case of the University of California, Santa Cruz (McHenry, 1993); and facing a commuter student body with an average age of thirty years old in the University of Texas of the Permian Basin (Cardozier, 1993).

In some cases the implemented change persisted through the time, with some improvements or light variants, due to the impact of the education project in the community (Birney, 1993), strong sense of mission in faculty and academic administrators (Hall & Bonnabeau, 1993), the social importance of the institutional activity (Hall & Bonnabeau, 1993),

and the strong commitment to principles of faculty (Cardozier, 1993). Other cases show a return to the original situation due to the decision of faculty to return to traditional practices in the academy (Chaet, 1993; McHenry, 1993; Weidner & Kuepper, 1993); the turnover of academic administrators (Cardozier, 1993; Chaet, 1993; McHenry, 1993; Weidner & Kuepper, 1993); the pressure of accreditation organizations (Chaet, 1993); and financial matters (Cardozier, 1993).

All these cases show that faculty influence was a decisive factor to support the process of change or to provide a strong resistance to its implementation (Bok, 1986; Morse & Santiago, 2000). Academic administrators also played a role (Bok, 1986). Also, these cases and theoretical approaches show the presence of other factors and the complexity of the process.

In order to understand the complexity of this kind of process, it is necessary to find a theoretical model that can fit in the higher education culture. The research of Grunwald and Peterson (2002) proposes a comprehensive model to analyze the faculty involvement in campus innovation and student assessment based on previous research studies. This research mentions the following factors that may influence faculty involvement: institutional resources, rewards, communication, administrative leadership, styles, individual faculty characteristics, external influences, and institutional context. A model grounded in the Organizational Behavior field will provide a more comprehensive approach for analyzing the accreditation process as an organizational change. Organizational Development, often referred to as OD, "is a process of planning, implementing, and stabilizing the results of change in organizations" (Wagner & Hollenbeck, 1992), and it is a suitable technique for this case study. OD differs from other planed change efforts, such as purchasing new equipment or redesigning a new higher education program, because "the focus is upon human resources and their motivation, utilization, and integration within the organization. Moreover, OD is oriented to changing the total system – to

improving organizations and their parts in the context of a larger environment that impacts upon them" (Huse & Cummings, 1985). According to Huse & Cummings (1985), "OD methods have been extended to urban colleges and to colleges and universities" since the 1980s (p. 11). The use of OD methods in higher education appears to have two basic goals: 1) "to change the approach to teaching and learning processes", and 2) "to change the behavior of subsystems or the college or university as a whole" (Wagner & Hollenbeck, 1992).

OD distinguishes three types of change that may take place in an organization: 1) adaptive, 2) innovative, and 3) revolutionary[19] (Wagner & Hollenbeck, 1992). Any kind of change will involve resistance from the people because they will perceive a change as a threat to the established or "traditional" way or of doing things (Bergquist, 1993; Northcraft & Neale, 1994). If the organization changes, the organizational performance may change in two ways: 1) there are immediate improvements that do not last[20], or 2) the performance of the organization improves permanently immediately and after short-run losses.

The first kind of change is a reversible change or First Order Change (Bergquist, 1993; Northcraft & Neale, 1994). In this situation, the organization is in a stage where it "is doing more – or less – of something we are already doing" (Bergquist, 1993; Leadership, 2000).

The second kind of change is an irreversible organizational change or Second-order change (Bergquist, 1993; Northcraft & Neale, 1994). In this situation, the organization is in a stage where it "is deciding – or being forced – to do something significantly or fundamentally

[19] Adaptive change is based on the reintroduction of a practice used in the past or used elsewhere in the organization. Innovative change is based on the introduction of a practice that is new to the organization but it is used in the industry. Revolutionary change is based on the introduction of a practice that is new not only for the organization but also for the industry (Wagner & Hollenbeck, 1992).

[20] This kind of change represents a typical Hawthorne Effect. G. Elton Mayo performed several organizational experiments at Hawthorne Works of the Western Electric Co., Cicero, Ill. He proved that production increased not as a consequence of actual changes in working conditions introduced by the plant's management, but because management demonstrated interest in such improvements (Britannica, 2005).

different from what we have done before". The process is considered irreversible because "once you begin, it is impossible to return to the way you were doing before" (Bergquist, 1993; Leadership, 2000). Table 5 shows the comparison of the main characteristics of a First-order and Second-order change.

Table 5: Main Characteristics of a First and Second Order Change

NATURE OF A FIRST-ORDER CHANGE	NATURE OF A SECOND-ORDER CHANGE
Adjustments within the existing structure	New way of seeing things
Doing more or less of something	Shifting gears
Restoration of balance (homeostasis)	Often begins through the informal system
Non-transformational	Transformation to something quite different
New learning is not required	Requires new learning
Old story can still be told	New story is told

Source: First- and Second-Order Change, workshop *Leading Institutional Change: A National Workshop for College and University Teams,* 2000, Retrieved 01/20/03, 2003, from http://www.thenationalacademy.org/Ready/change.html

Setting change in motion requires encouraging and strengthening the forces supporting change and to identify and to overcome the forces resisting change. Forces supporting change are within the organization and outside of it. The external force supporting change are: 1) changes in international markets, 2) shifts in national business and industries, 3) shifting economic conditions, 4) new governmental laws and regulations, 5) changing populations trends, and 6) technological advances (Wagner & Hollenbeck, 1992). The internal forces for change are based

on the internal pressure in the organization. Table 6 shows a detailed list of these forces and their components.

The forces resisting change are physical, emotional, or intellectual (Northcraft & Neale, 1994; Wagner & Hollenbeck, 1992). OD proposes the following categories to analyze the forces resisting change: 1) cultural resistance, 2) resource limitations, 3) threats to power and influence, 4) organizational barriers, and 5) defensive perception. Table 6 also shows a detailed list of these forces and their components. Different actions could be implemented by the organization to overcome the resistance to change, but "there is no universal fail-safe way to overcome the resistant factors" (Wagner & Hollenbeck, 1992, p. 513). Table 7 lists frequent options to overcome the resistance to change and the sustainability of change.

2.5.3 Analysis of the Implementation of a Regional and Professional Accreditation in the United States

In this subsection, the Regional and Professional Accreditation in the US will be analyzed from the point of view of a change process. This analysis will provide a reference to analyze the accreditation process in the Argentine Republic. OD theory will provide the domains and the dimensions to understand the dynamic of the implementation. The domains are: 1) forces supporting the accreditation process, 2) forces resisting the implementation of the accreditation process, and 3) actions to overcome the resistance to its implementation.

The current accreditation standards require the implementation of outcome assessment in a higher education institution as well as the quality improvement of the institution in future accreditation cycles. Several research studies related to these two topics as well as specific cases in professional and regional accreditation in schools of engineering provide information to

understand the complexity of the process. Tables 60 and 61, in Appendix A, show a brief description of the accreditation cases and their contribution.

Table 6: Most important elements in the analysis of organization change applying OD

What are the forces that shape the process of change?			
Forces for change		Forces resisting change	
External pressure	Changes in international markets Shifts in national business and industries Shifting economic conditions New governmental laws and regulations Changing populations trends Technological advances	Cultural resistance	Individual self interest Habit General mistrust Personality conflicts Pressure from peers
		Resource limitations	Resource limitations
		Threats to power and influence	Possible lost of status
Internal pressure	Shortage of raw material Increased understanding of the need of change Drop in production in quantity and/or quality Changing viewpoints of organization members Gut feelings that change is needed	Organizational barriers	Different perceptions and goals Social disruption Managerial tactlessness Poor timing in introducing changes Bureaucratic inertia
		Defensive perception	Fear of the unknown Fear of failure

Note. Adapted from *Management of Organizational Behavior* (p. 508-514) by J. A. Wagner III, & J. R. Hollenbeck, 1992, Englewood Cliffs, NJ: Prentice Hall, Inc. Copyright © 1992 by Prentice Hall, Inc.

Note. Adapted from *Organizational Behavior: A Management Challenge* (2nd ed.) (p. 600-608) by G. B. Northcraft, & M. A. Neale, 1994, Forth Worth, TX: The Dryden Press. Copyright © 1990, 1994 by The Dryden Press.

All these research and accreditation cases provide valuable information to understand the challenges of the implementation of an accreditation process from the point of view of a change process. The analysis of this information will follow the following domains: 1) forces supporting the accreditation process, 2) forces resisting the implementation of the accreditation process, and 3) actions to overcome the resistance to its implementation.

Table 7: Most important elements in the analysis of organization change applying OD

What kinds of action are possible to overcome the resistance?		What is the sustainability of change?
Education & communication	One-to-one discussion Group meeting Memos Reports	Hawthorne Effect Curve Changes cause immediate improvement that do not last
Participation & involvement	Special committees Task forces	
Bargaining and negotiating	Incentives	
Facilitation & support	Job training Instructional meetings Counseling sessions Reallocation of budget External funds	Permanent Change Performance increase over the time reaching a stable new level
Explicit & implicit coercion	Power threats	
Hidden persuasion	Covert efforts Providing information on selective basis	

Note: Adapted from *Management of Organizational Behavior* (p. 508-514) by J. A. Wagner III, & J. R. Hollenbeck, 1992, Englewood Cliffs, NJ: Prentice Hall, Inc. Copyright © 1992 by Prentice Hall, Inc.

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In relation to the first domain, forces supporting the accreditation process, it is possible to mention: increasingly competitive environment (R. G. Lewis & Smith, 1994; Millard, 1994, p. 158; Seymour, 1992); the importance of external influences such as regional or professional accreditation boards, private foundations, and corporate groups (Grunwald & Peterson, 2003, p. 23); the call from state legislatures, the National Governors Association, and federal policy makers for increased institutional accountability (Wolff, 1994, p. 107); the fiscal constraints produced by the recent recession and, for public institutions, the decrease in and resulting

competition for state funds (Millard, 1994, p. 158); the issue of accountability has become even more acute, heightened as it has been by the need for a clear rationale for the use of the limited funds available (Millard, 1994, p. 158) ; a more consumer-oriented and knowledgeable pool of students (Welsh & Metcalf, 2003); public perceptions of dissatisfaction with higher education (R. G. Lewis & Smith, 1994; Millard, 1994); technology is changing the educational delivery methods (Bjorklund & Colbeck, 1999; R. G. Lewis & Smith, 1994); administrators are more likely to support institutional effectiveness activities (Welsh & Metcalf, 2003); increased competition for students among both traditional and nontraditional institutions (Millard, 1994); increased interest in organizational improvement strategies such as total quality management and continuous quality measurement (R. G. Lewis & Smith, 1994; Seymour, 1992); the knowledge about the accreditation process (Bjorklund & Colbeck, 1999; Denton, 1998; Yokomoto, Goodwin, & Williamson, 1998); the knowledge about quality (Grant, 1993; Williams, Litynski, & Apple, 2001); and increased understanding of the need of change (Denton, 1998). Table 8 shows a rearrange of all these factors according to the following dimensions: 1) internal forces supporting the accreditation process, and 2) external forces supporting the accreditation process.

In relation with the second domain, forces resisting the implementation of the accreditation process, it is possible to mention: general mistrust in administrative hierarchy (Lucas, 1996); the process to prepare the self study (Schilling & Schilling, 1998, p. 18; Yokomoto, Goodwin, & Williamson, 1998); no confidence in existing instruments (Schilling & Schilling, 1998, p. 20); limitations of assessment tools (Banta, 1991); meaning of assessment and outcomes assessment not clearly defined (Schilling & Schilling, 1998, p. 21); poorly designed systems to use assessment results (Banta, 1991; Grunwald & Peterson, 2003; Peterson, Einarson, Augustine, & Vaughan, 1999); faculty lack of knowledge of assessment (Schilling & Schilling,

1998, p. 20); faculty have not available time to take another responsibility (Schilling & Schilling, 1998, p. 21); accreditation is a threat to academic freedom (Palomba & Banta, 1999, p. 71; Schilling & Schilling, 1998, p. 19); assessment will increase bureaucracy and reduce available resources (Palomba & Banta, 1999, p. 71; Schilling & Schilling, 1998, p. 21); lack of sustained attention by institutional leadership (Yokomoto, Goodwin, & Williamson, 1998); unnecessary administrative restrictions on how the assessment program or accreditation process are carried out (Hoey & Nault, 2001); different perceptions and goals between faculty and administrators (Lucas, 1996); administrators do not use a collaborative approach to engage faculty in the assessment process (Peterson & Einarson, 1997); faculty have fear that effort will be for naught if the information is not used (Palomba & Banta, 1999, p. 71; Schilling & Schilling, 1998, p. 18); faculty have fear that information will be used in some way that is harmful to the interests of faculty (Palomba & Banta, 1999, p. 71; Schilling & Schilling, 1998, p. 18); possible conflict between regional accreditation and professional accreditation (Yokomoto, Goodwin, & Williamson, 1998); assessment activities will increase the workload of faculty (Schilling & Schilling, 1998, p. 21); and afraid of change (Schilling & Schilling, 1998, p. 18). Table 9 shows a rearrange of these factors according to the following dimensions: 1) cultural resistance, 2) resource limitations, 3) threats to power and influence, 4) organizational barriers, and 5) defensive perception.

Finally, in relation to the third domain, actions to overcome the resistance to implementation, significant factors include the following: encourage teamwork and team building through brainstorming, dialogue and discussion, and joint projects (Palomba & Banta, 1999, p. 65-66); to set clear and defined roles in the assessment process (Palomba & Banta, 1999, p. 53); to participate as assessment coordinator or in an assessment committee (Palomba &

Banta, 1999, p. 54); to promote the participation of faculty and administrators (Yokomoto, Goodwin, & Williamson, 1998); to have available resources to learn about and understand assessment (Bjorklund & Colbeck, 1999; Palomba & Banta, 1999, p. 53; Yokomoto, Goodwin, & Williamson, 1998), to provide secretarial support and support from professional staff and administrators (Palomba & Banta, 1999, p. 60); to offer rewards for their effort such as recognition, stipends, or funds for assessment- related travel (Bjorklund & Colbeck, 1999; Palomba & Banta, 1999, p. 53; Yokomoto, Goodwin, & Williamson, 1998); to provide assessment training (reasons for undertaking assessment, strategies for formulating learning outcomes, and possible approaches for writing assessment plans) (Palomba & Banta, 1999, p. 55; Williams, Litynski, & Apple, 2001); to assure high quality of the methods and instrument used to collect assessment data (McGourty, Sebastian, & Swart, 1997; Palomba & Banta, 1999, p. 67); to consider faculty development related to assessment as a continuous process (Palomba & Banta, 1999, p. 68; Williams, Litynski, & Apple, 2001); to cultivate administrative environment that provides substantial information and feedback (Ewell, 1989, p. 134); to provide organizational support based on the structure of the institution (Bjorklund & Colbeck, 1999; Tomovic, 1996) , to have available resources from internal or external sources (Bjorklund & Colbeck, 1999; Yokomoto, Goodwin, & Williamson, 1998); to offer explicit rewards for faculty who participate in assessment (Palomba & Banta, 1999, p. 61-60); to promote student/faculty relationship (Ewell, 1989, p. 134), to use internal or external consultant services on assessment to support faculty activities (Grunwald & Peterson, 2003, p. 23), and to have active support from the Dean in regional and professional accreditation (Yokomoto, Goodwin, & Williamson, 1998). Table 10 shows a rearrange of these actions according to the following dimensions: 1) leadership, 2)

bargaining and negotiating, 3) education and communication, 4) participation and involvement, and 5) facilitation and support.

Table 8: Forces Supporting Change for the Accreditation Process in Higher Education

COMPONENTS OF THE FORCES SUPPORTING CHANGE
INTERNAL PRESSURE
Administrators are more likely to support institutional effectiveness activities (Welsh & Metcalf, 2003). Increased competition for students among both traditional and nontraditional institutions (Millard, 1994). Increased interest in organizational improvement strategies such as total quality management and continuous quality measurement (R. G. Lewis & Smith, 1994; Seymour, 1992). The knowledge about the accreditation process (Bjorklund & Colbeck, 1999; Denton, 1998; Yokomoto, Goodwin, & Williamson, 1998). The knowledge about quality (Grant, 1993; Williams, Litynski, & Apple, 2001). Increased understanding of the need of change (Denton, 1998).
EXTERNAL PRESSURE
Increasingly competitive environment (R. G. Lewis & Smith, 1994; Millard, 1994, p. 158; Seymour, 1992). The importance of external influences such as regional or professional accreditation boards, private foundations, and corporate groups (Grunwald & Peterson, 2003, p. 23). The call from state legislatures, the National Governors Association, and federal policy makers for increased institutional accountability (Wolff, 1994, p. 107). The fiscal stringencies produced by the recent recession and, for public institutions, the decrease in and resulting competition for state funds pose additional problems (Millard, 1994, p. 158). The issue of accountability has become even more acute, heightened as it has been by the need for a clear rationale for the use of the limited funds available (Millard, 1994, p. 158). A more consumer-oriented and knowledgeable pool of students (Welsh & Metcalf, 2003). Public perceptions of dissatisfaction with higher education (R. G. Lewis & Smith, 1994; Millard, 1994). Technology is changing the educational delivery methods (Bjorklund & Colbeck, 1999; R. G. Lewis & Smith, 1994).

Table 9: Forces Resisting Change for the Accreditation Process in Higher Education

FORCES RESISTING CHANGE	COMPONENTS
CULTURAL RESISTANCE	general mistrust in administrative hierarchy (Lucas, 1996); the process to prepare the self study (Schilling & Schilling, 1998, p. 18; Yokomoto, Goodwin, & Williamson, 1998); no confidence in existing instruments (Schilling & Schilling, 1998, p. 20);
RESOURCE LIMITATIONS	limitations of assessment tools (Banta, 1991); meaning of assessment and outcomes assessment not clearly defined (Schilling & Schilling, 1998, p. 21); poorly designed systems to use assessment results (Banta, 1991; Grunwald & Peterson, 2003; Peterson, Einarson, Augustine, & Vaughan, 1999); faculty lack of knowledge of assessment (Schilling & Schilling, 1998, p. 20); faculty have not available time to take another responsibility (Schilling & Schilling, 1998, p. 21);
THREATS TO POWER AND INFLUENCE	accreditation is a threat to academic freedom (Palomba & Banta, 1999, p. 71; Schilling & Schilling, 1998, p. 19); assessment will increase bureaucracy and reduce available resources (Palomba & Banta, 1999, p. 71; Schilling & Schilling, 1998, p. 21);
ORGANIZATIONAL BARRIERS	lack of sustained attention by institutional leadership (Yokomoto, Goodwin, & Williamson, 1998); unnecessary administrative restrictions on how the assessment program or accreditation process are carried out (Hoey & Nault, 2001); different perceptions and goals between faculty and administrators (Lucas, 1996); administrators do not use a collaborative approach to engage faculty in the assessment process (Peterson & Einarson, 1997);
DEFENSIVE PERCEPTION	faculty have fear that effort will be for naught if the information is not used (Palomba & Banta, 1999, p. 71; Schilling & Schilling, 1998, p. 18); faculty have fear that information will be used in some way that is harmful to the interests of faculty (Palomba & Banta, 1999, p. 71; Schilling & Schilling, 1998, p. 18); possible conflict between regional accreditation and professional accreditation (Yokomoto, Goodwin, & Williamson, 1998); assessment activities will increase the workload of faculty (Schilling & Schilling, 1998, p. 21); afraid of change (Schilling & Schilling, 1998, p. 18)

Table 10: Actions to Overcome Resistance to the Accreditation Process in Higher Education

CATEGORIES	ACTIONS
LEADERSHIP	to have active support from the Dean in regional and professional accreditation (Yokomoto, Goodwin, & Williamson, 1998)
EDUCATION AND COMMUNICATION	to encourage teamwork and team building through brainstorming, dialogue and discussion, and joint projects (Palomba & Banta, 1999, p. 65-66); to promote student/faculty relationship (Ewell, 1989, p. 134),
BARGAINING AND NEGOTIATING	to offer explicit rewards for faculty who participate in assessment (Palomba & Banta, 1999, p. 61-60);
PARTICIPATION AND INVOLVEMENT	to set clear and defined roles in the assessment process (Palomba & Banta, 1999, p. 53); to participate as assessment coordinator or in assessment committee (Palomba & Banta, 1999, p. 54); to promote the participation of faculty and administrators (Yokomoto, Goodwin, & Williamson, 1998);
FACILITATION AND SUPPORT	to have available resources to learn about and understand assessment (Bjorklund & Colbeck, 1999; Palomba & Banta, 1999, p. 53; Yokomoto, Goodwin, & Williamson, 1998), to provide secretarial support and support from professional staff and administrators (Palomba & Banta, 1999, p. 60); to offer a reward for their effort such as recognition, stipends, or funds for assessment- related travel (Bjorklund & Colbeck, 1999; Palomba & Banta, 1999, p. 53; Yokomoto, Goodwin, & Williamson, 1998); to provide assessment training (reasons for undertaking assessment, strategies for formulating learning outcomes, and possible approaches for writing assessment plans) (Palomba & Banta, 1999, p. 55; Williams, Litynski, & Apple, 2001); to assure high quality of the methods and instrument used to collect assessment data (McGourty, Sebastian, & Swart, 1997; Palomba & Banta, 1999, p. 67); to consider faculty development related to assessment as a continuous process (Palomba & Banta, 1999, p. 68; Williams, Litynski, & Apple, 2001); to offer administrative environment that provides substantial information and feedback (Ewell, 1989, p. 134); to provide organizational support (Bjorklund & Colbeck, 1999; Tomovic, 1996); to have available resources from internal or external sources (Bjorklund & Colbeck, 1999; Yokomoto, Goodwin, & Williamson, 1998); to use internal or external consultant services on assessment to support faculty activities (Grunwald & Peterson, 2003, p. 23),

2.6 SUMMARY OF THE LITERATURE REVIEW

The literature review shows that the actions and proposals from governments - in the US and in other parts of the world such as UK, Spain, Mexico, Brazil, Chile, Uruguay, Thailand, Canada, etc (Bogue, 1998; Carter & Davidson, 1998; Maassen, 1998; Mora & Vidal, 1998; Stanley & Patrick, 1998) - are applying the concept of quality from three perspectives: quality as a "limited supply", "quality within mission", and "value-added quality", based on different definitions of quality, in order to establish systematic advancement of the education process and to implement quality initiatives.

The first perspective is the theory of limited supply, which supports a position where "by definition quality is in limited supply-a competitive affair in which there are a few truly excellent institutions" (Bogue, 1998). This perspective of quality involves a sense of elitism and rigidity (Millard, 1994) and supports the development of ranking reports in higher education in the U.S and around the world (Bogue & Saunders, 1992; Demont, Dwyer, & Driedger, 2002; Gourman, 1997; Shale & Liu, 2002).

The second perspective on the theory of quality within mission "assumes that quality should be present in each and every institution according to its mission and goals" (Bogue, 1998). This theory limits quality to a conformance to mission specification and goal achievement, following the postulates of Philip B. Crosby (Crosby, 1979). In the U.S., two streams of activities can be included: accreditation: the test of mission fulfillment (Bogue, 1998; Bogue & Saunders, 1992; Young, Chambers, Kells, & Cargo, 1983); and academic program reviews: the test of goal achievement (Bogue & Saunders, 1992). In the particular case of accreditation, this definition became central for the assessment of quality and its continuous improvement: "The concept of quality as achievement in kind is central to the theory and process

of accreditation, both institutional and specialized. It is the basis of accreditation's assessment both of quality and of enhancement of quality" (Millard, 1994, p. 161).

The third perspective is the theory of value-added (Wolff, 1994) which assumes that quality is to be found not in resources and reputations but in results, in the "value added" by the institution (Bogue, 1998). Under this theory, the definition of excellence is different because the most excellent institutions are those that have the greatest impact on the student's knowledge and personal development. In the U.S., three streams of activities can be included: assessment and outcomes movement (Marchese, 1987; Palomba & Banta, 1999), periodic accountability and performance indicators reports (Bogue & Saunders, 1992; Nedwek, 1996), and systematic approaches to quality management such as Total Quality Management and Baldrige Criteria for Performance Excellence (BCPE) (Koch & Fisher, 1998; R. G. Lewis & Smith, 1994; NIST, 2002a, , 2002b; Packard, 1995).

Research has shown that in the United States academic administrators and faculty members have different perspectives about accreditation as a quality initiative. Whereas academic administrators are more likely to perceive an accreditation process as a quality initiative, faculty members are more reluctant to accept such a view of the accreditation process (Abraham-Ramírez, 1997; Andersen, 1987; Clarke, 1997; Peterson, Einarson, Augustine, & Vaughan, 1999; Welsh & Metcalf, 2003). The different perspectives about quality impact in the level of participation in the implementation of accreditation as a quality initiative. As institutions become larger and more complex, faculty and academic administrators have more differentiated skills, and often they perceive the environment in a different way (Abraham-Ramírez, 1997; Andersen, 1987; Clarke, 1997; Peterson, Einarson, Augustine, & Vaughan, 1999; Welsh &

Metcalf, 2003). This gap increases the traditional antagonism between the academic and the administrative culture (Birnbaum, 1988; Lucas, 1996).

The review of several research studies, literature reviews, and implementation cases of assessment and accreditation in higher education institutions shows the presence of forces supporting the process of accreditation as a quality initiative and continuous improvement, forces resisting the implementation of this process, and the most common action that academic administrators in higher education organizations took in order to overcome the resistance of change to the implementation of this process. The perception about the balance between the external and internal forces that shape the process of accreditation as a quality initiative in higher education affects not only the view of administrators about the importance of the accreditation process but also the view of faculties (Peterson & Einarson, 1997). The increased authority by the states is the major force limiting the institutional autonomy of higher education organization due to the involvement of state executives or legislative agencies in program review, administrative operations, budgeting, and planning (Birnbaum, 2000; Bogue & Saunders, 1992; McKeown-Moak, 2000). This shift in the balance of power put the academic managers more like middle-managers than campus leaders. Faculty may respond to this centralizing situation by collective bargaining or by concentration around a program or department (Birnbaum, 1988, p. 16).

Finally, research shows the conflict between faculty and academic administrators is a common problem. The first international study conducted by The Carnegie Foundation in 14 countries[21] demonstrated that faculty around the world share similar experiences and express

[21] The Carnegie International Survey of the Academic Profession, conducted in 1991-93, studied academics in 14 countries: the United States; United Kingdom, Germany, the Netherlands, Russia, and Sweden in Europe; Hong Kong, Japan, and South Korea in Asia; Brazil, Chile, and Mexico in Latin America; Israel in the Middle East; and Australia (Boyer, Altbach, & Whitelaw, 1994). The results from this survey were reported in two Carnegie

common concerns (L. S. Lewis & Altbach, 1996) such as nearly universal lack of regard by faculty for administrators; distrust and alienation from administration; academics' happiness with their jobs and with their careers, but their extreme unhappiness with their institutions; awareness and concern about the trend toward the growing bureaucratization in higher education; very low influence of faculty in helping to shape academic policies at the institutional level; complete dissatisfaction of faculty with and doubts about the quality of the leadership provided by top-level administrators at their colleges and universities; and nearly universally difficult financial circumstances of higher education. The survey also shows a common pattern of external forces such as: a near universal trend toward more emphasis on teaching; demands that faculty members account for their activities, with assessment as a means of measuring the effectiveness of academic effort; and a growing societal discomfort with traditional ideas of university autonomy (L. S. Lewis & Altbach, 1996).

Therefore, it is the thesis of this study that administrators must develop strategies and take actions to overcome the resistance of faculty to the accreditation process, especially as it relates to the institutional assessment that both faculty and academic administrates must undertake as part of the accreditation process. As a consequence, the ability of the academic administrators to involve faculty in assessment activities as well as the rest of the accreditation process will have a direct impact on the eventual success of the accreditation process.

The three main research questions are:

1. What are the most important aspects of the current accreditation process identified by senior administrators and department chairs of Argentine Schools of Engineering?

Foundation publications: *The Academic Profession: An International Perspective* and *The International Academic Profession: Portraits of Fourteen Countries.*

2. To what extent do senior administrators and department chairs have different perspectives of the importance, effectiveness, degree of implementation and impact of the current accreditation process?
3. What do senior administrators and department chairs recommend to improve the accreditation process?

Given the presence of common factors in the international academic environment, the American experience and specifically the research study of Welsh and Metcalf (2003) will serve as a reference in order to analyze the accreditation experience in the schools of engineering in the Argentine Republic.

3.0 RESEARCH METHODS

3.1 RESEARCH DESIGN

In order to carry on this research, the particular case of the senior administrators and department chairs' perspective of the Universidad Tecnológica Nacional (UTN) was the focus of this research. The study of the accreditation process at the UTN has a number of strengths. First of all, the UTN is diverse in the types of engineering programs that it offers, having 15 different engineering undergraduate majors as well as graduate degrees (M.S. and PhD) in a variety of engineering fields (i.e. mechanical, civil; electrical, electronics, etc). The UTN also is regionally diverse, having 29 schools of engineering distributed throughout Argentina (in 13 of the 23 provinces). Lastly, the UTN is the largest institution for the training of engineers in Argentina, with 89% of engineering majors attending one of its many campuses and programs.

The research about the implementation of assessment and the accreditation process in postsecondary American institutions was the reference to initiate this exploratory study of the accreditation process of the Schools of Engineering in the Argentine Republic.

The first research question addressed the most important aspects of the accreditation process are for Argentine academics (senior engineering academic administrators and department chairs) in terms of the importance for the school, actions to implement the accreditation process, factors supporting and resisting the accreditation process, problems during its implementation,

and the importance of the criteria of the accreditation standards. The definition of Senior Academic administrators is employees who hold the position of dean, vice dean, or assistant dean of a school or academic unit while possibly still active in teaching and research. Department chairs are those academic administrators who hold the position of academic department heads while possibly still active in teaching and research. Faculty are those part-time or full-time college and university employees whose primary duties are classroom teaching and/or research. Survey questions 1, 2, 3, 4, 5, 6, 7 and 9 were used to collect information to answer this question.

Survey question 1 asked about the perceived importance of the accreditation process for the school. Survey questions 2 and 3 asked about the planning activities to carry on the accreditation process and the perception about their effectiveness. Survey questions 4 and 5 asked about the presence of factors supporting and resisting the accreditation process. Survey questions 6 and 7 asked about the presence of problems during the accreditation process. Survey question 9 asked about the importance of the different criteria in the accreditation standards.

In relation with questions 1, 2, 3, 4, and 5; respondents evaluated a series of items in each question using a Likert scale from 1 to 5. The higher the score assigned to these statements on the 5-point Likert scale, the more positive the response to the agreement with the statement (question 1), the implementation of an action (question 2), the effectiveness of an action (question 3), the extent of a factor (question 4), the impact of a factor (question 5), and the importance of a criteria (question 9). Question 6 was a Yes / No / Don't know question; and question 7 was an open question. A frequency distribution will show the predominant elements in the accreditation process. Cross-tabulation will show the perception of the different factors from the point of view of senior academic administrators and department chairs. The answer to

the open questions will be categorized for determining the main problems during the accreditation process.

The second research question tries to determine if senior administrators and department chairs have different perspectives of the importance, effectiveness, degree of implementation and impact of the current accreditation process in terms of the importance for the school, actions to implement the accreditation process, factors supporting and resisting the accreditation process, problems during its implementation, and the importance of the criteria of the accreditation standards. Survey questions 1, 2, 3, 4, 5, 6, 7 and 9 collected information to answers this question. The data will be analyzed using 2-tailed t-test with independent samples with $\alpha = .05$.

Finally, the third research question asked about what senior administrators and department chairs recommend to improve the accreditation process. Survey questions 8 and 10 collected information to answer this question. Survey question 8 asked about the current status of the accreditation process in a four options question – one answer. A frequency distribution will show the predominant accreditation status in the schools under analysis. Survey question 10 asked about the recommended changes, if any, to improve the current criteria in the accreditation process. It is an open question and the answers will be categorized for determining the main recommendations. Survey question 11 asked for demographic questions in order to complete the profile of those who provided the different answers:

1. Did you participate actively in the Accreditation process?
2. What is your current position?
3. If you are and Academic Administrator (Dean, Vice Dean, Assistant Dean), how long have you been working in your current position?

4. How long have you been working in this school?

The survey instrument had 11 questions. Table 11 shows the relationship between the research questions, the survey questions and the method to analyze the data.

Table 11: Research Questions, Survey Questions, and Methods Used to Analyze the Data

RESEARCH QUESTIONS		SURVEY QUESTIONS	METHOD TO ANALYZE THE DATA
1	What are the most important aspects of the current accreditation process identified by administrators and department chairs of Argentine Schools of Engineering?	1. Please rate the following statements in terms of your judgment of the importance of the Accreditation process for your school. 3. Please, rate the extent of the implementation of the planning activities to support the accreditation process. 4. How effective were the planning activities to support the accreditation process? 5. To what extent were the following factors present in your school during the Accreditation process? 6. How important are the different criteria in the accreditation standards? 7. To what extent did the following factors impact in your school during the Accreditation process? 8. Were there problems during the Accreditation process? 9. Please describe below one or more important problems that need to be addressed in future accreditation cycles.	Frequency distribution using bar chart Media and mode Crosstabulation
2	To what extent do senior administrators and department chairs have different perspectives of the importance, effectiveness, degree of implementation and impact of the current accreditation process?	1. Please rate the following statements in terms of your judgment of the importance of the Accreditation process for your school. 3. Please, rate the extent of the implementation of the planning activities to support the accreditation process. 4. How effective were the planning activities to support the accreditation process? 5. To what extent were the following factors present in your school during the Accreditation process? 6. How important are the different criteria in the accreditation standards? 7. To what extent did the following factors impact in your school during the Accreditation process? 8. Were there problems during the Accreditation process? 9. Please describe below one or more important problems that need to be addressed in future accreditation cycles.	2-tailed t-test with independent samples with $\alpha = .05$
3	What do senior administrators and department chairs recommend to improve the accreditation process?	10. What changes are needed, if any, to improve the current accreditation process? 2. What is the current status of the accreditation process at your school?	Frequency distribution using bar chart Media and mode Crosstabulation

3.2 POPULATION AND SAMPLE

There are 79 Universities and 15 University Institutes in the Argentine Republic in the year 2000. From this total, 91 Schools and Engineering Institutes belonging to 48 universities participated in the accreditation call for engineering related higher education institutions (Pérez Rasetti, 2002).

CONEAU had planned three voluntary calls and one last compulsory call in order to accredit all the engineering schools and engineering institutes that are offering undergraduate engineering degrees in the following specialties: Aeronautical, Food; Environmental; Civil; Electrical, Electronic; Electromechanical; Materials; Mechanical; Mining; Nuclear; Petroleum, and Chemical (M. d. E.-R. Argentina, 2001)[22].

The first voluntary process for accreditation began on June 1st, 2002 and 28 engineering schools and engineering institutes belonging to 15 universities and university institutes submitted their papers (CONEAU, 2002b; Pérez Rasetti, 2002). The second voluntary process for accreditation began on August 15th, 2002 and 21 engineering schools and engineering institutes belonging to 12 universities and university institutes submitted their papers[23] (CONEAU, 2002c; Pérez Rasetti, 2002). The third voluntary process for accreditation began on March 1st, 2003 and 21 engineering schools and engineering institutes belonging to 8 universities and university institutes answered this call[24] (CONEAU, 2002d; Pérez Rasetti, 2002). Finally, 21 engineering schools and engineering institutes belonging to 17 universities and university institutes decided

[22] In November 2002, the Minister of Education included Land Surveying and Industrial engineering as professional activities under state regulation (M. d. E.-R. Argentina, 2002). Those schools offering undergraduate degrees in these specialties will start the accreditation process between April 2004 and August 2004 in a different accreditation call (CONEAU, 2004).

[23] Note of the Author: In the 2nd voluntary process for accreditation, the Universidad Tecnológica Nacional is presenting again more schools for accreditation. Therefore, the number of new universities in this call is 11.

[24] Note of the Author: In the 3rd voluntary process for accreditation, the Universidad Tecnológica Nacional and the Universidad Nacional de Cuyo are presenting again more schools for accreditation. Therefore, the number of new universities in this call is 6.

to participate in the compulsory call[25] (CONEAU, 2003d). By March 2004, it was expected that 71 participants schools, in the Voluntary call for Accreditation (CONEAU, 2003c), had completed or were in process to complete the accreditation process (CONEAU, 2002c, , 2002d; Pérez Rasetti, 2002). Other 21 engineering schools and engineering institutes belonging to 17 universities and university institutes decided to participate in the compulsory call in the year 2004 (CONEAU, 2003d). Table 12 shows a summary of the participating schools in the different calls.

Table 12: Number of Universities and Engineering Schools Participating in the Different Calls for Accreditation.

INITIAL PARTICIPATION		ENGINEERING SCHOOLS AND ENGINEERING INSTITUTES	TOTAL NEW PARTICIPATING UNIVERSITIES
VOLUNTARY	FIRST CALL	28	15
	SECOND CALL	21	11
	THIRD CALL	21	6
COMPULSORY CALL		21	16
TOTAL SUBMITTIONS		**91**	**48**

From the total number of schools of engineering that participated in the accreditation process, only the schools and academic units from the Universidad Tecnológica Nacional took part in this research. The names of the top academic administrators and those faculty members elected as chairmen of engineering department of the UTN's schools, which participated in the accreditation process of undergraduate degrees, were collected from the web site of each school.

[25] Note of the Author: In the compulsory call for accreditation, the Universidad Nacional de Cuyo is presenting again more schools for accreditation. Therefore, the number of new universities in this call is 16.

If the names were not available, the webmaster or the assistant dean of the school was contacted to get the missing names and contact information. Table 13 shows the number of schools and academic units for each accreditation call.

Table 13: Number of Schools and Academic Units from the UTN Participating in the Different Calls for Accreditation.

KIND OF CALL		ENGINEERING SCHOOLS	ACADEMIC UNITS [a]
VOLUNTARY	FIRST CALL	7	1
	SECOND CALL	7	0
	THIRD CALL	8	4
COMPULSORY CALL		0	0
TOTAL SUBMISSIONS		**22**	**5**
NOT INCLUDED		0	2[b]

[a] *Note.* Academic Unit is a general category for organization structure in the higher education system in the Argentine Republic. Under this denomination, the most accepted meaning is that a university may have not only different schools but also university institutes and secondary colleges such as: 1) the organization in Universidad Católica Argentina (Weblaboral1, 2003), 2) the organization in Universidad Nacional de la Plata (Plata, 1999), and 3) the organization in Universidad del Salvador (Salvador, 2003). In other cases like the Universidad Tecnológica Nacional, there is a differentiation between Schools (Facultad Regional) and Academic Units. Schools have a higher rank than Academic units based on the number of undergraduate degrees offered, number of faculty, and number of students taking courses (Regulation Number 582 from Highest University Council at Universidad Tecnológica Nacional) (Nacional, 2003b).

[b] *Note.* The Academic Unit in the city of Chubut offers specialties in Fishing. This one is not included in the first call for accreditation. Therefore, the school did not participate in this accreditation cycle. The second academic unit that did not participate was the Academic Unit in the city of Trenque Launquen. This school of engineering offers a major in Industrial Engineering. Therefore it did not participate in this accreditation call.

One population under study was the senior administrators (deans; vice deans; and assistant deans) of the 22 engineering schools and five academic units of the UTN that participated in the accreditation process in the first, second, third call and the compulsory one. The other population

under study was the faculty serving as chairmen of the engineering departments in the same period. The total population size was 72 senior administrators and 125 chairpersons. Given the small size of the populations, the sample frame included all of them. Table 14 shows the number and distribution of academic administrators and faculty of UTN according to the different accreditation calls.

Table 14: Senior Academic Administrators and Chair Persons from the Participating UTN Schools in the Different Calls for Accreditation.

KIND OF CALL	DEANS	VICE DEANS	ASSOCIATE DEANS	CHAIR PERSONS	NUMBER OF PARTICIPATING SCHOOLS AND ACADEMIC UNITS
FIRST CALL	8	8	6	40	8
VOLUNTARY SECOND CALL	7	7	6	43	7
THIRD CALL	12 [a]	8 [b]	10	42	12
COMPULSORY CALL	0	0	0	0	0
TOTAL SAMPLE FRAME	**27**	**23**	**22** [c]	**125**	**27**

[a] *Note.* The Facultad Regional Río Grande (Río Grande Engineering School) has two sites. The dean supervised all the school and a Unit Director supervised one of the sites. Therefore, both will receive this survey and the total number of Deans is twenty seven.

[b] *Note.* The Academic Units do not have a vice dean with the exception of La Rioja Academic Unit (1st call for accreditation) . In this call there are four academic units and therefore only eight vice deans.

[c] *Note.* In the 1st call, two vice deans are also associate deans in the same school (F.R. Avellaneda and F.R. Delta Campana). In the 2nd call, the vice dean of one school is also associate dean (F.R. Villa María). The Facultad Regional Río Grande (Río Grande Engineering School) does not have associate dean, and the Vice dean of this school is also the Associate dean at Facultad Regional Reconquista (Reconquista Engineering School). Then, the total number of Associate deans is twenty two.

3.3 INSTRUMENT

The design of this study survey used a questionnaire which was web-based and available in paper form as well. The researcher designed this questionnaire based on the different factors identified in the literature research. This questionnaire was the primary source of data collection. It had the advantages of minimizing sampling error at a relatively low cost, providing a sense of privacy to the respondents, and being less sensitive to bias from the researcher (Borg & Gall, 1989). Also, it provided nearly complete elimination of data entry cost, reduction of time required for survey implementation, and lower marginal cost to add an additional person to the sample frame (Dillman, 2000). The survey included mainly closed questions and a Likert-type scale ranging 1 through 5 to measure the answers (see appendix E for the content survey in English and Appendix F for the content survey in Spanish).

A panel of four American faculty with expertise in higher education accreditation, quality and administration (Dr. Daniel P. Resnick – Carnegie Mellon University; Dr. Larry J. Shuman – associate dean at the School of Engineering at the University of Pittsburgh; Dr. Russel Schuh – educational researcher at the School of Education at the University of Pittsburgh; and Dr. Jere D. Gallagher – associate dean at the School of Education at the University of Pittsburgh) reviewed the questionnaire for readability. Given the nature of the research, the Hawthorne effect[26], the John Henry effect[27], the Pygmalion effect[28], and the Demand Characteristics[29] were unlikely to have impact in the results (Borg & Gall, 1989).

[26] The term Hawthorne effect has to come to refer to "any situation in which the experimental conditions are such that the mere fact that the subject is aware of participating in an experiment, is aware of the hypothesis, or is receiving special attention tends to improve the performance" (Borg & Gall, 1989, p. 190).
[27] The John Henry effect refers to a situation "in which a control group performs above its usual average when placed in competition with an experimental group that is using a new method or procedure that threatens to replace the control procedure" (Borg & Gall, 1989, p. 191).
[28] The Pygmalion effect has come to refer to " changes in the subject's behavior that are brought about by the experimenter's expectations" (Borg & Gall, 1989, p. 193).

3.4 DATA COLLECTION

The researcher mailed an introductory letter (see sample in Appendix B) with the number of the IRB authorization, and a printed copy of the survey to the sample. In this letter, the researcher invited the Academic Administrators to participate in the survey by accessing the link to the web page with the web survey or filling the enclosed printed copy. This letter emphasized the contribution of the survey to the comprehension of the accreditation process in the Argentine Republic, the voluntary nature of the participation and the option to withdraw at any time from the study, the confidentiality of the process, and the option to receive a copy of the final result of the survey by checking the respective option in the printed or web version of the survey.

Also, the researcher e-mailed the introductory letter (see sample letter in Appendix B) to the sample population two weeks after the mail (standard time to arrive a mail from US to Argentina). In this e-mail, the researcher invited the Academic Administrators to participate in the survey by accessing the link to the web page with the web survey or filling the printed copy that they have to receive around those days. This e-mail also emphasized the contribution of the survey to the comprehension of the accreditation process in the Argentine Republic, the voluntary nature of the participation and the option to withdraw at any time from the study, the confidentiality of the process, and the option to receive a copy of the final result of the survey by checking the respective option in the printed or web version of the survey.

After that, the researcher sent a reminder letter (see sample letter in Appendix C) to the survey participants three weeks after the initial communication by mail, and an e-mail with the same text was sent to the study participants two weeks following the reminder letter. A final e-

[29] The Demand Characteristics "describes all the cues available to the subject regarding the nature of the research" (Borg & Gall, 1989, p. 193) that they will use "to come to conclusions as to what the experiment, and what the researcher hopes to find" (Borg & Gall, 1989, p. 193).

mail followed ten days after the reminder e-mail communicating the conclusion of the collection of data (see appendix D).

The surveys are confidential. The researcher mailed the surveys from the US to each person in the sample frame. The researcher included a self addressed stamped envelope with each survey with the address in the US to be returned. The participants had two weeks to complete the survey. The survey was delivered in August 2005.

The researcher assigned an individual identification for coding purposes to each participant. The location of this identification code was at the bottom of the last page of the enclosed survey to assure the correct processing of each individual response. Also, the researcher informed the participants in the cover letter that: 1) their responses will remain confidential and will be aggregated with responses of other survey participants for research purposes only, and 2) their personal identity will remain confidential, and no attempt will be made to attach their identity to their answers within the response database. Only the researcher had access to the file with the relationship between names and coding. Finally, the researcher destroyed this file and any printout related after the completion of the research.

3.5 TRANSLATION TECHNIQUE

A Spanish version of the questionnaire is necessary because the population under study consists of native Spanish speakers. The researcher, who is native Spanish speaker, did the translation. To assure the validity of the translated survey, three academic advisors from the University of Pittsburgh (Dr. Clementina Acedo from the department of Administration and Policy Studies at the School of Education at the University of Pittsburgh; and Shirley A. Kregar – associate director

for Academic Affairs at the Center for Latin American Studies at the University Center for International Studies at the University of Pittsburgh) and Carnegie Mellon University (Dr. María Marta Ferreyra – assistant professor of Economics at Tepper School of Business at Carnegie Mellon University) who are native Spanish speakers and/or native English speakers with fluency in Spanish reviewed the Spanish version.

3.6 TREATMENT OF DATA

The researcher reviewed the returned surveys in order to process all the complete questionnaires. Also, the researcher used a number instead of the names of individual schools of engineering in the presentation of the final results.

As a first stage in the treatment of data, the researcher analyzed how individuals in this study were distributed on each variable. Graphic illustration of the distribution of qualitative variables and frecuency distribution of quantitative variables helped to understand the results.

As a second stage in the treatment of data, the researcher analyzed if there were any differences between the perceptions of the top administrators and faculty that serve as chaiman of engineering departments during the accreditation process. A 2-tailed t-test with independent samples with $\alpha = .05$ was used to determine differences between the perception of the engineering academic administrators and faculty.

4.0 RESULTS

4.1 INTRODUCTION

The accreditation process is a new experience for engineering schools in higher education institutions in Latin America (Amaral & Polidori, 1999; Escobar, Oryarzún, & Guzmán, 2002; Lémez, 2002; Netto, 2002; Rivero, 2003; Robledo, 2003). In the Argentine Republic, the formal accreditation process began in 1995 when the Congress passed Law 24,521 on Higher Education which mandated that any academic disciplines which deal with the lives, health, security, or education of the population must go through an accreditation process. The accreditation calls have a compulsory nature for several majors, and any higher education institution that does not pass the accreditation process may subsequently have its enrollment activities suspended by CONEAU, the governmental body that oversees the accreditation process.

The literature review shows that in the United States academic administrators and faculty members have different perspectives about accreditation as a quality initiative. On one side academic administrators are more likely to perceive an accreditation process as a quality initiative; on the other side faculty members are more reluctant to accept such a view of the accreditation process (Abraham-Ramírez, 1997; Andersen, 1987; Clarke, 1997; Peterson, Einarson, Augustine, & Vaughan, 1999; Welsh & Metcalf, 2003). Therefore, academic administrators have to be aware of the different perceptions of the accreditation process among the members of the institution. Because of these different perspectives, the implementation of

regional and/or professional accreditation in higher education institutions lead to a change process characterized for forces supporting the implementation of the accreditation process, and forces resisting the implementation of the accreditation process.

Most of the research related to the accreditation process in Latin American Higher Education institutions, and the particular case of Argentine higher education institutions, focus on the historical perspective of the quality movement in these countries, the meaning of quality in higher education, the results of external evaluation, and the current debate about the nature of the accreditation process. There is an absence of research identifying the strengths and weaknesses of the accreditation process. The purpose of this study was to start an investigation on this point at the schools of engineering in the Argentine Republic. The focus of this research will be the particular case of Engineering Senior Academic Administrators and Department Chairpersons' perspective of the Universidad Tecnológica Nacional, the leading engineering education center in the Argentine Republic.

After obtaining Institutional Review Board (IRB) approval for the study, a questionnaire was distributed to all Senior Academic Administrators (deans, vice deans, assistant deans) and Department Chairpersons of 27 schools and academic units, belonging to the Universidad Tecnológica Nacional, to address the following specific research questions:

1. What are the most important aspects of the current accreditation process identified by senior administrators and department chairs of Argentine Schools of Engineering?

2. To what extent do senior administrators and department chairs have different perspectives of the importance, effectiveness, degree of implementation and impact of the current accreditation process?
3. What do senior administrators and department chairs recommend to improve the accreditation process?

A total number of 197 questionnaires were sent by mail. Also, an e-mail was sent to each senior administrator and department chairperson with an electronic link to access to the same questionnaire in electronic format. A total of 92 questionnaires were returned by the respondents (20 by regular mail and 72 web forms). Only 82 were considered for this analysis because 10 web forms were incomplete (31 of 72 senior academic administrators and 51 of 125 department chairpersons). The answers to the survey question 2 and 11 provide the following profile of the respondents in terms of their position in the institution, years in this position and as a faculty in this school, their level of participation in the accreditation process, and the current status of the accreditation process.

The respondents to this survey were 31 senior academic administrators (deans, vice deans, assistant deans) (approximately 43% of the academic administrators) and 51 faculty (approximately 41%) that are current department chairpersons or were department chairpersons during the implementation of the accreditation process in their respective majors. If the respondent reported more than one senior academic administration, its answer was counted as the

highest senior academic administration reported. If the respondent reported as faculty and no additional information was provided in the survey, it was counted as Chair Person[30].

Table 15 shows the distribution of the respondents using only two categories: senior academic administrators and department chairs. The analysis shows that both segments have a similar response rate (43% of the senior academic administrators and 41% of department chairs).

Table 15: Response Rate by Two Main Categories

Main Categories	Total Population	Completed Questionnaires	Response Rate in Each Position [%]	Response Rate in Relation with Total Number of Completed Questionnaires [%]
Senior Academic Administrators	72	31	43.0	37.8
Chair persons	125	51	40.8	62.2
TOTAL	197	82		100.0

More than a half (55%) of the senior academic administrators (deans, vice deans, assistant deans) have between four and eleven years in their position; and only 2 (6%) of them have more than eleven years in their position. The chairpersons that responded to the survey have a similar distribution. Around 40% of them have between four and eleven years in their position; and only 4 (8%) of them have more than eleven years in their position.

[30] Note of the Author: Several faculty reported their current position as faculty but they also informed that they were Department Chairs in the year 2004. Therefore, the same criterion was applied by the researcher to code those that made no further comment.

In relation to the years of service in the school, most of them have over eleven years as faculty in their schools (77% of the senior academic administrators and 96% of the department chairpersons). As other characteristics of the respondents, 85% of the respondents (68 of 80) belong to schools where the accreditation was granted for three years, and 10% are still waiting for the results (8 of 80).

In this chapter, overall results are presented, along with results by category (senior academic administrators and department chairpersons). Summaries of results for each research question are provided in each section.

4.2 IDENTIFICATION OF THE MOST IMPORTANT ASPECTS OF THE CURRENT ACCREDITATION PROCESS

4.2.1 Importance of the Accreditation Process

Survey question 1 asked the respondents to rate several statements in terms of their perception about the importance of the accreditation process for their school. The researcher asked the respondents to evaluate thirteen items using a Likert scale from 1 to 5. The higher the score assigned to these statements on the 5-point Likert scale, the more positive the agreement with the statement. Seven of the thirteen items are based on the research of Welsh and Metcalf (2003) who consider that the importance of the current stage in the American accreditation process for higher education institutions is related to the role of the accreditation process in improving the institution, the effort to evaluate the effectiveness of the institution, the time dedicated, the acceptance of accreditation by the personnel of the institution as a permanent quality initiative, the priority assigned to the accreditation process, the participation of the faculty, and the

resources allocated toward its implementation. Table 16 shows the seven items ordered by the number of respondents that strongly agreed with the statement. For these seven items, the higher the score assigned to these statements on the 5-point Likert scale, the higher the importance of the accreditation process. An average of 58% strongly agrees with these items. However, the perception of one of these items departs from this average: only 34% of the respondents strongly agreed with the statement that accreditation is not a fad.

Two of the thirteen items are based on the American accreditation experience and measure the importance of the accreditation process in terms of its impact by triggering other quality initiatives and increasing the cooperation between faculty and senior administrators. Table 17 presents the average importance score and distribution of respondent agreement of importance. For these two items, the higher the score assigned to these statements on the 5-point Likert scale, the higher the importance of the accreditation process in terms of its impact on the culture of the organization. A 43% strongly agree with the positive impact of the accreditation process by triggering other quality initiatives. Also, a 52% only agree with the positive impact of the accreditation process by increasing the cooperation between faculty and senior administrators. Another of the thirteen items is also based on the American accreditation experience and measures the importance of the accreditation process in terms of the importance that respondents assign to the assessment process (which is part of the accreditation process). Table 18 shows the responses to these two items and the percentage in each part of the scale in relation with the total respondent for each item. A comparison with the perception of senior academic administrators and chair persons between the importance of the accreditation and the assessment in improving the institution shows that more respondents strongly agree with the impact of assessment (84%) than the impact of accreditation (70%).

Table 16: Items in Survey Question 1 Directly Related to the Importance of the Accreditation Process

	DON'T KNOW	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE	AVERAGE SCORE
Accreditation at our institution would be strengthened by more active participation of faculty members	0	2	0	2	14	64	4.7
Accreditation activities are an important component of my job responsibilities	0	2	2	2	17	59	4.6
Accreditation plays an important role in improving our institution	0	2	0	0	23	57	4.6
Resources dedicated to accreditation activities are investments in the long term health of our institution	0	2	0	0	25	55	4.6
Efforts to evaluate the effectiveness of our institution are worthwhile	0	2	0	2	23	53	4.6
Accreditation will continue to have a high priority in our institution	6	2	0	6	21	47	4.1
Accreditation is not a fad	6	4	0	8	36	28	3.8
Average Number of Respondents	**6**	**2**	**2**	**4**	**23**	**52**	
Percentage of Average Number of Respondents	**7%**	**3%**	**2%**	**5%**	**26%**	**58%**	

Table 17: Items in Survey Question 1 Related to Other Quality Initiatives and Cooperation

	DON'T KNOW	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE	AVERAGE SCORE
Accreditation process often triggers the interest for other quality initiatives	0	2	5	5	34	34	4.2
	0%	3%	6%	6%	43%	43%	
Accreditation process has increased the cooperation between faculty and senior administrators	0	2	6	2	43	29	4.1
	0%	2%	7%	2%	52%	35%	

Table 18: Items in Survey Question 1 Rating the Importance of Accreditation and Assessment Process

	DON'T KNOW	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE	AVERAGE SCORE
Assessment plays an important role in improving our institution	0	2	0	2	9	67	4.7
	0%	3%	0%	3%	11%	84%	
Accreditation plays an important role in improving our institution	0	2	0	0	23	57	4.6
	0%	2%	0%	0%	28%	70%	

Finally, three of the thirteen items, also based on the American accreditation experience, measure the importance of the accreditation process in terms of its impact by triggering the resistance of the faculty to its implementation. Table 19 shows the responses to these three items and the percentage in each part of the scale in relation to the total number of respondents for each item.

For these three items, the higher the score assigned to these statements on the 5-point Likert scale, the higher will be the opposition to its implementation. The answers differ for each item: 49% of the respondents strongly disagree with accreditation as restricting the academic freedom in the institution; 24% of the respondents strongly disagree with the negative impact of the accreditation budget on other more important activities; and 65% of the respondents agree with the demand of more attention from senior administrators from accreditation than other activities.

Table 19: Items in Survey Question 1 Related to the Faculty Resistance to the Accreditation Process

	DON'T KNOW	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE	AVERAGE SCORE
Accreditation demands more attention from senior administrators than other activities	0	4	4	12	52	8	3.7
	0%	5%	5%	15%	65%	10%	
Accreditation budget has a negative impact on other more important activities	2	20	22	14	22	2	2.5
	2%	24%	27%	17%	27%	2%	
Accreditation restricts the academic freedom in our school	0	40	18	8	12	4	2.0
	0%	49%	22%	10%	15%	5%	

This survey question also asks for other impacts of the accreditation process. Table 20 shows a summary of the other impacts with the average score on the 5-point Likert scale and the number of respondents presenting them. Respondents provide additional information that was

summarizes in the following categories: communication, organizational aware, image of the institution, process restrictions, institutional reorganization, and budget restrictions.

Table 20: Other Impacts of the Accreditation Process

Other Impacts of the Accreditation Process in the School	Respondents [n]	Average Score
Accreditation improves the public and the organizational image of the institution	2	5
Accreditation demands a reorganization of the institution and/or departments	4	5
Accreditation improves the communication with other departments or institutions	4	4.5
Accreditation makes all personnel aware of the institution	2	4.5
Peer profile and indicators do not impact in the accreditation process	2	2
Accreditation demands adequate budget	2	5

4.2.2 Summary of the Importance of the Accreditation Process

The American postsecondary experience in accreditation provided a good reference to analyze the importance of the accreditation process for senior academic administrators and department chairs. Table 21 provides a list of all the 13 items in survey question 1 measuring the importance of the accreditation process with their average score on the 5-point Likert scale, the five new impacts and the number of respondents rating each one. Ten items measuring the importance of the accreditation process were also identified in the Argentine process in the schools of engineering and they were rated on a 5-point Likert scale from strongly disagree (1) to strongly agree (5): the participation of the faculty to strengthen the accreditation process (4.7); the importance that respondents assigned to the assessment process (which is part of the accreditation process) (4.7); the role of the accreditation process in improving the institution (4.6); the worth of the effort to evaluate the effectiveness of the institution (4.6); the time

dedicated as a job responsibility (4.6); the resources allocated as long term investment (4.6); its impact by triggering other quality initiatives (4.2); the acceptance of accreditation by the priority assigned to the accreditation process (4.1); the cooperation between faculty and senior administrators (4.1); and the personnel of the institution as a permanent quality initiative (3.8). Three items identified in the American experience and related to the resistance of the faculty to the implementation of the accreditation process were also present in the Argentine process in the schools of engineering: accreditation restricts the academic freedom in our school (2.0); accreditation budget has a negative impact on other more important activities (2.5); and accreditation demands more attention from senior administrators than other activities (3.7).

Finally, the respondents provided and rated five more items to evaluate the importance of the accreditation process: communication (4.5); organizational awareness (4.5); image of the institution (5.0); process restrictions (2.0); and institutional reorganization (5.0), and budget restrictions (5.0).

4.2.3 Implementation of Planning Activities

Survey questions 3 and 4 asked respondents to rate several statements in terms of their judgment about the implementation and effectiveness of planning activities to support the accreditation process for their school. The researcher asked the respondents to rate six items using a Likert scale from 1 to 5. The higher the score assigned to these statements on the 5-point Likert scale, the higher the level of the implementation of the planning activity, and the higher the effectiveness of this activity. Table 22 shows the responses to these six items and the percentage in each part of the scale in relation with the total responses for each item.

The perceived level of implementation of the planning activities shows the emphasis was not the same for all them. Only 43% of the respondents perceived the organizational planning as fully implemented, while a 52% perceived the steering committee for the accreditation process as fully implemented.

Table 21: Final List of Items for Measuring the Importance of the Accreditation Process

Items for Measuring the Importance of the Accreditation Process in the School	Respondents [n]	Average Score
Accreditation improves the public and the organizational image of the institution	4	5.0
Accreditation demands a reorganization of the institution and/or departments	8	5.0
Accreditation at our institution would be strengthened by more active participation of faculty members	82	4.7
Assessment plays an important role in improving our institution	80	4.7
Accreditation activities are an important component of my job responsibilities	82	4.6
Accreditation plays an important role in improving our institution	82	4.6
Resources dedicated to accreditation activities are investments in the long term health of our institution	82	4.6
Efforts to evaluate the effectiveness of our institution are worthwhile	80	4.6
Accreditation improves the communication with other departments or institutions	8	4.5
Accreditation makes all personnel aware of the institution	4	4.5
Accreditation process often triggers the interest for other quality initiatives	80	4.2
Accreditation will continue to have a high priority in our institution	82	4.1
Accreditation process has increased the cooperation between faculty and senior administrators	82	4.1
Accreditation is not a fad	82	3.8
Accreditation demands more attention from senior administrators than other activities	80	3.7
Accreditation budget have a negative impact on other more important activities	82	2.5
Accreditation restricts the academic freedom in our school	82	2.0
Peer profile and indicators do not impact in the accreditation process	4	2.0

Three other planning activities were perceived as mostly as fully implemented or moderately implemented: 33% of the respondents perceived the communication system for the accreditation information as almost fully implemented; 34% of the respondents perceived the dealing process with internal and external groups about accreditation issues as moderately implemented; and

33% of the respondents perceived the final evaluation of the planning process as almost fully implemented. The less implemented of the planning activities was the open hearings as part of the accreditation process: a 39% of the respondents perceived the open hearings as part of the accreditation process as moderately implemented and 26% of the respondents perceived it as not implemented.

Table 22: Perception of the Extent of the Implementation of Planning Activities

PLANNING ACTIVITIES	DON'T KNOW	NOT IMPL.	ALMOST NOT IMPL.	MOD. IMPL.	ALMOST FULLY IMPL.	FULLY IMPL.	AVERAGE SCORE
Steering Committee for the accreditation process	0	2	2	14	20	42	4.2
	0.0%	2.5%	2.5%	17.5%	25.0%	52.5%	
Organizational planning for the accreditation process	0	0	4	20	23	35	4.0
	0.0%	0.0%	4.9%	24.4%	28.0%	42.7%	
Communication System for accreditation information (E-mail/Document/Website/Formal Meetings / Informal Meetings)	0	4	4	27	27	20	3.6
	0.0%	4.9%	4.9%	32.9%	32.9%	24.4%	
Final Evaluation of the planning process for accreditation	4	6	6	20	27	19	3.4
	4.9%	7.3%	7.3%	24.4%	32.9%	23.2%	
Dealing with various groups inside and outside the university about accreditation issues	7	12	12	27	18	4	2.6
	8.8%	15.0%	15.0%	33.8%	22.5%	5.0%	
Open hearings as part of the accreditation process	0	21	14	31	12	2	2.5
	0.0%	26.3%	17.5%	38.8%	15.0%	2.5%	

Table 23 shows a summary of other planning activities implemented with the average score on the 5-point Likert scale and the number of respondents presenting them. Survey question 3 also

asks respondents for other planning activities implemented to support the accreditation process. Respondents provided additional information that could be included in the existing categories of communication system for accreditation information; and dealing with various groups inside and outside the university. Respondents also mentioned a list of actions more related to the implementation of the accreditation process rather than the planning of the accreditation process (see appendix G for further reference).

Table 23: Other Planning Activities to Support the Accreditation Process

OTHER PLANNING ACTIVITIES	RESPONDENTS [n]	AVERAGE SCORE
Related to the communication system for accreditation information	3	3.3
Related to dealing with various groups inside and outside the university	6	3.3
Related to the implementation of the accreditation process rather than the planning of the accreditation process	10	N/A

In relation with the perceived level of the effectiveness of the planning activities to support the accreditation process, Table 24 shows the responses to these six items and the percentage in each part of the scale in relation with the total respondent for each item. The answers to survey question 4 show two planning activities with high effectiveness: 49% of the respondents perceived the organizational planning as effective; and 38% of the respondents perceived also the steering committee for the accreditation process as effective.

The other four planning activities were perceived mostly as effective or moderately effective: 44% of the respondents perceived the communication system for the accreditation

information as effective; a 41% of the respondents perceived the dealing process with internal and external groups about accreditation issues as moderately effective; a 37% of the respondents perceived the open hearings as part of the accreditation process as moderately effective; and a 46% of the respondents perceived the final evaluation of the planning process as effective.

Table 25 shows a summary of other planning activities implemented and their effectiveness with the average score on the 5-point Likert scale and the number of respondents presenting them. Survey question 4 also asks for the effectiveness of other planning activities implemented to support the accreditation process. Few other planning activities mentioned in this survey match those mentioned in survey question 3. Also, other planning activities were mentioned in this survey question but not mentioned in survey question 3. Despite this mismatch, all the other planning activities may be included in the three general categories used for survey question 3: communication system for accreditation information; dealing with various groups inside and outside the university; and actions to implement the accreditation process. The general perception of the effectiveness of other planning activities related to the communication system for accreditation information is they were effective or very effective. The effectiveness of the other planning activities related to dealing with various groups inside and outside the university was rated between moderately effective and effective (see appendix H for further reference).

Table 24: Perception of the Effectiveness of the Implementation of Planning Activities

PLANNING ACTIVITIES	DON'T KNOW	NOT EFF.	ALMOST NOT EFF.	MOD. EFF.	ALMOST FULLY EFF.	FULLY EFF.	AVERAGE SCORE
Organizational planning for the accreditation process	2	0	4	14	40	22	3.9
	2.4%	0.0%	4.9%	17.1%	48.8%	26.8%	
Communication System for accreditation information (E-mail/Document/Website/Formal Meetings / Informal Meetings)	0	2	10	24	36	10	3.5
	0.0%	2.4%	12.2%	29.3%	43.9%	12.2%	
Steering Committee for the accreditation process	2	0	6	17	30	27	3.8
	2.5%	0.0%	7.5%	21.3%	37.5%	33.8%	
Dealing with various groups inside and outside the university about accreditation issues	9	8	12	33	16	2	2.5
	11.3%	10.0%	15.0%	41.3%	20.0%	2.5%	
Open hearings as part of the accreditation process	5	18	12	29	16	2	2.4
	6.3%	22.5%	15.0%	36.3%	20.0%	2.5%	
Final Evaluation of the planning process for accreditation	4	6	2	24	38	8	3.3
	4.9%	7.3%	2.4%	29.3%	46.3%	9.8%	

Table 25: Effectiveness of Other Planning Activities to Support the Accreditation Process

OTHER PLANNING ACTIVITIES	RESPONDENTS [N]	EFFECTIVENESS AVERAGE SCORE
Related to the communication system for accreditation information	6	N/A
Related to dealing with various groups inside and outside the university	2	N/A
Related to the implementation of the accreditation process rather than the planning of the accreditation process	8	N/A

4.2.4 Summary of the Implementation of Planning Activities and Their Effectiveness

As it was displayed in Tables 22 to 25, respondents evaluated the planning process of the accreditation process by rating the extent and the effectiveness of six planning activities. Table 26 shows a summary of the extent and effectiveness of the planning activities with the average score on the 5-point Likert scale and the number of respondents presenting them. The most implemented activities were the steering committee for the accreditation process (4.23 average rating on a 5-point Likert scale) and the organizational planning for the accreditation process (4.09 average rating on a 5-point Likert scale). Both were rated between almost fully implemented and fully implemented. Other two activities were rated as moderately implemented. It includes the communication system for the accreditation information (3.67 average rating on a 5-point Likert scale) and final evaluation of the planning process for accreditation (3.43 average rating on a 5-point Likert scale). Finally, two planning activities were rated as almost not implemented: dealing with various groups inside and outside the university about accreditation issues (2.6 average rating on a 5-point Likert scale) and open hearings as part of the accreditation process (2.5 average rating on a 5-point Likert scale).

The rating of the effectiveness of those planning activities shows four activities whose average effectiveness was moderately effective: the organizational planning for the accreditation process (3.9 average rating on a 5-point Likert scale); the steering committee for the accreditation process (3.8 average rating on a 5-point Likert scale); communication system for the accreditation information (3.5 average rating on a 5-point Likert scale) and final evaluation of the planning process for accreditation (3.3 average rating on a 5-point Likert scale). The last two planning activities were rated with an average little effective: dealing with various groups inside and outside the university about accreditation issues (2.5 average rating on a 5-point

Likert scale) and open hearings as part of the accreditation process (2.4 average rating on a 5-point Likert scale).

Both survey questions (3 and 4) ask for the implementation and the effectiveness of other planning activities. Most of the comments provided by the respondents fall in two of the considered planning activities: communication system for the accreditation information and dealing with various groups inside and outside the university about accreditation issues. Other proposals from the respondents may be considered as related to the implementation of the accreditation process rather than the planning of the accreditation process. Not all the other planning actions mentioned by the respondents in survey question 3 were evaluated on their effectiveness in survey question 4. Also, respondents rated other statements in survey question 4 not considered initially in survey question 3. Therefore, average rate will be only an indicator but not a real measurement of their extent of implementation and/or effectiveness on these items (see appendix G & H for further reference).

4.2.5 Forces Supporting and Resisting the Accreditation Process

Survey question 5 and 7 asked the respondents to rate several statements in terms of their judgment about the presence and impact of several factors supporting and resisting the implementation of the accreditation process. The researcher asked the respondents to evaluate the same seventeen items in both questions using a Likert scale from 1 to 5. The higher the score assigned to these statements on the 5-point Likert scale, the higher the presence of the factor (survey question 5), and the higher the impact of this factor (survey question 7).

Table 26: Perception of the Extent of the Implementation of Planning Activities

PLANNING ACTIVITIES	AVERAGE EXTENT OF THEIR IMPLEMENTATION	RESPONDENTS [N]	AVERAGE EFFECTIVENESS	RESPONDENTS [N]
Steering Committee for the accreditation process	4.2	80	3.8	80
Organizational planning for the accreditation process	4.0	82	3.9	82
Communication System for accreditation information (E-mail / Document / Website / Formal Meetings / Informal Meetings)	3.6	82	3.5	82
Final Evaluation of the planning process for accreditation	3.4	82	3.3	82
Dealing with various groups inside and outside the university about accreditation issues	2.6	80	2.5	80
Open hearings as part of the accreditation process	2.5	80	2.4	80

In relation with the survey question 5, ten of the seventeen factors measure the resistance of the faculty to the implementation of the accreditation process and they are based on the research about American accreditation and assessment implementation in postsecondary institutions. Four of these statements were formulated in a way that the higher the score, the higher the presence, and the lower the resistance. The responses to these items were recoded so the response present

to extensive extent is assigned the value 1 and the response not present at all is assigned the value 5. Table 27 shows the responses to these ten items and the percentage in each part of the scale in relation with the total respondents for each item. Three resistance factors were mainly rated as present to large extent, three were mainly rated as present to average extent; three factors were mainly rated as present in small extent; and one factor was mainly rated as not present at all.

The three resistance factors rated mainly as present to a large extent are: preparing the self study with 37.8% of the respondents as present in large extent; local administrative restrictions on how the accreditation process must be implemented with 31.7% of the respondents as present in large extent; and the perception of the accreditation process as a threat to your school with 28.0% of the respondents as present in large extent.

The three resistance factors rated mainly as present to average extent are: different perceptions and goals between faculty and academic administrators with 42.7% as present to average extent; faculty concerns about possible uses of the information collected during the accreditation process with 32.9% of the respondents as present to average extent; and allocated budget to the accreditation process with 29.3% of the respondents as present to average extent.

The three resistance factors rated mainly as present to small extent are: collaborative approaches to engage faculty in the accreditation process with 41.5% of the respondents as present to small extent; faculty fears they will loss control over the curriculum with 40.2% of the respondents as present to small extent; and general trust in university administration by faculty with 32.9% of the respondents as present to small extent. The only resistance factors rated mainly as not present at all is preparing the self study with 46.3% of the respondents as not present at all.

Table 27: Rating of Resistance Factors to the Accreditation Process

Resistance Factors	Don't know	Not present at all	Present to small extent	Present to average extent	Present in large extent	Present to extensive extent	Average Score
Preparing the self study	2	2	8	24	31	15	3.5
	2.4%	2.4%	9.8%	29.3%	37.8%	18.3%	
Local administrative restrictions on how the accreditation process must be implemented	2	11	4	19	26	20	3.4
	2.4%	13.4%	4.9%	23.2%	31.7%	24.4%	
Allocated budget to the accreditation process	7	4	14	24	21	12	3.0
	8.5%	4.9%	17.1%	29.3%	25.6%	25.6%	
Different perceptions and goals between faculty and academic administrators	2	7	14	35	20	4	2.9
	2.4%	8.5%	17.1%	42.7%	24.4%	4.9%	
The perception of the accreditation process as a threat to your school	2	18	8	23	23	8	2.8
	2.4%	22.0%	9.8%	28.0%	28.0%	9.8%	
Faculty concerns about possible uses of the information collected during the accreditation process	4	8	27	27	14	2	2.5
	4.9%	9.8%	32.9%	32.9%	17.1%	2.4%	
Collaborative approaches to engage faculty in the accreditation process	2	10	34	21	15	0	2.4
	2.4%	12.2%	41.5%	25.6%	18.3%	0.0%	
Faculty fears they will loss control over the curriculum	7	12	33	20	8	2	2.2
	8.5%	14.6%	40.2%	24.4%	9.8%	2.4%	
General trust in university administration by faculty	2	20	27	25	6	2	2.2
	2.4%	24.4%	32.9%	30.5%	7.3%	2.4%	
Sustained attention by academic administrators	2	38	32	8	2	0	1.6
	2.4%	46.3%	39.0%	9.8%	2.4%	0.0%	

The other seven of the seventeen factors were used to measure the external and internal support to the implementation of the accreditation process and they are based on the research about

American accreditation and assessment implementation in postsecondary institutions. Four support factors were mainly rated as present in large extent or to extensive extent; one factor was mainly rated as present in average extent; and two factors were mainly rated as not present at all. Table 28 shows the responses to these seven items and the percentage in each part of the scale in relation with the total respondents for each item.

Four internal support factors were rated mainly as present in large extent or to extensive extent: publicly stated support to the accreditation process on the part of academic administrators with 48.8% of the respondents as present to extensive extent; increased interest in quality initiatives in higher education among faculty and administrators with 50.0% of the respondents as present in large extent, knowledge about quality in engineering schools by faculty and administrators with 47.6% of the respondents as present in large extent; and increased understanding of the need of change by faculty and administrators with 54.9% of the respondents rated it as present in large extent.

The only internal support factor rated as present in average extent was knowledge of the accreditation process by faculty and administrators (41.5% of the respondents rated this item as present to average extent). Finally, the two external support factors were rated mainly as not present at all: governmental pressure for accreditation of your school with 48.8% of the respondents as not present at all; and public perception of dissatisfaction with higher education in engineering with 56.1% of the respondents as not present at all.

Survey question 5 also asked respondents for other factors present at the school during the accreditation process. Table 29 shows a summary of other factors present during the accreditation process with the average score of their extent on the 5-point Likert scale and the number of respondents presenting them. Respondents provide additional information that most of

them could be included in the existing categories of internal support, external support, and resistance to the implementation of the accreditation process in the area of cultural resistance. Respondents also mentioned a list of actions more related to the actions to overcome the resistance (to implement collaborative strategies to increase student participation), the current status of accreditation (waiting for the accreditation process), and the consequences of the faculty resistance to the accreditation process (faculty does not want to participate in the accreditation process or allocate hours for helping with the accreditation process). These actions were excluded from the analysis. Among the other factors whose presence was evaluated there are two that could be added to the category of internal support: student participation in the accreditation process; and students do not want to lose the earned credits. A third other factor could be added to the category of resistance to the implementation of the accreditation process: students and senior administrators have different perspectives about the accreditation; (see appendix I for further information)

In relation with the survey question 7, respondents rated the ten resistance factors and the seven success factors mentioned in survey question 5. Four of these statements were formulated in a way that the higher the score, the higher the impact, and the lower the resistance. The responses to these items were recoded so the response very large impact is assigned the value 1 and the response no impact all is assigned the value 5. Table 31 shows the responses to these ten items and the percentage in each part of the scale in relation with the total respondents for each item.

For the resistance factors, only three of them were rated with an average value between three (neutral) and four (large impact): preparing the self study with an average value of 3.7 (a 70.7% of the respondents rated it as making a large impact); local administrative restrictions on

how the accreditation process must be implemented with an average value of 3.5 (a 42.7% of the respondents rated it as making a large impact); and allocated budget to the accreditation process with an average value of 3.1 (a 28% of the respondents rated it as making a small impact). Other six factors were rated with an average value between two (small impact) and three (neutral): the perception of the accreditation process as a threat to your school with an average value of 2.7 (a 26.8% of the respondents rated it as making a small impact); different perceptions and goals between faculty and academic administrators with an average value of 2.7 (a 32.9% of the respondents rated it as making a neutral impact); collaborative approaches to engage faculty in the accreditation process with an average value of 2.5 (a 59.8% of the respondents rated it as making a small impact); general trust in university administration by faculty with an average value of 2.5 (a 53.7% of the respondents rated it as making a small impact); and faculty fears they will loss control over the curriculum with an average value of 2.1 (a 31.7% of the respondents rated it as making no impact at all). Finally, there is only one resistance factor rated with an average value between one (no impact at all) and two (small impact): sustained attention by academic administrators with an average value of 1.9 (a 63.4% of the respondents rated it as making small impact).

In relation with the success factors, Table 31 shows the responses to these seven items and the percentage in each part of the scale in relation with the total respondents for each item. The two external success factors were mainly rated as making no impact at all: governmental pressure for accreditation of your school with 43.9% of the respondents as making not impact at all; and public perception of dissatisfaction with higher education in engineering with 52.5% of the respondents rated it as making not impact at all.

Table 28: Rating of the Internal and External Success Factors for the Accreditation Process

Internal and External Success Factors	Don't know	Not present at all	Present to small extent	Present to average extent	Present in large extent	Present to extensive extent	Average Score
Publicly stated support to the accreditation process on the part of academic administrators	4 4.9%	4 4.9%	6 7.3%	8 9.8%	20 24.4%	40 48.8%	3.9
Increased understanding of the need of change by faculty and administrators	2 2.4%	2 2.4%	0 0.0%	21 25.6%	45 54.9%	12 14.6%	3.7
Increased interest in quality initiatives in higher education among faculty and administrators	2 2.4%	4 4.9%	4 4.9%	13 15.9%	41 50.0%	18 22.0%	3.7
Knowledge about quality in engineering schools by faculty and administrators	5 6.1%	4 4.9%	2 2.4%	24 29.3%	39 47.6%	8 9.8%	3.3
Knowledge of the accreditation process by faculty and administrators	2 2.4%	2 2.4%	10 12.2%	34 41.5%	28 34.1%	6 7.3%	3.2
Governmental pressure for accreditation of your school	8 9.8%	40 48.8%	6 7.3%	8 9.8%	6 7.3%	14 17.1%	2.0
Public perception of dissatisfaction with higher education in engineering	2 2.4%	46 56.1%	14 17.1%	12 14.6%	8 9.8%	0 0.0%	1.7

For the other five internal success factors, one was mainly rated as making a large impact: publicly stated support to the accreditation process on the part of academic with 52.4% of the respondents as making a large impact. The remaining four internal success factors were mainly rated as making a large impact: increased interest in quality initiatives in higher education among

faculty and administrators with 61.0% of the respondents as making a large impact; knowledge of the accreditation process by faculty and administrators with 43.9% of the respondents as making a large impact; knowledge about quality in engineering schools by faculty and administrators with 46.3% of the respondents as making a large impact; and the increased understanding of the need of change by faculty and administrators with 63.4% of the respondents as making a large impact.

Table 29: Extent of Other Factors Present during the Accreditation Process

Other Factors and their Extent		Respondents [n]	Average Score
Related to the internal support to the accreditation process			
Factors present in the American experience		2	4.0
Factors not present in the American experience	Student participation in the accreditation process	1	4.0
	Students do not want to lose the earned credits	1	4.0
Related to the external support to the accreditation process			
Factors present in the American experience		5	3.6
Related to the resistance to the implementation of the accreditation process, specifically the cultural resistance			
Factors present in the American experience		5	4.8
Factors not present in the American experience	Students and senior administrators have different perspectives about the accreditation	1	3.0

Table 30: Rating of the Impact of the Resistance Factors to the Accreditation Process

Resistance Factors	Don't know	No impact at all	Small impact	Neutral	Large impact	Very large impact	Average Score
	0	2	8	10	58	4	3.7
Preparing the self study	0.0%	2.4%	9.8%	12.2%	70.7%	4.9%	
Local administrative restrictions on how the accreditation process must be implemented	0	6	10	17	35	14	3.5
	0.0%	7.3%	12.2%	20.7%	42.7%	17.1%	
Allocated budget to the accreditation process	3	6	23	16	16	18	3.1
	3.7%	7.3%	28.0%	19.5%	19.5%	22.0%	
The perception of the accreditation process as a threat to your school	0	16	22	20	16	8	2.7
	0.0%	19.5%	26.8%	24.4%	19.5%	9.8%	
Different perceptions and goals between faculty and academic administrators	0	13	22	27	18	2	2.7
	0.0%	15.9%	26.8%	32.9%	22.0%	2.4%	
Collaborative approaches to engage faculty in the accreditation process	0	4	49	12	15	2	2.5
	0.0%	4.9%	59.8%	14.6%	18.3%	2.4%	
General trust in university administration by faculty	2	4	44	20	10	2	2.5
	2.4%	4.9%	53.7%	24.4%	12.2%	2.4%	
Faculty concerns about possible uses of the information collected during the accreditation process	2	24	23	21	8	4	2.3
	2.4%	29.3%	28.0%	25.6%	9.8%	4.9%	
Faculty fears they will loss control over the curriculum	5	26	20	23	4	4	2.1
	6.1%	31.7%	24.4%	28.0%	4.9%	4.9%	
Sustained attention by academic administrators	0	20	52	10	0	0	1.9
	0.0%	24.4%	63.4%	12.2%	0.0%	0.0%	

Survey question 7 also asks respondents for the extent of the impact of other factors present at the school during the accreditation process. Table 32 shows a summary of other planning activities implemented with the average score of their impact on the 5-point Likert scale and the number of respondents presenting them. Respondents provide additional information that most of them could be included in the existing categories of internal support, external support, and resistance to the implementation of the accreditation process in the areas of cultural resistance and organizational barriers. Respondents did not mentioned actions more related to the actions to

overcome the resistance (to implement collaborative strategies to increase student participation), the current status of accreditation (waiting for the accreditation process), and the consequences of the faculty resistance to the accreditation process (faculty does not want to participate in the accreditation process or allocate hours for helping with the accreditation process) like in survey question 5. But most of the other factors evaluated as to their extent of impact on the accreditation process do not match the other factors mentioned in survey question 5 (eleven of fourteen factors mentioned). Among the other factors whose impact was evaluated there were two that could be added to the category of internal support: opportunity to develop the institutional self-esteem and faculty self-esteem as a driver for obtaining accreditation status.

Table 31: Rating of the Impact of the Internal and External Success Factors for the Accreditation Process

Internal and External Success Factors	Don't know	No impact at all	Small impact	Neutral	Large impact	Very large impact	Average Score
Increased interest in quality initiatives in higher education among faculty and administrators	3	2	2	13	50	12	3.7
	3.7%	2.4%	2.4%	15.9%	61.0%	14.6%	
Publicly stated support to the accreditation process on the part of academic administrators	2	4	6	11	43	16	3.7
	2.4%	4.9%	7.3%	13.4%	52.4%	19.5%	
Increased understanding of the need of change by faculty and administrators	2	4	6	12	52	6	3.5
	2.4%	4.9%	7.3%	14.6%	63.4%	7.3%	
Knowledge about quality in engineering schools by faculty and administrators	0	7	8	21	38	6	3.3
	0.0%	8.5%	9.8%	25.6%	46.3%	7.3%	
Knowledge of the accreditation process by faculty and administrators	5	4	16	19	36	2	3.0
	6.1%	4.9%	19.5%	23.2%	43.9%	2.4%	

Table 31 (continued)

Internal and External Success Factors	Don't know	No impact at all	Small impact	Neutral	Large impact	Very large impact	Average Score
Governmental pressure for accreditation of your school	6	36	12	10	14	4	2.0
	7.3%	43.9%	14.6%	12.2%	17.1%	4.9%	
Public perception of dissatisfaction with higher education in engineering	2	42	14	14	8	0	1.8
	2.5%	52.5%	17.5%	17.5%	10.0%	0.0%	

Table 32: Impact of Other Factors Present during the Accreditation Process

Other Factors and their Impact			Respondents [n]	Average Score
Related to the internal support to the accreditation process				
Factors present in the American experience			3	4
Factors not present in the American experience	Student participation in the accreditation process		1	2
	Opportunity to develop the institutional self-esteem and		1	5
	Faculty self-esteem as a driver for obtaining accreditation status		1	5
	Students do not want to lose the earned credits		N/R	N/A
Related to the external support to the accreditation process				
Factors present in the American experience			2	3
Related to the resistance to the implementation of the accreditation process:				
Cultural resistance	Factors present in the American experience		4	4
	Factors not present in the American experience	Students and senior administrators have different perspectives about the accreditation	N/R	N/A
Organizational barriers	Factors present in the American experience		2	5

4.2.6 Summary of Forces Supporting and Resisting the Accreditation Process

Survey questions 5 and 7 allowed the respondents to rate ten resistance factors and the seven success factors founded in the American accreditation experience. In the Argentine experience, the three top resistance factors to the accreditation process are those related to cultural resistance (CR) (preparing the self study organizational barriers); organizational barriers (OB) (local administrative restrictions on how the accreditation process must be implemented;) and cultural resistance); and threats to power and influence (P&I) (allocated budget to the accreditation process). Table 33 provides a list of the resistance factors with their average presence, impact and the number of respondents. The success factors with the higher impact are the internal ones. The external success factors have the lower impact in the accreditation process. Table 34 provides a list of the success factors with their average presence, impact and the number of respondents.

Also, few respondents provided new success factors that reflect the special characteristics of the Argentine accreditation process: students and senior administrators have different perspectives about the accreditation; student participation in the accreditation process; opportunity to develop the institutional self-esteem; faculty self-esteem as a driver for obtaining accreditation status; and students do not want to lose the earned credits. Table 35 provides a list of the specific success factors for the Argentine accreditation process with their average presence, impact and the number of respondents.

Table 33: Rating of Resistance Factors to the Accreditation Process

Resistance Factors	Average Presence	Respondents [n]	Average Impact	Respondents [n]
Preparing the self study (CR)	3.5	82	3.7	82
Local administrative restrictions on how the accreditation process must be implemented (OB)	3.4	82	3.5	82
Allocated budget to the accreditation process (P&I)	3.0	82	3.1	82
Different perceptions and goals between faculty and academic administrators (OB)	2.9	82	2.7	82
The perception of the accreditation process as a threat to your school (P&I)	2.9	82	2.7	82
Faculty concerns about possible uses of the information collected during the accreditation process (DP)	2.6	82	2.7	82
Collaborative approaches to engage faculty in the accreditation process (OB)	2.4	82	2.5	82
General trust in university administration by faculty (CR)	2.2	82	2.7	82
Faculty fears they will loss control over the curriculum (P&I)	2.2	82	2.1	82
Sustained attention by academic administrators (OB)	1.6	82	1.9	82

Table 34: Rating of Success Factors for the Accreditation Process

Success Factors	Average Presence	Respondents [n]	Average Impact	Respondents [n]
Publicly stated support to the accreditation process on the part of academic administrators (IS)	3.9	82	3. 7	82
Increased understanding of the need of change by faculty and administrators (IS)	3.7	82	3.5	82
Increased interest in quality initiatives in higher education among faculty and administrators (IS)	3.7	82	3.7	82
Knowledge about quality in engineering schools by faculty and administrators (IS)	3.4	82	3.4	80
Knowledge of the accreditation process by faculty and administrators (IS)	3.2	82	3.0	82
Governmental pressure for accreditation of your school (ES)	2.0	82	2.0	82
Public perception of dissatisfaction with higher education in engineering (ES)	1.7	82	1.8	80

Table 35: Rating of Specific Success Factors for the Argentine Accreditation Process

Specific Argentine Success Factors	Average Presence	Respondents [n]	Average Impact	Respondents [n]
Student participation in the accreditation process	1	4	2	1
Opportunity to develop the institutional self-esteem	N/R	N/R	5	1
Faculty self-esteem as a driver for obtaining accreditation status	N/R	N/R	5	1
Students do not want to lose the earned credits	1	4	N/A	N/R

4.2.7 Importance of the Accreditation Criteria for the Accreditation Process

Survey question 6 asked respondents to rate several statements in terms of their judgment about the importance of the different accreditation criteria in the accreditation standards. The researcher asked the respondents to evaluate the five general accreditation criteria using a Likert scale from 1 to 5. The higher the score assigned to these statements on the 5-point Likert scale, the higher the importance of the criteria. Table 36 shows the perception of the respondents about the importance of the accreditation criteria in each part of the scale and its relation with the total number of respondents for each criterion.

All the five accreditation criteria were rated as essential or with great importance but the percentage of the respondents rating the accreditation criteria as essential or the great importance was different for each criteria. The criteria with the highest perception about their importance were infrastructure and laboratories with 50.0% of the respondents as essential; institutional context with 46.3% of the respondents as essential; and curricula and professional preparation with 51.3% of the respondents as essential. The criterion related to faculty was rated as 53.7% as the great importance. Finally, the criterion related to students and alumni was rated as 65.9% as the great importance.

4.2.8 Summary of the Importance of the Accreditation Criteria for the Accreditation Process

Not all the five accreditation criteria were rated with the same importance. The average perception of the respondents provides the following ranking in importance: infrastructure and

laboratories (mean = 4.4); curricula and professional preparation (mean = 4.3); institutional context (mean = 4.3); faculty (mean = 4.2); and students and alumni (mean = 3.9).

Table 36: Importance of the Accreditation Criteria for the Argentine Accreditation Process

Accreditation Criteria	Don't know	Not important at all	Minor Importance	Average Importance	Great Importance	Essential	Average Score
V. Infrastructure and Laboratories	0	0	2	4	34	40	4.4
	0.0%	0.0%	2.5%	5.0%	42.5%	50.0%	
II. Curricula and Professional Preparation	0	2	2	6	29	41	4.3
	0.0%	2.5%	2.5%	7.5%	36.3%	51.3%	
I. Institutional Context	2	0	0	8	33	37	4.3
	2.5%	0.0%	0.0%	10.0%	41.3%	46.3%	
III. Faculty	0	0	0	11	44	27	4.2
	0.0%	0.0%	0.0%	13.4%	53.7%	32.9%	
IV. Students and Alumni	0	0	4	12	54	12	3.9
	0.0%	0.0%	4.9%	14.6%	65.9%	14.6%	

4.2.9 Identification of Problems During the Accreditation Process

Survey question 8 asked the respondents about the presence of problems during the accreditation process. The analysis of the 80 responses to this question (there were 2 missing) shows that 65% of the respondents consider the existence of problems during the accreditation process; and 35% of the respondents says there were no problems during the accreditation process.

In order to explore the problems during the accreditation process, survey question 9 - an open question - asked the respondents about one or more important problems that need to be addressed in future accreditation cycles. Respondents provided around seventy entries to survey question 9 addressing several problems detected during the accreditation process. These entries were mainly categorized and organized following the steps of the accreditation process for undergraduate engineering majors in the Argentine Republic. Some entries address problems with the performance of the academic administrators. A category was added to include these entries. Other entries refer to recommendations to improve the profile of the institution or the evaluation of actions for improving the institution. Those entries are not related to the question and were removed from the analysis. Table 37 shows the final list of categories and subcategories used to analyze the more important problems that need to be addressed in future accreditation cycles (see appendix K for further reference).

In relation with the first category proposed to analyzed the more important problems reported during the accreditation process, the respondents addressed the competency of the academic administrators in terms of their knowledge of the accreditation process (2 entries); the absence of adequate communication system about the accreditation activities (1 entry); the absence of collaborative strategies to integrate the personnel of the institution to the accreditation

process (2 entries); and the no implementation of the recommended improvements by the members of the institution (1 entry).

The performance of the Peer Committee received strong critics related to their profile and the absence of knowledge about engineering schools (6 entries); and the absence of similar evaluation criteria (8 entries). The problems related to the preparation of the self-study address the need of organization improvement such as full time faculty, coordination of the different research groups, and the improvement of the laboratories to improve the teaching process (3 entries); the inadequacy of the software provided by the national accreditation body to submit the self-study (6 entries); the problems related to the preparation of the self-study like its complexity, the absence of related information, the short time to prepare the report, and the inadequate support from the national accreditation body (11 entries); the absence of adequate faculty participation due to the unfavorable working conditions (7 entries); the strong restrictions or absence of budget to carry on the accreditation process (3 entries); the attrition in the enrollment due to mainly inadequate internship opportunities (3 entries); and the absence of participation of the community close to the school or not adequate promotion of the applied research of the school and its impact in the community (2 entries).

The on-site evaluation problems are connected with the short time allocated for the peer committee to this step in the accreditation process (2 entries). At last, the problems related to the review of the information and actions of the accreditation body, address the accreditation criteria in terms of the absence of adequate budget to prepare the institution to fulfill the accreditation demands (3 entries) and no information about how the peer committee will evaluate the institution (2 entries); the inadequacy of the assessment (ACCEDE) and its timing (2 entries); and the no correlation between the accreditation status granted to the different schools and their

economic restrictions that limit their ability to match the quality level required by the national accreditation body (6 entries).

Table 37: List of Categories to Analyze the More Important Problems During the Accreditation Process

CATEGORIES	SUBCATEGORIES	ENTRIES
Academic Administrators		6
Designation of the Peer Committee and its acceptance	Performance of Peer Committee	14
Preparation of the Self-study	Organizational improvement	3
	Software to Submit Self-study	6
	Self-study report	11
	Faculty Participation	7
	Accreditation Budget	3
	Students	3
	Community	4
On-site evaluation		2
Review and action	Accreditation Criteria	5
	Assessment	2
	Accreditation Status	6
Periodic review		No entries
Right of Appeal		No entries

4.3 Different Perspectives of The Senior Administrators and Chairpersons Concerning the Importance, Effectiveness, Degree of Implementation, and Impact of the Current Accreditation Process

4.3.1 Importance of the Accreditation Process

Survey question 1 asked the respondents to rate several statements in terms of their judgment about the importance of the accreditation process for their school. The researcher asked the respondents to evaluate thirteen items using a Likert scale from 1 to 5. The higher the score assigned to these statements on the 5-point Likert scale, the more positive the response to the agreement with the statement.

Seven of the thirteen items are based on the research of Welsh and Metcalf (2003) who consider that the importance of the current stage in the American accreditation process for higher education institutions is related to the role of the accreditation process in improving the institution, the effort to evaluate the effectiveness of the institution, the time dedicated, the acceptance of accreditation by the personnel of the institution as a permanent quality initiative, the priority assigned to the accreditation process, the participation of the faculty, and the resources allocated toward its implementation. For these seven items, the higher the score assigned to these statements on the 5-point Likert scale, the higher the importance of the accreditation process. Table 38 shows the average mean for each population, the number of respondents, and the p values.

The analysis in section 4.2.1 showed that most of the respondents rated those items as agree or strongly agree (see Table 16 for further reference). A crosstabulation analysis provides the same information, that in section 4.2.1, about the perception of the importance of these factors discriminated by senior administrators and chairpersons. To determine if there is a significant difference between the perceptions of the importance of those items between senior administrators and department chairs, a two sided t-test was applied with $\alpha = .05$. The null hypothesis says there is no difference between the two population means. The alternative hypothesis says that there is a mean difference between the perception of the importance of those

items for senior administrators and for department chairs. The conditions to apply a two sample test were verified: 1) both samples are relatively large ($n_{\text{senior administrators}} = 31$; $n_{\text{department chairpersons}} = 51$); and 2) the Levene's test for Equality of Variances was applied to determine that both populations from which the samples were selected have the same variance because it is the standard test for SPSS® Version 14.0. The data were sorted by the p-value in descending order. Only one factor of these seven shows a significant difference between senior administrators and department chairs: Accreditation is not a fad. Figure 4 shows the boxplot of the perceptions of this factor and how the medians fall in opposite directions.

Two other of the thirteen items are based on the American accreditation experience and measure the importance of the accreditation process in terms of its impact by triggering other quality initiatives and increasing the cooperation between faculty and senior administrators. Table 39 shows the average mean for each population, the number of respondents, and the p values. For these two items, the higher the score assigned to these statements on the 5-point Likert scale, the higher the importance of the accreditation process in terms of its impact in the culture of the organization. To determine if there is a significant difference between the perception of the importance of those items between senior administrators and department chairs, a two sided t-test was applied with $\alpha = .05$. Under the same considerations that the other seven items, the analysis shows that there is no difference in their perception about the importance of these items.

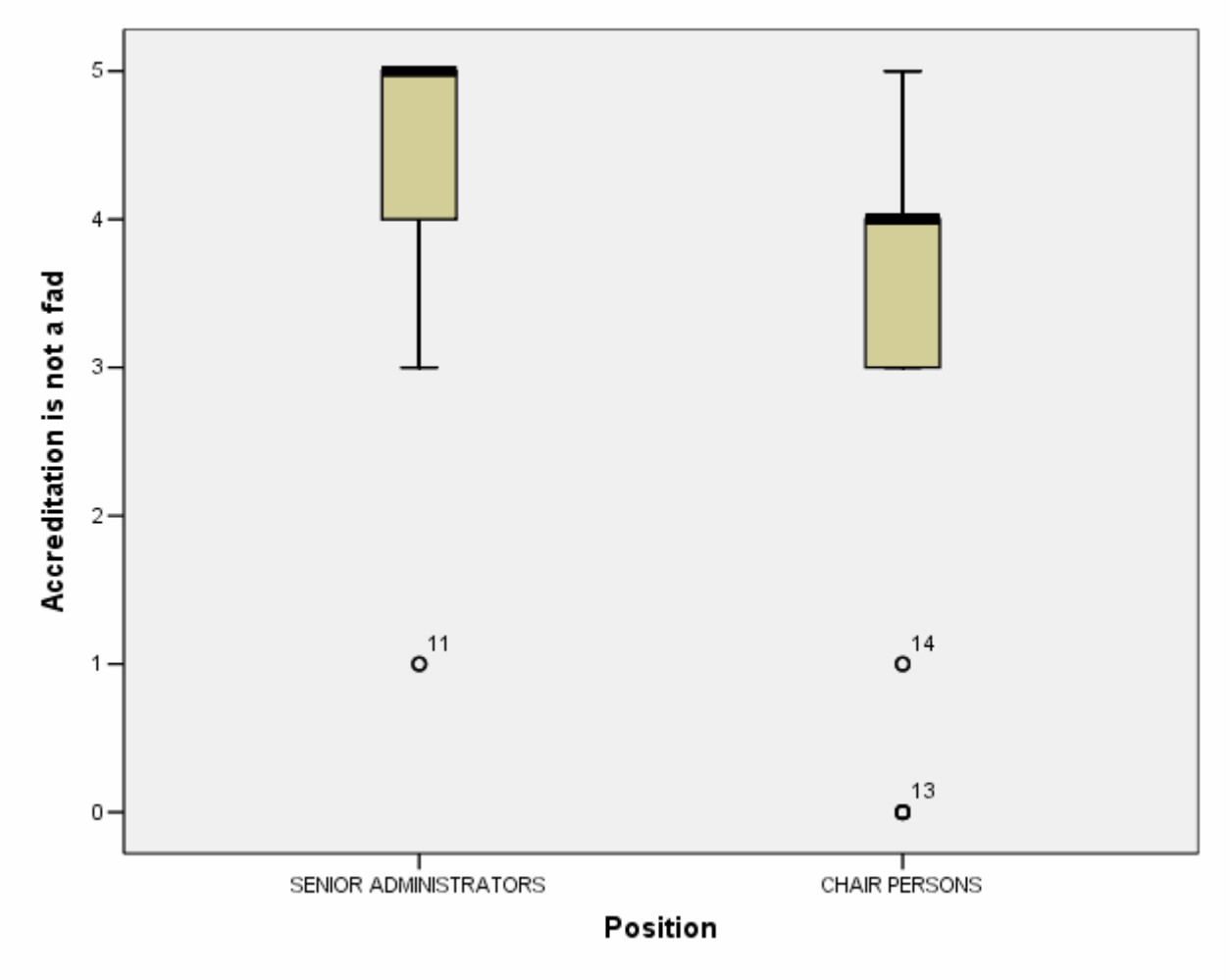

Figure 4: Perception of Senior Administrators and Chairpersons about Accreditation in not a Fad

Another of the thirteen items is also based on the American accreditation experience and measure the significance of the accreditation process in terms of the importance that respondents assign to the assessment process (which is part of the accreditation process). Table 40 shows the responses to this item and the percentage in each part of the scale in relation with the total respondent for the item. Table 41 shows the average mean for each population, the number of respondents, and the p value. Both respondents are strongly agree about its importance (senior academic administrators are 83.9% strongly agree and chair persons are 83.7% strongly agree).

To determine if there is a significant difference between the perception of the importance of this item between senior administrators and department chairs, a two sided t-test was applied with α = .05. Under the same considerations that the previous items, the analysis show that there is no difference in their perception about the importance of this item.

Table 38: Items in Survey Question 1 Directly Related to the Importance of the Accreditation Process

	Senior Administrators		Department Chairpersons			
	Mean	Respondents [n]	Mean	Respondents [n]	t	P values
Accreditation at our institution would be strengthened by more active participation of faculty members	4.68	31	4.69	51	-.051	.959
Accreditation activities are an important component of my job responsibilities	4.58	31	4.57	51	.061	.952
Efforts to evaluate the effectiveness of our institution are worthwhile	4.55	29	4.57	51	-.093	.926
Accreditation plays an important role in improving our institution	4.58	31	4.65	51	-.397	.693
Accreditation will continue to have a high priority in our institution	4.26	31	4.06	51	.610	.544
Resources dedicated to accreditation activities are investments in the long term health of our institution	4.52	31	4.65	51	-.781	.437
Accreditation is not a fad	4.26	31	3.53	51	2.301	.024

Table 39: Items in Survey Question 1 Directly Related to the Importance of the Accreditation Process

	Senior Administrators		Department Chairpersons			
	Mean	Respondents [n]	Mean	Respondents [n]	t	P values
Accreditation process has increased the cooperation between faculty and senior administrators	4.06	31	4.14	51	-.337	.737
Accreditation process often triggers the interest for other quality initiatives	4.10	31	4.20	49	-.478	.634

Table 40: Senior Administrators and Chairpersons' Perception of the Importance of Assessment

	Assessment plays an important role in improving our institution						
CATEGORY	DON'T KNOW	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE	Respondents [n]
Senior Administrators	0	2	0	0	3	26	31
	0%	6.5%	0%	0%	9.7%	83.9%	
Department Chairpersons	0	0	0	2	6	41	49
	0%	0%	0%	4.1%	12.2%	83.7%	

Table 41: Item in Survey Question 1 Related to the Importance of the Assessment

	Senior Administrators		Department Chairpersons			
	Mean	Respondents [n]	Mean	Respondents [n]	t	P values
Assessment plays an important role in improving our institution	4.7	31	4.8	49	-.884	.379

Finally, three of the thirteen items are also based on the American accreditation experience and measure the importance of the accreditation process in terms of its impact by triggering the resistance of the faculty to its implementation. For these three items, the higher the score assigned to these statements on the 5-point Likert scale, the higher will be the opposition to its implementation. To determine if there is a significant difference between the perception of the importance of these items between senior administrators and department chairs, a two sided t-test was applied with $\alpha = .05$. Under the same considerations that the previous items, the analysis show that there is no difference in their perception about the importance of two of the three items: accreditation restricts the academic freedom in our school, and accreditation budget have a negative impact on other more important activities. The difference arises when senior administrators and department chairs evaluate if accreditation demands more attention from senior administrators than other activities. More senior administrators disagree with this statement than chairpersons and the t-test indicates that the difference is statistically significant. Table 42 shows the responses to this item and the percentage in each part of the scale in relation with the total respondent for it. Table 43 shows the average mean for each population, the

number of respondents, and the p value for each item. Figure 5 shows the boxplot of the perceptions of this factor and how the distributions fall in opposite directions.

Table 42: Senior Administrators and Chairpersons' Perception about the Attention that Accreditation Demand

Factor	Accreditation demands more attention from senior administrators than other activities						
Category	DON'T KNOW	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE	Respondents [n]
Senior Administrators	0	2	4	6	19	0	31
	0%	6.5%	12.9%	19.4%	61.3%	0%	100%
Department Chairpersons	0	2	0	6	33	8	49
	0%	4.1%	0%	12.2%	67.3%	16.3%	100%

Table 43: Items in Survey Question 1 Directly Related to the Triggering of Some Resistance Factors to the Accreditation Process

	Senior Administrators		Department Chairpersons			
	Mean	Respondents [n]	Mean	Respondents [n]	t	P values
Accreditation restricts the academic freedom in our school	1.9	31	2.1	51	-.804	.424
Accreditation budget has a negative impact on other more important activities	2.7	31	2.6	51	-1.293	.200
Accreditation demands more attention from senior administrators than other activities	3.4	31	3.9	49	-2.829	.006

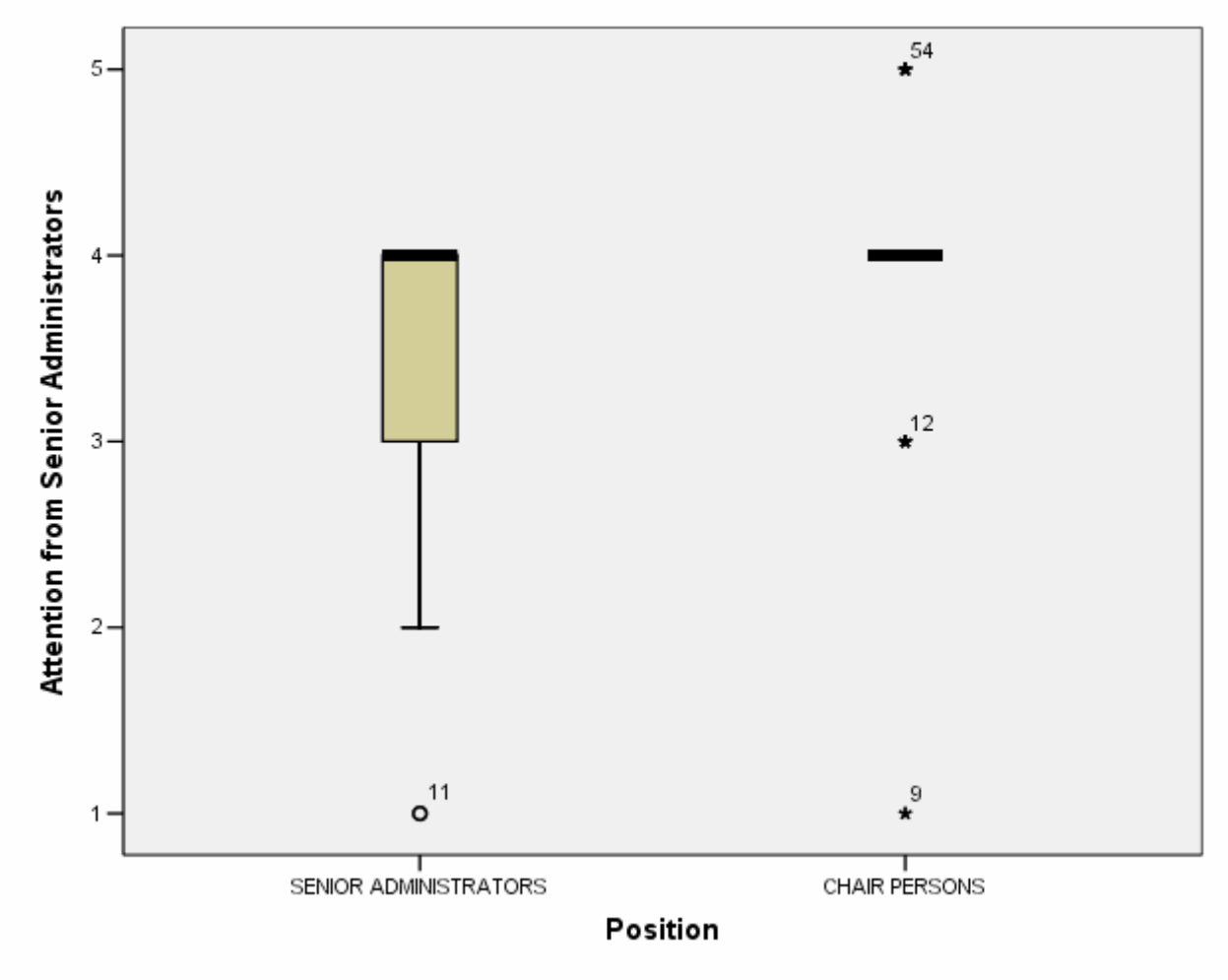

Figure 5: Perception of Senior Administrators and Chairpersons about the Demand of Attention of the Accreditation Process from Senior Administrators

Survey question 1 also asks to the respondents for other factors indicating the importance or impact of the accreditation process in the school. Senior academic administrators and chair persons have a common point of view about those other factors when they agree to accreditation improves the relationship and the communication with other higher education institution. Table 44 shows the summary of the factors mentioned by the respondents and the frequency

distribution by senior academic administrators and chair persons. For the other mentioned factors, there is a set of factors mentioned only for senior academic administrators and another one for chair persons. On one side, senior academic administrators focused on the public image of the institution as well as internal and external prejudices. On the other side, chair persons focused in the process itself such as accreditation indicators, peer evaluators, institutional reorganization and relationship with senior administrators, study plans, impact of the accreditation budget, and communication with other departments. Given the low number of respondents, it is not possible to evaluate any statistical difference.

Table 44: Other Impacts of the Accreditation Process Discriminated by Respondents

Category	Other Impacts of the Accreditation Process in the School	Respondents	
		Senior Academic Administrators	Chair persons
Senior Academic Administrators	Accreditation helps to end with internal prejudices and with the prejudices among higher education institutions	1	
	Accreditation generates a compromise from all the members of the institution	1	
	Accreditation improves the public image of the institution	1	
Senior Academic Administrators and Chair persons	Accreditation improves the relationship and the communication with other higher education institutions	1	2
Chair persons	Design of accreditation indicators impacted in the accreditation process		1
	Profile of peer evaluators impacted in the accreditation process		1
	Accreditation made academic administrators aware of the academic area of the school		1
	Accreditation demands a reorganization of the institution and/or departments		3
	Accreditation improves the relationship and the communication with other departments		1
	Accreditation assure same study plan for every major among the different schools		1
	Inadequate accreditation budget impact on other activities		2

4.3.2 Summary of the Importance of the Accreditation Process

The analysis of the differences between senior administrators and chairpersons about their perception about the importance of the accreditation process reveals that there are two items were the difference is statistically significant: accreditation is not a fad (p=.024) (one of the items for measuring the importance of the accreditation process) and accreditation demands more attention from senior administrators than other activities (p=.006) (one of the components of organizational barriers -one of the forces resisting change).

There is not significant difference between senior administrators and chairpersons in their perception about the other six items, based on the research of Welsh and Metcalf (2003), that measure the importance of the accreditation process: the role of the accreditation process in improving the institution, the effort to evaluate the effectiveness of the institution, the time dedicated, the priority assigned to the accreditation process, the participation of the faculty, and the resources allocated toward its implementation. Also, the analysis of the responses shows no difference in the perception the importance of the accreditation process in terms of its impact by triggering the resistance of the faculty to its implementation. The following two components of threats to power and influence –other force resisting change – were considered and also there is not significant difference: accreditation restricts the academic freedom in our school; and accreditation budget has a negative impact on other more important activities.

In addition, there is not significant difference between senior administrators and chairpersons in their perception about the significance of the accreditation process in terms of the importance that respondents assign to the assessment process (which is part of the accreditation process); and the value of the accreditation process in terms of its impact by triggering other quality initiatives and increasing the cooperation between faculty and senior administrators.

New factors for measuring the importance of the accreditation process in the Argentine case were identifying by the respondents: accreditation helps to end with internal prejudices and with the prejudices among higher education institutions; accreditation generates a compromise from all the members of the institution; accreditation improves the public image of the institution; accreditation improves the relationship and the communication with other higher education institutions; design of accreditation indicators impacted in the accreditation process; profile of peer evaluators impacted in the accreditation process; accreditation made academic administrators aware of the academic area of the school; accreditation demands a reorganization of the institution and/or departments; accreditation improves the relationship and the communication with other departments; and accreditation assure same study plan for every major among the different schools.

Senior academic administrators and chair persons have a common point of view about those other factors when they agree to accreditation improves the relationship and the communication with other higher education institution. In relation with the other impacts of the accreditation process in their schools, senior administrators and chairpersons look at different areas when trying to identify other impacts. On one side, senior academic administrators focused on the public image of the institution as well as internal and external prejudices. On the other side, chair persons focused in the process itself such as accreditation indicators, peer evaluators, institutional reorganization and relationship with senior administrators, study plans, and communication with other departments

4.3.3 Implementation of Planning Activities

Survey question 3 and 4 asked the respondents to rate several statements in terms of their judgment about the implementation of planning activities to support the accreditation process for their school and their effectiveness. The researcher asked the respondents to evaluate six items using a Likert scale from 1 to 5. The higher the score assigned to these statements on the 5-point Likert scale, the higher the level of the implementation of the planning activity, and the higher the effectiveness of this activity. Table 45 shows the average mean for each population, the number of respondents, and the p values.

In relation with survey question 3, the analysis in section 4.2.3, of the perceived level of implementation of the planning activities, shows the emphasis was not the same for all them. A crosstabulation analysis provides the same information about the perception of the importance of these factors discriminated by senior administrators and chairpersons. A 52% of the senior administrators and 37% of the chairperson respondents perceived the organizational planning as fully implemented. Also 45% of the senior administrators' respondents perceived the steering committee for the accreditation process as fully implemented, and 45% of the chairpersons' respondents perceived the steering committee for the accreditation process as moderately implemented.

Three other planning activities were perceived as almost fully implemented or moderately implemented: an 45% of the senior administrators respondents perceived the communication system for the accreditation information as fully implemented but 45% of the chairpersons respondents perceived the organizational planning as moderately implemented; a 45% of the senior administrators respondents perceived the dealing process with internal and external groups about accreditation issues as moderately implemented and 27% of the chairpersons the dealing process with internal and external groups about accreditation issues as

fully implemented; and a 35% of the senior administrators perceived the final evaluation of the planning process as almost fully implemented and 31% of the chairpersons respondents perceived the final evaluation of the planning process as almost fully implemented.

The less implemented of the planning activities were the open hearings as part of the accreditation process: 55% of senior administrators perceived the dealing process with internal and external groups about accreditation issues as moderately implemented, and 29% of the chairpersons perceived it as fully moderately implemented.

To determine if there is a significant difference between the perception of the importance of those items between senior administrators and department chairs, the same procedure as in section 4.3.1 was applied by the researcher. The data was sorted by the p-value in descending order. Three planning activities of the six show a significant difference between senior administrators and department chairs: communication system for accreditation information (E-mail/Document/Website/Formal Meetings / Informal Meetings) (p=.002); dealing with various groups inside and outside the university about accreditation issues (p=.008); and final evaluation of the planning process for accreditation (p=.028).

In relation with survey question 4, the analysis in section 4.2.3, of the perceived level of effectiveness of the planning activities to support the accreditation process, shows the emphasis was not the same for all them. A crosstabulation analysis provides almost the same results, that in section 4.2.3, about the perception of the effectiveness of these factors discriminated by senior administrators and chairpersons. Table 46 shows the average mean for each population, the number of respondents, and the p values.

Table 45: Analysis of the Difference in the Perception of the Extent of the Implementation of Planning Activities

Planning Activities for the Accreditation Process	Perception of the Extent of the Implementation					
	Senior Administrators		Department Chairpersons			
	Mean	Respondents [n]	Mean	Respondents [n]	t	P values
Open hearings as part of the accreditation process	2.6	29	2.5	51	.520	.605
Organizational planning for the accreditation process	4.3	31	3.9	51	1.822	.072
Steering Committee for the accreditation process	4.5	31	4.1	49	1.884	.063
Final Evaluation of the planning process for accreditation	3.8	31	3.2	51	2.235	.028
Dealing with various groups inside and outside the university about accreditation issues	3.1	29	2.3	51	2.720	.008
Communication System for accreditation information (E-mail / Document / Website / Formal Meetings / Informal Meetings)	4.1	31	3.4	51	3.243	.002

Sixty one percent of the senior administrator respondents perceived the organizational planning as very effective and 41% of the chairpersons perceived it as effective. Also a 45% of the senior administrators and 31% of the respondent chairpersons perceived the steering committee for the accreditation process as effective.

The other four planning activities were perceived mostly as effective or moderately effective: an 58% of the senior administrators and 35% of the chairpersons respondents perceived the communication system for the accreditation information as effective; a 48% of the senior administrators respondents perceived the dealing process with internal and external groups about accreditation issues as moderately effective but 37% of the chairpersons respondents perceived the dealing process with internal and external groups about accreditation issues as

moderately effective; a 32% of the senior administrators respondents perceived the opening hearing as part of the accreditation process as effective and 41% of the chairpersons perceived it as moderately effective; and a 71% of the senior administrators perceived the final evaluation of the planning process as effective and 37% of the chairpersons perceived it as moderately effective.

To determine if there is a significant difference between the perception of the effectiveness of those items between senior administrators and department chairs, the same procedure as in section 4.3.1 was applied by the researcher.. The data was sorted by the p-value in descending order. Four planning activities of the six show a significant difference between senior administrators and department chairs: communication system for accreditation information (E-mail/Document/Website/Formal Meetings / Informal Meetings) (p=.001); steering committee for the accreditation process (p=.012); dealing with various groups inside and outside the university about accreditation issues (p=.010); and final evaluation of the planning process for accreditation (p=.001).

Survey question 3 also asked respondents for the implementation of other planning actions to support the accreditation process. The few comments received were clustered in three main areas: 1) communication system; 2) actions to implement the accreditation process; and 3) negotiation with different groups. Table 47 shows the summary of the factors mentioned by the respondents and the frequency distribution by senior academic administrators and chair persons. Given the low number of respondents, it is not possible to evaluate any statistical difference.

Table 46: Analysis of the Difference in the Perception of the Effectiveness of the Implementation of Planning Activities

Planning Activities for the Accreditation Process	Perception of the Effectiveness of the Implementation					
	Senior Administrators		Department Chairpersons			
	Mean	Respondents [n]	Mean	Respondents [n]	t	P values
Open hearings as part of the accreditation process	2.5	31	2.5	51	.224	.823
Organizational planning for the accreditation process	4.1	31	3.8	51	1.834	.070
Steering Committee for the accreditation process	4.2	31	3.7	51	2.582	.012
Dealing with various groups inside and outside the university about accreditation issues	3.0	31	2.3	49	2.634	.010
Communication System for accreditation information (E-mail/Document/Website/Formal Meetings / Informal Meetings)	4.0	31	3.2	51	4.018	.001
Final Evaluation of the planning process for accreditation	4.0	31	3.0	51	4.671	.001

In the first cluster, communication system, senior academic administrators and chair persons have different focus. Senior academic administrators were oriented toward students and administration personnel and chair persons were oriented toward other chair persons and the senior academic administrators. Also, senior academic administrators reported a higher level of implementation than chair persons.

In relation with the actions to implement the accreditation process, two actions were reported for senior academic administrators and chair persons: accreditation training for faculty and preparation of students for ACCEDE. But while both reported fully implementation for the

preparation of students for ACCEDE; they reported different level of implementation for the accreditation training for faculty. Senior academic administrators reported fully implementation and chair persons reported almost not implemented. Other two actions were only reported by chair persons with a high level of achievement: implementation of information system to collect the accreditation information and study plan improvements.

Finally, in the process of negotiation with different groups, one action was reported only for senior academic administrators: students and faculty survey (as fully implemented). Other action was reported for senior academic administrators and chair persons: coordination of action plan with other schools (senior academic administrators reported fully implementation and chair persons reported moderately implemented). Finally, two other actions were reported only for chairpersons as almost fully implemented: Alumni participation and Student participation.

Survey question 4 also asked for the effectiveness of other planning activities implemented to support the accreditation process. Only few other planning activities mentioned in this survey questions by the respondents match those mentioned in survey question 3. Also, other planning activities were mentioned in this survey question but not mentioned in survey question 3. Despite of this mismatch, all the other planning activities may be included in the three general categories used for survey question 3: communication system for accreditation information; dealing with various groups inside and outside the university; and actions to implement the accreditation process. Given the low number of respondents and the mismatch in the evaluation of their effectiveness, it is not possible to assess any statistical difference.

Table 47: Other Planning Activities for the Accreditation Process Discriminated by Respondents

Category	Other Planning Activities and Actions to Support the Accreditation Process in the School	Respondents and Mode	
		Senior Academic Administrators	Chair persons
Communication System	To inform students and administrative personnel about the accreditation process	1 [ALMOST FULLY IMPLEMENTED]	
	Meeting with senior academic administrators, other chair persons and faculty		2 [MODERATELY IMPLEMENTED]
Actions to implement the accreditation process	Accreditation training for faculty	1 [FULLY IMPLEMENTED]	1 [ALMOST NOT IMPLEMENTED]
	Preparation of students for ACCEDE [Analysis of Content of Curricula and Knowledge that Students really have].	1 [FULLY IMPLEMENTED]	1 [FULLY IMPLEMENTED]
	Implementation of information system to collect the accreditation information		2 [ALMOST FULLY IMPLEMENTED]
	Study plan improvements		4 [FULLY IMPLEMENTED]
Negotiation with different groups	Students and faculty survey	1 [FULLY IMPLEMENTED]	
	Coordination of action plan with other schools	2 [ALMOST FULLY IMPLEMENTED]	1 [MODERATELY IMPLEMENTED]
	Alumni participation		1 [ALMOST FULLY IMPLEMENTED]
	Students participation		1 [ALMOST FULLY IMPLEMENTED]

4.3.4 Summary of the Implementation of Planning Activities and their Effectiveness

The perception of the implementation of three planning activities of the six ones shows a significant difference between senior administrators and department chairs. Table 48 shows the mean and the number of respondents for each category for the six planning activities considered. Communication system for accreditation information (E-mail/Document/Website/Formal Meetings / Informal Meetings) with $mean_{senior\_administrators} = 4.1$ and $mean_{department\_chairpersons} = 3.4$ (p=.002); dealing with various groups inside and outside the university about accreditation issues with $mean_{senior\_administrators} = 3.1$ and $mean_{department\_chairpersons} = 2.3$ (p=.008); and final evaluation of the planning process for accreditation with $mean_{senior\_administrators} = 3.8$ and $mean_{department\_chairpersons} = 3.2$ (p=.028). There is not significant difference between senior administrators and department chairs in their perception about the implementation of the organizational planning for the accreditation process, steering committee for the accreditation process, and open hearings as part of the accreditation process.

Also, the perception of the effectiveness of four planning activities of the six ones shows a significant difference between senior administrators and department chairs: communication system for accreditation information (E-mail/Document/Website/Formal Meetings / Informal Meetings) with $mean_{senior\_administrators} = 4.1$ and $mean_{department\_chairpersons} = 3.8$ (p=.001); steering committee for the accreditation process with $mean_{senior\_administrators} = 4.1$ and $mean_{department\_chairpersons} = 3.7$ (p=.012); dealing with various groups inside and outside the university about accreditation issues with $mean_{senior\_administrators} = 3.00$ and $mean_{department\_chairpersons} = 2.3$ (p=.010); and final evaluation of the planning process for accreditation with $mean_{senior\_administrators} = 4.0$ and $mean_{department\_chairpersons} = 3.0$ (p=.001). There is not significant difference between senior administrators and department chairs in their perception about the

effectiveness of organizational planning for the accreditation process, and open hearings as part of the accreditation process.

Table 48: Mean Respondents of the Perception of the Implementation and Effectiveness of the Planning Activities

Category	Senior administrator				Chairpersons			
Planning Activity	**Implementation**	**n**	**Effectiveness**	**n**	**Implementation**	**n**	**Effectiveness**	**n**
Organizational planning for the accreditation process	4.3	31	4.1	31	3.9	51	3.8	51
Communication System for accreditation information (E-mail/Document/ Website/Formal Meetings / Informal Meetings)	4.1	31	4.0	31	3.4	51	3.2	51
Steering Committee for the accreditation process	4.5	31	4.2	31	4.1	49	3.7	51
Dealing with various groups inside and outside the university about accreditation issues	3.1	29	3.0	31	2.3	51	2.3	51
Open hearings as part of the accreditation process	2.6	29	2.5	31	2.5	51	2.5	51
Final Evaluation of the planning process for accreditation	3.8	31	4.0	31	3.2	51	3.0	51

4.3.5 Forces Supporting and Resisting the Accreditation Process

Survey question 5 and 7 asked the respondents to rate several statements in terms of their judgment about the presence and impact of several factors supporting and resisting the implementation of the accreditation process. The respondents were asked to evaluate the same seventeen items in both questions using a Likert scale from 1 to 5. The higher the score assigned to these statements on the 5-point Likert scale, the higher the presence of the factor (survey question 5), and the higher the impact of this factor (survey question 7). Table 49 shows the average mean for each population, the number of respondents, and the p values for the ten resistance factors. Table 50 shows the average mean for each population, the number of respondents, and the p values for the seven success factors.

In relation with survey question 5, the analysis in section 4.2.5, of the perceived level of the presence of several factors supporting and resisting the implementation of the accreditation process, shows almost the same pattern that a crosstabulation analysis provides for the perception of senior administrators and chairpersons. To determine if there is a significant difference between the perception of the effectiveness of those items between senior administrators and department chairs, the same procedure used in section 4.3.1 was applied by the researcher. The data was sorted by the p-value in descending order.

The analysis of the perception of the ten resistance factors indicates there is no difference in the perception of their presence for senior administrators and chairpersons. The analysis of the perception of the presence of two external success factors and the five internal success factors shows a significant difference, between senior administrators and department chairs, in two internal success factors: Knowledge about quality in engineering schools by faculty and administrators with $mean_{senior\_administrators} = 3.7$ and $mean_{department\_chairpersons} = 3.1$ ($p=.010$); and

increased interest in quality initiatives in higher education among faculty and administrators with $mean_{senior\_administrators}$ = 4.1 and $mean_{department\_chairpersons}$ = 3.5 (p=.007). There is not significant difference between senior administrators and department chairs in their perception about the presence of the other success factors: governmental pressure for accreditation of your school; increased understanding of the need of change by faculty and administrators; public perception of dissatisfaction with higher education in engineering; knowledge of the accreditation process by faculty and administrators; and publicly stated support to the accreditation process on the part of academic administrators.

Survey question 5 also asked the respondents for other factors present at the school during the accreditation process. Table 51 shows the summary of the factors mentioned by the respondents and the frequency distribution by senior academic administrators and chair persons. Given the low number of respondents, it is not possible to evaluate any statistical difference. Respondents provide additional information that most of them could be included in the existing categories of internal support, external support, and resistance to the implementation of the accreditation process in the area of cultural resistance. Respondents also mentioned a list of actions more related to the actions to overcome the resistance (to implement collaborative strategies to increase student participation), the current status of accreditation (waiting for the accreditation process), and the consequences of the faculty resistance to the accreditation process (faculty does not want to participate in the accreditation process or allocate hours for helping with the accreditation process). These actions were excluded from the analysis. Among the other factors whose presence was evaluated there are two that could be added to the category of internal support: student participation in the accreditation process; and students do not want to lose the earned credits. A third other factor could be included into the category of resistance to

the implementation of the accreditation process: students and senior administrators have different perspectives about the accreditation.

Table 49: Analysis of the Difference in the Perception of the Presence of Resistance Factors.

Resistance Factors	Senior Administrators		Department Chairpersons		t	P values
	Mean	Respondents [n]	Mean	Respondents [n]		
Faculty concerns about possible uses of the information collected during the accreditation process	2.6	31	2.5	51	.201	.841
Different perceptions and goals between faculty and academic administrators	2.9	31	3.0	51	-.361	.719
General trust in university administration by faculty	2.1	31	2.3	51	-.683	.496
Collaborative approaches to engage faculty in the accreditation process	2.4	31	2.5	51	-.729	.468
Sustained attention by academic administrators	1.6	31	1.7	51	-.761	.449
Faculty fears they will loss control over the curriculum	2.3	31	2.1	51	.901	.370
Preparing the self study	3.7	31	3.4	51	.960	.340
Allocated budget to the accreditation process	3.3	31	2.9	51	1.334	.186
The perception of the accreditation process as a threat to your school	2.6	31	3.1	51	-1.656	.102
Local administrative restrictions on how the accreditation process must be implemented	3.8	31	3.2	51	1.845	.069

Table 50: Analysis of the Difference in the Perception of Internal and External Success Factors.

Internal and External Success Factors	Senior Administrators		Department Chairpersons		t	P values
	Mean	Respondents [n]	Mean	Respondents [n]		
Governmental pressure for accreditation of your school	2.2	31	2.0	51	.368	.714
Increased understanding of the need of change by faculty and administrators	3.8	31	3.7	51	.558	.578
Public perception of dissatisfaction with higher education in engineering	1.8	31	1.7	51	.706	.482
Knowledge of the accreditation process by faculty and administrators	3.7	31	3.1	51	.998	.321
Publicly stated support to the accreditation process on the part of academic administrators	4.2	31	3.7	51	1.579	.118
Knowledge about quality in engineering schools by faculty and administrators	3.7	31	3.1	51	2.645	.010
Increased interest in quality initiatives in higher education among faculty and administrators	4.1	31	3.5	51	2.755	.007

Table 51: Differences in the Perception of the Extent of Other Factors Present during the Accreditation Process

Other Factors and their Extent		Respondents	
		Senior Academic Administrators	Chair persons
Related to the internal support to the accreditation process			
Factors present in the American experience		1	1
Factors not present in the American experience	Student participation in the accreditation process		1
	Students do not want to lose the earned credits		1
Related to the external support to the accreditation process			
Factors present in the American experience		2	3
Related to the resistance to the implementation of the accreditation process, specifically the cultural resistance			
Factors present in the American experience			5
Factors not present in the American experience	Students and senior administrators have different perspectives about the accreditation	1	

In relation with survey question 7, the analysis in section 4.2.5, of the perceived level of the impact of several factors supporting and resisting the implementation of the accreditation process, shows almost the same pattern that a crosstabulation analysis provides for the perception of senior administrators and chairpersons. Table 52 shows the average mean for each population, the number of respondents, and the p values for the ten resistance factors. Table 53 shows the average mean for each population, the number of respondents, and the p values for the seven success factors.

To determine if there is a significant difference between the perception of the effectiveness of those items between senior administrators and department chairs, the same procedure used in section 4.3.1 was applied by the researcher. The data was sorted by the p-value in descending order.

The analysis of the perception of the impact of the ten resistance factors shows a significant difference, between senior administrators and department chairs, in two resistance factors: the perception of the accreditation process as a threat to your school with $mean_{senior\_administrators} = 2.4$ and $mean_{department\_chairpersons} = 3.0$ ($p=.021$); and preparing the self study with $mean_{senior\_administrators} = 4.0$ and $mean_{department\_chairpersons} = 3.5$ ($p=.001$). The analysis of the perception of the impact of two external success factors and the five internal success factors indicates there is no difference in the perception of their impact in the accreditation process for senior administrators and chairpersons

Table 52: Analysis of the Difference in the Perception of the Impact of Resistance Factors.

Resistance Factors	Senior Administrators		Department Chairpersons			
	Mean	Respondents [n]	Mean	Respondents [n]	t	P values
Sustained attention by academic administrators	1.9	31	1.9	51	-.083	.934
Faculty concerns about possible uses of the information collected during the accreditation process	2.2	31	2.3	51	-.178	.859
Faculty fears they will loss control over the curriculum	2.0	31	2.1	51	-.306	.761
Local administrative restrictions on how the accreditation process must be implemented	3.4	31	3.6	51	-.700	.486
Different perceptions and goals between faculty and academic administrators	2.8	31	2.6	51	.818	.416
General trust in university administration by faculty	2.3	31	2.6	51	-1.160	.249
Allocated budget to the accreditation process	3.4	31	2.9	51	1.293	.200
Collaborative approaches to engage faculty in the accreditation process	2.3	31	2.7	51	-1.864	.066
The perception of the accreditation process as a threat to your school	2.4	31	3.0	51	-2.359	.021
Preparing the self study	4.0	31	3.4	51	3.718	.000

Survey question 7 also asked the respondents for the extent of the impact of other factors present at the school during the accreditation process. Table 54 shows the summary of the factors mentioned by the respondents and the frequency distribution by senior academic administrators and chair persons. Respondents provide additional information that most of them could be included in the existing categories of internal support, external support, and resistance to the implementation of the accreditation process in the areas of cultural resistance and organizational

barriers. Respondents did not mentioned actions more related to the actions to overcome the resistance (to implement collaborative strategies to increase student participation), the current status of accreditation (waiting for the accreditation process), and the consequences of the faculty resistance to the accreditation process (faculty does not want to participate in the accreditation process or allocate hours for helping with the accreditation process) like in survey question 5. But most of the other factors evaluated in their extent of their impact in the accreditation process do not match the other factors mentioned in survey question 5 (eleven of fourteen factors mentioned). Among the other factors whose impact was evaluated there are two that could be added to the category of internal support: opportunity to develop the institutional self-esteem and faculty self-esteem as a driver for obtaining accreditation status. Given the low number of respondents, it is not possible to evaluate any statistical difference.

Table 53: Analysis of the Difference in the Perception of the Impact of Internal and External Success Factors.

	Senior Administrators		Department Chairpersons			
Internal and External Success Factors	**Mean**	**Respondents [n]**	**Mean**	**Respondents [n]**	**t**	**P values**
Knowledge of the accreditation process by faculty and administrators	3.1	31	3.0	51	.301	.765
Increased interest in quality initiatives in higher education among faculty and administrators	3.8	31	3.7	51	.413	.681
Knowledge about quality in engineering schools by faculty and administrators	3.5	31	3.3	49	.682	.497
Increased understanding of the need of change by faculty and administrators	3.7	31	3.5	51	.930	.355
Governmental pressure for accreditation of your school	2.2	31	1.9	51	1.006	.318
Publicly stated support to the accreditation process on the part of academic administrators	3.9	31	3.5	51	1.557	.123
Public perception of dissatisfaction with higher education in engineering	2.1	31	1.6	49	1.984	.051

Table 54: Differences in the Impact of Other Factors Present during the Accreditation Process

Other Factors and their Impact		Respondents	
		Senior Academic Administrators	Chair persons
Related to the internal support to the accreditation process			
Factors present in the American experience		1	2
Factors not present in the American experience	Students and senior administrators have different perspectives about the accreditation	N/R	N/R
	Student participation in the accreditation process		1
	Opportunity to develop the institutional self-esteem and	1	
	Faculty self-esteem as a driver for obtaining accreditation status		1
	Students do not want to lose the earned credits	N/R	N/R
Related to the external support to the accreditation process			
Factors present in the American experience			2
Related to the resistance to the implementation of the accreditation process:			
Cultural resistance	Factors present in the American experience	2	2
Organizational barriers	Factors present in the American experience		2

4.3.6 Summary of the Difference in the Perception of the Forces Supporting and Resisting the Accreditation Process

Survey question 5 and 7 asked the respondents to rate several statements in terms of their judgment about the presence and impact of ten resistance factors and seven success factors of the accreditation process. Table 55 shows the mean and the number of respondents for each resistance force and Table 56 shows the mean and the number of respondents for each success factor. The analysis of the perception of the presence of the ten resistance factors indicates there is no difference in the perception for senior administrators and chairpersons. The analysis of the

perception of the presence of two external success factors and the five internal success factors shows a significant difference, between senior administrators and department chairs, in two internal success factors: Knowledge about quality in engineering schools by faculty and administrators with $mean_{senior\_administrators}$ = 3.7 and $mean_{department\_chairpersons}$ = 3.1 (p=.010); and increased interest in quality initiatives in higher education among faculty and administrators with $mean_{senior\_administrators}$ = 4.1 and $mean_{department\_chairpersons}$ = 3.5 (p=.007). There is not significant difference between senior administrators and department chairs in their perception about the presence of the other success factors: governmental pressure for accreditation of your school; increased understanding of the need of change by faculty and administrators; public perception of dissatisfaction with higher education in engineering; knowledge of the accreditation process by faculty and administrators; and publicly stated support to the accreditation process on the part of academic administrators.

The analysis of the perception of the impact of the ten resistance factors shows a significant difference, between senior administrators and department chairs, in two resistance factors: the perception of the accreditation process as a threat to your school with $mean_{senior\_administrators}$ = 2.4 and $mean_{department\_chairpersons}$ = 3.0 (p=.021); and preparing the self study with $mean_{senior\_administrators}$ = 4.0 and $mean_{department\_chairpersons}$ = 3.5 (p=.001). There is not significant difference between senior administrators and department chairs in their perception about the impact of the other resistance factors: general trust in university administration by faculty; sustained attention by academic administrators; faculty concerns about possible uses of the information collected during the accreditation process; allocated budget to the accreditation process; faculty fears they will loss control over the curriculum; local administrative restrictions on how the accreditation process must be implemented; different perceptions and goals between

faculty and academic administrators; and collaborative approaches to engage faculty in the accreditation process.

The analysis of the perception of the impact of two external success factors and the five internal success factors indicates there is no difference in the perception of their impact in the accreditation process for senior administrators and chairpersons. Survey question 5 and 7 also asks for the presence and impact of other factors present at the school during the accreditation process. Given the low number of respondents, it is not possible to evaluate any statistical difference.

Table 55: Number of Respondents and Mean Perception of the Presence and Impact of the Resistance Forces

Category	Senior administrator				Chairpersons			
Resistance Forces	**Presence**	**n**	**Impact**	**n**	**Presence**	**n**	**Impact**	**n**
Local administrative restrictions on how the accreditation process must be implemented	3.8	31	3.4	31	3.2	51	3.6	51
Preparing the self study	3.7	31	4.0	31	3.4	51	3.5	51
Allocated budget to the accreditation process	3.3	31	3.4	31	2.9	51	2.9	51
Different perceptions and goals between faculty and academic administrators	2.9	31	2.8	31	3.0	51	2.6	51
Faculty concerns about possible uses of the information collected during the accreditation process	2.6	31	2.2	31	2.5	51	2.3	51
The perception of the accreditation process as a threat to your school	2.6	31	2.4	31	3.1	51	3.0	51
Faculty fears they will loss control over the curriculum	2.3	31	2.0	31	2.1	51	2.1	51

Table 55 (continued)

Category	Senior administrator				Chairpersons			
Resistance Forces	**Presence**	**n**	**Impact**	**n**	**Presence**	**n**	**Impact**	**n**
Collaborative approaches to engage faculty in the accreditation process	2.4	31	2.3	31	2.5	51	3.0	51
General trust in university administration by faculty	2.1	31	2.3	31	2.3	51	2.6	51
Sustained attention by academic administrators	1.6	31	1.9	31	1.7	51	1.9	51

Table 56: Mean and Respondents by Category for the Perception of the Presence and Impact and of the Internal and External Success Factors

Category	Senior administrator				Chairpersons			
Internal and External Success Factors	**Presence**	**n**	**Impact**	**n**	**Presence**	**n**	**Impact**	**n**
Governmental pressure for accreditation of your school	2.2	31	2.2	31	2.0	51	1.9	51
Public perception of dissatisfaction with higher education in engineering	1.8	31	2.1	31	1.7	51	1.6	49
Publicly stated support to the accreditation process on the part of academic administrators	4.2	31	3.9	31	3.7	51	3.5	51
Increased interest in quality initiatives in higher education among faculty and administrators	4.1	31	3.8	31	3.5	51	3.7	51
Knowledge of the accreditation process by faculty and administrators	3.7	31	3.1	31	3.1	51	3.0	51
Knowledge about quality in engineering schools by faculty and administrators	3.7	31	3.5	31	3.1	51	3.3	49
Increased understanding of the need of change by faculty and administrators	3.8	31	3.7	31	3.7	51	3.5	51

4.3.7 Importance of the Accreditation Criteria of the Accreditation Process

Survey question 6 asked the respondents to rate several statements in terms of their judgment about the importance of the different accreditation criteria in the accreditation standards. The researcher asked the respondents to evaluate the five general accreditation criteria using a Likert scale from 1 to 5. The higher the score assigned to these statements on the 5-point Likert scale, the higher the importance of the criteria. Table 57 shows the average mean for each population, the number of respondents, and the p values for the five accreditation criteria.

To determine if there is a significant difference between the perception of the importance of those items between senior administrators and department chairs, the same procedure used in section 4.3.1 was applied by the researcher. The data was sorted by the p-value in descending order. The analysis of the perception of the importance of the accreditation criteria for the Argentine accreditation process shows a significant difference, between senior administrators and department chairs, in only one accreditation criterion: students and alumni with $mean_{senior\_administrators} = 4.1$ and $mean_{department\_chairpersons} = 3.8$ ($p=.048$).

4.3.8 Summary of the Difference in the Perception of the Importance of the Accreditation Criteria for the Accreditation Process

The analysis of the perception of the importance of the accreditation criteria for the Argentine accreditation process shows a significant difference, between senior administrators and department chairs, in only one accreditation criterion: students and alumni with $mean_{senior\_administrators} = 4.1$ and $mean_{department\_chairpersons} = 3.8$ ($p=.048$). There is no difference in the perception of the importance of the other four accreditation criteria: Institutional Context; Curricula and Professional Preparation; Faculty; and Infrastructure and Laboratories.

Table 57: Analysis of the Difference in the Perception of the Importance of the Accreditation Criteria for the Argentine Accreditation Process

Accreditation Criteria	Senior Administrators		Department Chairpersons		t	P values
	Mean	Respondents [n]	Mean	Respondents [n]		
V. Infrastructure and Laboratories	4.4	31	4.4	49	.194	.846
III. Faculty	4.2	31	4.2	51	.328	.744
II. Curricula and Professional Preparation	4.4	31	4.3	49	.582	.562
I. Institutional Context	4.5	31	4.1	49	1.674	.098
IV. Students and Alumni	4.1	31	3.8	51	2.008	.048

4.3.9 Identification of Problems during the Accreditation Process

Survey question 8 asked the respondents about the presence of problems during the accreditation process. The analysis of the 80 responses to this question (there were 2 missing) shows that 65% of the respondents consider the existence of problems during the accreditation process; and 35% of the respondents says there were no problems during the accreditation process.

In order to explore the problems during the accreditation process, survey questions 9 - an open question - asked the respondents about one or more important problems that need to be addressed in future accreditation cycles. Respondents provided seventy entries to survey question 9 addressing several problems detected during the accreditation process. Senior administrators add 33 entries and chairpersons add 37 entries.

These entries were mainly categorized and organized following the steps of the accreditation process for undergraduate engineering majors in the Argentine Republic. Some entries address problems with the performance of the academic administrators. A category was added to include these entries. Other entries refer to recommendations to improve the profile of the institution or the evaluation of actions for improving the institution. Those entries are not related to the question and were removed from the analysis. Table 58 shows the summary of the factors mentioned by the respondents and the frequency distribution by senior academic administrators and chair persons. Given the low number of respondents, it is not possible to evaluate any statistical difference.

But it is possible to describe where senior administrators and chairpersons made emphasis in their concern. Senior administrators made emphasis in the problems related to the self-study report (senior administrators= 9 entries, chairpersons = 2 entries); the performance of the Peer Committee (senior administrators= 8 entries, chairpersons = 6 entries); and Community (senior administrators= 2 entries, chairpersons = 0 entries). Both show similar concern in relation with faculty participation (senior administrators= 4 entries, chairpersons = 3 entries) and accreditation status (senior administrators= 3 entries, chairpersons = 3 entries). Chairpersons have more concern than senior administration in problems such as accreditation criteria (senior administrators= 1 entries, chairpersons = 4 entries); organizational improvement (senior administrators= 1 entries, chairpersons = 2 entries); accreditation budget (senior administrators= 1 entries, chairpersons = 2 entries); students (senior administrators= 1 entries, chairpersons = 2 entries); and on-site evaluation(senior administrators= 1 entries, chairpersons = 1 entries). Finally, chairperson are the only that report problems in areas such as assessment (senior administrators= 0 entries, chairpersons = 2 entries); and the competency of the senior

administrators ((senior administrators= 0 entries, chairpersons = 6 entries) in terms of their knowledge of the accreditation process (2 entries); the absence of adequate communication system about the accreditation activities (1 entry); the absence of collaborative strategies to integrate the personnel of the institution to the accreditation process (2 entries); and the no implementation of the recommended improvements by the members of the institution (1 entry).

Table 58: List of Categories to Analyze the More Important Problems during the Accreditation Process

CATEGORIES	SUBCATEGORIES	ENTRIES	
		Senior Academic Administrators	Chair persons
Academic Administrators		No entries	6
Designation of the Peer Committee and its acceptance	Performance of Peer Committee	8	6
Preparation of the Self-study	Organizational improvement	1	2
	Software to Submit Self-study	2	4
	Self-study report	9	2
	Faculty Participation	4	3
	Accreditation Budget	1	2
	Students	1	2
	Community	2	No entries
On-site evaluation		1	1
Review and action	Accreditation Criteria	1	4
	Assessment	No entries	2
	Accreditation Status	3	3
Periodic review		No entries	No entries
Right of Appeal		No entries	No entries

4.4 RECOMMENDATIONS TO IMPROVE THE ACCREDITATION PROCESS

Survey questions 10 is an open question that asked the respondents about what changes are needed, if any, to improve the current criteria in the accreditation process. Respondents provided around fifty entries related to how to improve the accreditation process rather than how to improve the current criteria in the accreditation standards. Therefore, the same categorization used to analyze the more important problems that need to be addressed in future accreditation cycles was applied. Some entries recommend changes in the national accreditation body (CONEAU), and other entries are related to the alumni. Two categories were added to include these entries. Table 59 shows the final list of categories and subcategories used to analyze the recommend changes to improve the current criteria used in the Argentine accreditation process.

Senior administrators provided 25% of the entries (13 entries) and the chairpersons provided the other 75% (38 entries). Senior administrators made recommendation only related to the performance of the Peer Committee (senior administrators = 4 entries; chairpersons = 5 entries); accreditation criteria (senior administrators = 4 entries; chairpersons = 5 entries); self-study report (senior administrators = 2 entries; chairpersons = 3 entries); critiques to CONEAU (senior administrators = 4 entries; chairpersons = 5 entries); and accreditation status (senior administrators = 1 entries; chairpersons = 5 entries). Chairpersons made recommendation on all the others but right to appeal; periodic review; and students.

In relation to the first category proposed to analyze the recommend changes for improving the current criteria used in the accreditation process, the respondents addressed the problems with the academic administrators and recommended to improve the communication system (2 entries).

The recommendations to improve the performance of the Peer Committee are related to the need to provide adequate training for developing homogeneous evaluation criteria and knowledge of engineering schools (9 entries).

The recommendations related to the preparation of the self-study address the need of organization improvement such as adequate budget for improvement of the laboratories related to the teaching process and the analysis of the professional incumbencies of the major (3 entries); the redesign of software provided by the national accreditation body to submit the self-study (1 entry); the simplification of the preparation of the self-study, and adequate support from the national accreditation body (5 entries); improving faculty participation by providing favorable working conditions (4 entries); adequate budget to carry on the accreditation process (1 entry); the need for alumni participation in the accreditation process (3 entries); and the need to include the community close to the school in the accreditation process (2 entries).

The on-site evaluation recommendations are connected with the short time allocated for the peer committee in this step in the accreditation process (2 entries).

The changes related to the review of the information and actions of the accreditation body, address the need to fit the accreditation criteria with the reality of the engineering schools (9 entries); the need to address the student-outcome more than equipment and infrastructure (1 entry); and the need to consider the social-economic environment where the school is located to measure the real level of quality (6 entries).

At last, the changes related with CONEAU address the need to include engineers in the board of the national accreditation body and to make the accreditation body independent of political pressure related to favorable accreditation results (3 entries).

Table 59: List of Categories to Analyze the Recommend Changes to Improve the Current Criteria Used in the Accreditation Process

CATEGORIES	SUBCATEGORIES	ENTRIES	
		Senior Academic Administrators	Chair persons
Academic Administrators		No entries	2
Designation of the Peer Committee and its acceptance	Performance of Peer Committee	4	5
Preparation of the Self-study	Organizational improvement	No entries	3
	Software to Submit Self-study	No entries	1
	Self-study report	2	3
	Faculty Participation	No entries	4
	Accreditation Budget	No entries	1
	Students	No entries	No entries
	Alumni	No entries	3
	Community	No entries	2
On-site evaluation		No entries	2
Review and action	Accreditation Criteria	4	5
	Assessment	No entries	1
	Accreditation Status	1	5
Periodic review		No entries	No entries
Right of Appeal		No entries	No entries
CONEAU		2	1

5.0 FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

5.1 INTRODUCTION

The accreditation process is a new experience for engineering schools in higher education institutions in Latin America (Amaral & Polidori, 1999; Escobar, Oryarzún, & Guzmán, 2002; Lémez, 2002; Netto, 2002; Rivero, 2003; Robledo, 2003). In the Argentine Republic, the formal accreditation process began in 1995 when the Congress passed Law 24,521 on Higher Education which mandated that any academic disciplines which deal with the lives, health, security, or education of the population must go through an accreditation process. The accreditation calls have a compulsory nature for several majors, and any higher education institution that does not pass the accreditation process may subsequently have its enrollment activities suspended by CONEAU, the governmental body that oversees the accreditation process.

Most of the research related to the accreditation process in Latin American higher education institutions, and the particular case of Argentine higher education institutions, focuses on a historical perspective of the quality movement in these countries, the meaning of quality in higher education, the results of external evaluation, and the current debate about the nature of the accreditation process. As a consequence, there is an absence of research on the accreditation process, especially in identifying the strengths and weaknesses of the accreditation process in Argentine higher education institutions.

5.1.1 Purpose of the Study

The objective of this research was to investigate the strengths and weaknesses of the implementation of the accreditation process in Argentine Schools of Engineering. This research focused on the particular case of the Senior Administrators and Department Chairs' of the Universidad Tecnológica Nacional, the leading engineering center in the Argentine Republic.

5.1.2 Research Questions

The three main research questions were:

1. What are the most important aspects of the current accreditation process identified by senior administrators and department chairs of Argentine Schools of Engineering?
2. To what extent do senior administrators and department chairs have different perspectives of the importance, effectiveness, degree of implementation and impact of the current accreditation process?
3. What do senior administrators and department chairs recommend to improve the accreditation process?

5.1.3 Method

The research questions were investigated through a survey directed to the top academic administrators (deans; vice deans; and assistant deans) and those faculty members elected as chairman of engineering department of the 22 engineering schools and five academic units of the UTN, that participated in the four calls for the first accreditation process of undergraduate

engineering majors. The total population size was 72 senior administrators and 125 chairpersons. Given the small size of the populations, the sample frame included all of them.

A total number of 92 questionnaires were returned by the respondents (20 by regular mail and 72 web forms). Only 82 were considered for this analysis because 10 web forms were incomplete. The respondents to this survey were 31 senior academic administrators (deans, vice deans, assistant deans) (43% of all senior administrators) and 51 faculty (41% of all chairpersons) that are current department chairpersons or were department chairpersons during the implementation of the accreditation process in their respective majors The SPSS® software package, Version 14.0, was used to analyze the data.

5.2 SUMMARY OF FINDINGS

5.2.1 Research Question 1: Identification of the Most Important Aspects of the Current Accreditation Process

5.2.1.1 Importance of the Accreditation Process

Ten items measuring the importance of the accreditation process were rated on a 5-point Likert scale from strongly disagree (1) to strongly agree (5). The three most important impacts of the accreditation process in the Argentine schools of engineering of the Universidad Tecnológica Nacional are: the participation of the faculty to strength the accreditation process (average perception of 4.7); the importance that the respondents assign to the assessment process (which is part of the accreditation process) (average perception of 4.7).; and the time dedicated as a job responsibility (average perception of 4.6). Three items related to the resistance of the faculty to the implementation of the accreditation process were present in the Argentine process in the

schools of engineering: the highest ranked was accreditation demands more attention from senior administrators than other activities (average perception of 3.7).

Finally, the respondents provided and rated five more items – not detected in the literature research - to evaluate the importance of the accreditation process: accreditation improves the communication with other departments or institutions; accreditation makes all personnel aware of the institution; accreditation improves the public and the organizational image of the institution; peer profile and indicators do not impact in the accreditation process; and accreditation demands a reorganization of the institution and/or departments.

5.2.1.2 Implementation of Planning Activities and their Effectiveness

Respondents evaluated the planning process of the accreditation process by rating the extent and the effectiveness of six planning activities. The most implemented activities were the steering committee for the accreditation process (4.2 average rating) and the organizational planning for the accreditation process (4.1 average rating). The rating of the effectiveness of those planning activities shows these two activities were among those ranked highest in effectiveness: the organizational planning for the accreditation process (3.9 average rating); and the steering committee for the accreditation process (3.9 average rating).

Respondents provided information about the implementation and the effectiveness of other planning activities. Most of the comments provided by the respondents fall in two of the considered planning activities: communication system for the accreditation information and dealing with various groups inside and outside the university about accreditation issues.

5.2.1.3 Forces Supporting and Resisting the Accreditation Process

In the Argentine experience, the top three resistance factors to the accreditation process are those related to cultural resistance (CR) (preparing the self study with an average perception of its

presence of 3.5); organizational barriers (OB) (local administrative restrictions on how the accreditation process must be implemented with an average perception of its presence of 3.4); and threats to power and influence (P&I) (allocated budget to the accreditation process with an average perception of its presence of 3.0). The success factors with the higher impact are the internal ones. The external success factors have the lowest impact in the accreditation process. Also, a few respondents provided new success factors and a new resistance factor that reflect the special characteristics of the Argentine accreditation process. The new success factors are: student participation in the accreditation process; opportunity to develop the institutional self-esteem; faculty self-esteem as a driver for obtaining accreditation status; and students do not want to lose the earned credits. The new resistance factor is students and senior administrators have different perspectives about the accreditation.

5.2.1.4 Importance of the Accreditation Criteria for the Accreditation Process

The five accreditation criteria were not all rated with the same importance. The average perception of the respondents provides the following ranking in importance: infrastructure and laboratories (mean = 4.4); curricula and professional preparation (mean = 4.3); institutional context (mean = 4.3); faculty (mean = 4.2); and students and alumni (mean = 3.9).

The federal higher education system in Argentina suffers a lack of adequate budget for infrastructure and equipment. This situation impacts notoriously in engineering schools where technology is one of the main drivers. Therefore, there is big lag between the current infrastructure and equipment at the federal schools of engineering and the state-of-the-art of engineering education equipment. This situation may explain the high perception of the importance of the accreditation criteria related with infrastructure and equipment.

5.2.1.5 Identification of Problems During the Accreditation Process

The analysis of the responses shows that 65% of the respondents considers the existence of problems during the accreditation process; and 35% of the respondents says there were no problems during the accreditation process.

Respondents provided seventy entries addressing several problems detected during the accreditation process. Senior administrators add 33 entries and chairpersons add 37 entries. Proportionally, senior administrators reported more problems.

These entries were mainly categorized and organized following the steps of the accreditation process for undergraduate engineering majors in the Argentine Republic. The three most important problems identified during the implementation of the accreditation process in the Argentine schools of engineering of the Universidad Tecnológica Nacional are: preparation of the Self-study (37); designation of the Peer Committee and its acceptance (14 entries); and Review and Action (13 entries).

5.2.2 Research Question 2: Different Perspectives of the Importance, Effectiveness, Degree of Implementation and Impact of the Current Accreditation Process

5.2.2.1 Different Perspectives of the Importance of the Accreditation Process

The analysis of the differences between senior administrators and chairpersons about their perception about the importance of the accreditation process reveals that there are two items where the difference is statistically significant: accreditation is not a fad ($p=.024$) and accreditation demands more attention from senior administrators than other activities ($p=.006$). The difference in the perception of accreditation as a fad shows that senior administrators perceive accreditation as a quality initiative that will last in time, but chairpersons have serious doubts about its permanence. The difference in the perception about the time that the

accreditation process demand from the senior administrators shows that chairpersons perceive that senior administrators are allocating more time than expected to the accreditation issues. This situation has a negative impact on the time that senior administrators allocate to other activities. Senior administrators don't see an important change in the time allocated to different administration issues. In relation to the other effects of the accreditation process in their schools, senior administrators and chairpersons paid attention to different areas when trying to identify those effects. On the one side, senior academic administrators focused on the public image of the institution as well as internal and external prejudices. On the other side, chair persons focused in the process itself such as accreditation indicators, peer evaluators, institutional reorganization and relationship with senior administrators, study plans, and communication with other departments.

5.2.2.2 Different Perspectives about the Implementation of Planning Activities and Their Effectiveness

There is not significant difference between senior administrators and department chairs in their perception about the implementation of the organizational planning for the accreditation process, steering committee for the accreditation process, and open hearings as part of the accreditation process. Also, there is not significant difference between senior administrators and department chairs in their perception about the effectiveness of organizational planning for the accreditation process, and open hearings as part of the accreditation process.

5.2.2.3 Different Perspectives about the Forces Supporting and Resisting the Accreditation Process

The analysis of the perception of the presence of the ten resistance factors indicates there is no difference in the perception for senior administrators and chairpersons. The analysis of the perception of the presence of two external success factors and the five internal success factors shows a significant difference, between senior administrators and department chairs, in two internal success factors: Knowledge about quality in engineering schools by faculty and administrators with $mean_{senior\_administrators} = 3.7$ and $mean_{department\_chairpersons} = 3.1$ ($p=.010$); and increased interest in quality initiatives in higher education among faculty and administrators with $mean_{senior\_administrators} = 4.1$ and $mean_{department\_chairpersons} = 3.5$ ($p=.007$).

The analysis of the perception of the impact of the ten resistance factors shows a significant difference, between senior administrators and department chairs, in three resistance factors: general trust in university administration by faculty with $mean_{senior\_administrators} = 3.7$ and $mean_{department\_chairpersons} = 3.2$ ($p=.026$); the perception of the accreditation process as a threat to their school with $mean_{senior\_administrators} = 2.4$ and $mean_{department\_chairpersons} = 3.0$ ($p=.021$); and the preparation of the self study with $mean_{senior\_administrators} = 4.0$ and $mean_{department\_chairpersons} = 3.5$ ($p=.001$). The analysis of the perception of the impact of two external success factors and the five internal success factors indicates there is no difference in the perception of senior administrators and chairpersons of their impact in the accreditation process. The researcher asked about the presence and impact of other factors present at the school during the accreditation process. Several factors were mentioned and some of them were also rated in their impact, but given the low number of respondents, it is not possible to evaluate any statistical difference.

5.2.2.4 Different Perspectives in the Importance of the Accreditation Criteria for the Accreditation Process

The analysis of the perception of the importance of the accreditation criteria for the Argentine accreditation process shows a significant difference, between senior administrators and department chairs, in only one accreditation criterion: students and alumni with $mean_{senior\_administrators} = 4.1$ and $mean_{department\_chairpersons} = 3.8$ ($p=.048$). There is no difference in the perception of the importance of the other four accreditation criteria: Institutional Context; Curricula and Professional Preparation; Faculty; and Infrastructure and Laboratories.

This accreditation criterion makes reference to students and the resources that the institution needs to allocate for assuring a high level of quality in the education process, the necessary documentation to evaluate the student performance, the participation of students in research activities. Also, this criterion establishes the mandatory set up of post graduate courses for alumni. All these activities are beyond the decision process of chairpersons and more related to the decision area of senior administrators. This situation may explain the difference in the perception of the importance of this criterion.

5.2.3 Related to Research Question 3: Recommendations of Senior Administrators and Department Chairs to Improve the Current Accreditation Process.

Respondents provided 51 entries related to how to improve the accreditation process rather than how to improve the current criteria in the accreditation standards. Senior administrators provided 25% of the entries (13 entries) and the chairpersons provided the other 75% (38 entries). Senior administrators made recommendation only related to the performance of the Peer Committee; accreditation criteria; self-study report; critiques to CONEAU; and accreditation status.

Chairpersons made recommendation on all the others but right to appeal; periodic review; and students.

Most of the recommendations are those related with the performance of the Peer Committee and the need to provide adequate training for developing homogeneous evaluation criteria and knowledge of engineering schools. The second most populated set of recommendations are those related to the review of the information and actions of the accreditation body: the need to fit the accreditation criteria with the reality of the engineering schools; the need to address the student-outcome more than equipment and infrastructure; and the need to consider the social-economic environment where the school is located to measure the real level of quality. And last, the third most populated set of recommendation deal with the need to include engineers in the board of the national accreditation body and to make the accreditation body independent of political pressure related to favorable accreditation results.

5.3 CONCLUSIONS

The following conclusions, based on the findings related to the three research question that guide this study, may be categorized in three broad areas: learning about the importance and impact of the accreditation process; learning about the difficulties to carry on the accreditation process itself ; and learning about the success and resistance factors present in the accreditation process.

5.3.1 Learning About the Importance and Impact of the Accreditation Process

Accreditation is perceived as useful for improvement in the schools of engineering of the Universidad Tecnológica Nacional. Respondents scored an average 4.6 on a 5-point Likert scale

from strongly disagree (1) to strongly agree (5) the statement "Accreditation plays an important role in improving our institution". Senior administrators rated this statement with an average 4.6 and department chairs rated this statement with an average 4.7. This result departs from the finding of Andersen (1987) about academic administrators and faculty agreed in less extent about the utility of the institutional accreditation as a tool for self-evaluation and as stimulus for improvement.

Accreditation is perceived as important for the schools of engineering of the Universidad Tecnológica Nacional. The importance of the accreditation process for higher education institutions have an average score of 4.4 on a 5-point Likert scale from strongly disagree (1) to strongly agree (5). Senior administrators rated it with an average 4.5 and department chairs rated it with an average 4.4. This result suggests that both attribute great importance to the accreditation process. This result is in accord with the research of Welsh and Metcalf (2003) about the importance of accreditation as a quality improvement initiative. Welsh and Metcalf (2003) suggest that academic administrators attribute greater importance to institutional effectiveness initiatives than faculty but faculty attribute it importance too. Senior administrators and chairpersons provide additional factors to support the importance of the accreditation for the school. They stated how accreditation improves the public and the organizational image of the institution, how accreditation demands a reorganization of the institution and/or departments; how accreditation improves the communication with other departments or institutions; and how accreditation makes all personnel aware of the institution.

There is not consensus about the permanence of accreditation in time. Respondents scored an average 3.8 on a 5-point Likert scale from strongly disagree (1) to strongly agree (5) the statement "Accreditation is not a fad". Senior administrators rated this statement with an

average 4.3 and department chairs rated this statement with an average 3.5. A double side t-test analysis with $\alpha = .05$ reports a significant difference with $p=.024$. The result expresses the presence of a gap between the perception of the senior administrators and the chairpersons. Also it expresses the doubts of the chairpersons about the future of the accreditation system. This finding departs from the global trend of adopting accreditation as a quality initiative in higher education (Amaral & Polidori, 1999; Bogue, 1998; Carter & Davidson, 1998; Escobar, Oryarzún, & Guzmán, 2002; Lémez, 2002; Maassen, 1998; Mora & Vidal, 1998; Netto, 2002; Rivero, 2003; Robledo, 2003; Stanley & Patrick, 1998) or the centennial American accreditation experience despite of the continual criticisms to the current American accreditation system (Birnbaum, 1988; Bogue, 1998; Bogue & Saunders, 1992; Young, Chambers, Kells, & Cargo, 1983).

Senior administrators and chairpersons accept student outcome assessments. Respondents scored with an average 4.7 on a 5-point Likert scale from strongly disagree (1) to strongly agree (5) the statement "Assessment plays an important role in improving our institution". Senior administrators rated this statement with an average 4.7 and department chairs rated this statement with an average 4.8. Statistical analysis reports no significant difference. This result suggests the acceptance of student outcome assessment as part of the accreditation process as it was defined into the accreditation standards by CONEAU (Guerrini, Rasetti, & Jeppesen, n.a.)

There is mixed information about the interest for other quality initiatives. Respondents scored an average 4.1 on a 5-point Likert scale from strongly disagree (1) to strongly agree (5) the statement "Accreditation process often triggers the interest for other quality initiatives". Senior administrators rated this statement with an average 4.1 and department chairs rated this statement with an average 4.2. A double side t-test analysis with $\alpha = .05$ reports no significant

difference. The analysis of two success factors related to the implementation of other quality initiatives shows respondents scored the statement "Increased interest in quality initiatives in higher education among faculty and administrators" with an average score of 3.7, and the statement "Knowledge about quality in engineering schools by faculty and administrators" with an average score of 3.4. A double side t-test analysis with $\alpha = .05$ shows the perception of senior administrators and chairpersons about both success factors with a significant difference ($p=.007$ for the first mentioned success factors; and $p=.010$ for the second success factor). Senior administrators rated both statements higher than chairpersons. Consequently, accreditation may trigger the interest for other quality initiatives but there is not a strong presence of success factors to support their development.

Senior administrators and department chairpersons have a similar perception about the importance of the accreditation criteria. Respondents scored an average between 4.4 and 3.9 on a 5-point Likert scale from not important at all (1) to essential (5) the different criteria in the Argentine standards for accreditation of undergraduate engineering majors. The comparative analysis of the differences in the perception of the importance of the accreditation criteria shows senior administrators with a slight stronger perception of the importance of the accreditation criteria than chairpersons. A double side t-test analysis with $\alpha=.05$ reports a significant difference between the perception of senior administrators and chairpersons in the accreditation criteria related to students and alumni ($p=.048$). The accreditation criteria related to Infrastructure and Laboratories was scored as the most important (mean=4.4; n= 80), and the accreditation criteria related to outcome assessment (Curricula and Professional Preparation) was scored as the second more important (mean = 4.3; n=80).

5.3.2 Learning About the Difficulties to Carry on the Accreditation Process Itself

Senior administrators need to have a better understanding their chairpersons about the planning activities to support the accreditation process. A double side t-test analysis with $\alpha = .05$ reports a significant difference in the perception of the implementation and the effectiveness of three of six planning activities: final evaluation of the planning process for accreditation; dealing with various groups inside and outside of the university about accreditation issues; and the communication system for the accreditation process. The department chairs rated all this planning activities related to the accreditation process between almost not implemented and moderately implemented. The perception of the senior administrators about this planning activities related to the accreditation process was moderately implemented or almost fully implemented. Therefore, the senior administrators need to improve the communication process with chairpersons in order to get a better understanding of the level of implementation of planning activities related to the accreditation process.

The performance of the Peer Committee needs improvement. The most important problems reported by the respondents provide fourteen entries in reference to the inadequate profile of the peer committee members and their inadequate criteria to evaluate schools of engineering. Senior administrators provided eight entries and chairpersons provided six entries describing the absence of same criteria to evaluate similar schools by different peer evaluators; the excessive emphasis in theoretical research as a key factor for the accreditation rather than applied research and teaching; and the absence of evaluators with a degree related to the major under accreditation (see Table 68 and appendix K for further reference). There is no information about why the schools of engineering accept the peer committee without any rejection as it is

established in the accreditation criteria and they do not exercise the right to veto the peer committee members due to their inadequate profiles and backgrounds.

The Argentine accreditation body needs to review problems identified by senior administrators and chairpersons. The most important problems reported by the respondents provide thirty entries in reference to the Argentine governmental accreditation body, the National Commission for Evaluation and University Accreditation (Comisión Nacional de Evaluación y Acreditación Universitaria (CONEAU)). Senior administrators provided fifteen entries and chairpersons provided another fifteen entries describing different problems related to the absence of adequate information about the quality indicators (5 entries); the inadequacy of the software to upload the institutional information as well as the institutional self-evaluation (6 entries); the complexity of the data entry requested by CONEAU to upload the institutional report as well as the absence of technical support for this process; the inadequacy of some questions in the assessment of the senior students (2 entries); and the absence of relationship between the accreditation status granted by CONEAU and the economic reality of the school of engineering as well as the high percentage of commuter students at the Universidad Tecnológica Nacional (6 entries). Some respondents included recommendations to improve the performance of CONEAU (3 entries). These entries also included a strong criticism to CONEAU related to the absence of engineers in the Executive Board, the absence of adequate criteria to evaluate the accreditation reports and to grant the appropriate accreditation status; and the acceptance of political pressures (see appendix L for further reference).

5.3.3 Learning about the Success and Resistance Factors Present in the Accreditation Process

There is cooperation between faculty and senior administrators. Respondents scored an average 4.1 on a 5-point Likert scale from strongly disagree (1) to strongly agree (5) the statement "Accreditation process has increased the cooperation between faculty and senior administrators". Senior administrators rated this statement with an average 4.06 and department chairs rated this statement with an average 4.14. A double side t-test analysis with $\alpha = .05$ reports no significant difference. This result suggests the absence of the traditional antagonism between the academic and administrative culture reported by Lucas (1996) and Birnbaum (1988).

The accreditation budget was small but it did not impact other activities. Respondents scored an average 2.5 on a 5-point Likert scale from strongly disagree (1) to strongly agree (5) the statement "Accreditation budget has a negative impact on other more important activities". Senior administrators rated this statement with an average 2.3 and department chairs rated this statement with an average 2.6. A double side t-test analysis with $\alpha = .05$ reports no significant difference. This result suggests that the budget allocated for other activities than the accreditation process was not affected or suffered minimum impact. Also, respondents scored an average 2.5 on a 5-point Likert scale from not present at all (1) to present to extensive extent (5) the statement "Allocated budget to the accreditation process". Senior administrators rated this statement with an average 2.7 and department chairs rated this statement with an average 2.3. A double side t-test analysis with $\alpha = .05$ reports no significant difference. This result indicates that the budget allocated for the accreditation process was very small.

The accreditation process in the Argentine schools of engineering adds specific internal success factors. The analysis of the internal and external success factors in the Argentine accreditation process shows the presence of specific success factors for the engineering schools. These forces supporting the changes - characteristics of Argentine accreditation process - fit into

the categories provided by the Organizational Development technique (Wagner & Hollenbeck, 1992) as internal success factors: student participation in the accreditation process (1 entry); opportunity to develop the institutional self-esteem (1 entry); faculty self-esteem as a driver for obtaining accreditation status (1 entry); and students do not want to lose the earned credits (1 entry).

5.4 SUMMARY OF THE STUDY

This study adds to the current theoretical knowledge about the accreditation process in the Argentine Republic: 1) a measurement in the field about the perception of senior administrators and chairpersons of the importance of the accreditation process for the schools of engineering of the Universidad Tecnológica Nacional; 2) the identification of the forces supporting and resisting the implementation of the accreditation process; 3) the recognition of the main problems detected during this process; and 4) the collections of the recommendations from senior administrators and chairpersons to improve the implementation of the accreditation process.

5.5 RECOMMENDATIONS FOR FURTHER STUDY

This research is the first study of the accreditation practice in the schools of engineering in the Argentine Republic. The main finding is that accreditation is perceived as important for the schools. It is also considered as an opportunity to improve the institutions at different levels.

Therefore, the resistance factors are minimum and the internal success factors are the predominant ones.

These findings are limited to the main federal engineering university. It would be important to know if the accreditation process is also valuable for other federal and private engineering schools as well as if it is perceived as an opportunity for improvement. Finally, for the academic administrators of engineering schools, members of the National Commission for Evaluation and University Accreditation (CONEAU), and decision makers at the Ministry of Education in the Argentine Republic, it would be significant not only to determine the forces that sustain and resist the accreditation process in the federal and the private university environment but also the recommendations to improve the accreditation process.

APPENDIX A

CASES FROM THE REGIONAL AND PROFESSIONAL ACCREDITATION IN THE UNITED STATES

Table 60: Selected Studies related to Outcome Assessment, Continuous Improvement, Institutional Effectiveness, and Quality in Higher Education

Descriptors	Study # 1
Major Domain (s) of Interest	Level of adoption of institutional effectiveness
Author, Source, Year Published	Welsh, John F The Journal of Higher Education 2003
Variables or Research Questions	The independent variable in the research is the status of the respondent, whether faculty or administrator The dependent variables are the Perceived Importance of Institutional Effectiveness Activities, Perceived Motivation, Perceived Depth of Implementation, Perceived Definition of Quality, and Reported Level of Involvement
Population / Sample	794 faculty members and 541 academic administrators. (1) full-time faculty who had served on institutional accreditation steering committees and (2) academic administrators at the dean's level or higher at institutions that hosted SACS accreditation site team
Evaluation Method and Design	Mailed survey distributed to faculty and academic administrators during Fall 2000 at the 168 institutions that were reviewed by evaluation teams of the Southern Association of Colleges and Schools (SACS)
Findings	Academic administrators attribute greater importance to institutional effectiveness initiatives than do faculty. However, it is important to emphasize that both administrators and faculty reported generally positive perceptions of institutional effectiveness activities. Academic administrators are more likely than faculty to (1) view institutional effectiveness activities as internally motivated, (2) view institutional effectiveness activities as more deeply implemented, (3) define quality as student outcomes-based, and (4) perceive greater levels of personal involvement

Table 60 (continued)

Descriptors	Study # 2
Major Domain (s) of Interest	Faculty and academic administrator perception of student outcomes
Author, Source, Year Published	EWELL, P. T. Research in Higher Education, 1989
Variables or Research Questions	The independent variables in the research are the institutional characteristics, Mission, Institutional Culture, and Institutional Functioning The dependent variables are: Student Satisfaction, Student Academic Development, Student Career Development, and Student Regional Development
Population / Sample	Data about faculty and administrator perceptions of institutional impact on students drawn from 320 four-year institutions
Evaluation Method and Design	Mail survey of questionnaire based on the Assessment of Performance of Colleges and Universities (APCU) survey
Findings	Related to this research: Mission of the institution, a "clan-like" or hierarchical institutional culture, and several organizational such as reward and recognition for achievement of faculty, high information and feedback to faculty, and close contact between faculty and students may be important determinants of perceived student performance. An administrative environment that provides substantial information and feedback and promote student/faculty relationship impact positively in student satisfaction. Therefore administrators should be aware of the positive impact of leadership strategies based on institutional mission and refining institutional culture.
Descriptors	Study # 3
Major Domain (s) of Interest	Innovation and organizational effectiveness
Author, Source, Year Published	Clarke, James Sutherland Doctoral Dissertation 1997
Variables or Research Questions	The independent variable in the research is the status of the respondent, whether faculty or administrator The dependent variables are: The Inventory of Receptivity to Change in Higher Education, the Faculty Resistance to Change Inventory, the Faculty Self and Organizational Efficacy Assessment, the Faculty Decision- Making Deprivation Scale, and the Higher Education Index of Departmental Effectiveness.
Population / Sample	All faculty and academic units head from five traditional academic units at all 59 Carnegie Public Research Universities I in the United States -799 faculty and 79 academic unit heads representing 103 academic units in 53 universities were received
Evaluation Method and Design	Mailed survey
Findings	Related to this research: Administrators are more likely to be receptive to forces external to the academic unit Faculties are more willing to respond to internal motivators related to institutional effectiveness

Table 60 (continued)

Descriptors	Study # 4
Major Domain (s) of Interest	Receptivity to Continuous Quality Improvement
Author, Source, Year Published	Abraham-Ramírez, H. Doris Doctoral Dissertation 1997
Variables or Research Questions	The independent variable in the research are CQI-related characteristics and Organizational Individual's Commitment of faculty The dependent variable is the individual's receptivity to Continuous Quality Improvement (CQI) Initiatives
Population / Sample	247 faculty members from the Colleges of Business Administration and Engineering on the University Park Campus of the Pennsylvania State University
Evaluation Method and Design	Mailed survey
Findings	Related to this research: Faculty background characteristics, when taken together as a set, are unrelated to their receptivity to CQI. Expansion of roles and responsibilities, feedback from students, and willingness to learn about CQI appear to have a noteworthy influence on faculty members' receptivity to CQI. Also, the faculty members' commitment to their departments has a significant influence on receptivity to CQI.

Descriptors	Study # 5
Major Domain (s) of Interest	Level of adoption of institutional effectiveness
Author, Source, Year Published	Thomas, James Perry Doctoral Dissertation 1997
Variables or Research Questions	The independent variable in the research are leadership intervention, climate and culture, staff involvement, staff development, origins of the force to change, and time involved in the adoption of institutional effectiveness The dependent variable is the level of reform adoption (institutional effectiveness)
Population / Sample	Random sample of community colleges in the Southern Association of Colleges and Schools accreditation region – 74 community colleges were include in the sample – 292 full questionnaires were received from academic administrators and faculty
Evaluation Method and Design	Mailed survey
Findings	Related to this research: those faculty in leadership positions reported higher usage of adoption processes [of institutional effectiveness] and higher adoption levels than faculty members The higher the level of faculty involvement, the higher the adoption of institutional effectiveness

Table 60 (continued)

Descriptors	Study # 6
Major Domain (s) of Interest	Literature review on institutional support for student assessment
Author, Source, Year Published	Peterson, Marvin W. & Einarson, Marne K. National Center for Postsecondary Improvement 1997
Variables or Research Questions	What types of measures and approaches to student assessment have institutions adopted? What external forces influence institutions' approaches to, support for, and uses and impacts of student assessment? What organizational and administrative support patterns and institutional characteristics influence the use of various student assessment approaches? How do student assessment approaches and organizational and administrative support patterns enhance the use of student assessment data and impact the institution?
Population / Sample	Documents related to institutional support for student assessment included holdings of the Education Resources Information Center (ERIC) system, the Dissertation Abstracts International (DAI) database, the H. W. Wilson Files (which includes the Business Periodicals Index, the Humanities Index, and the Social Sciences Index), and the literature databases in business (ABI Inform), psychology (Psycinfo), and the social sciences (Social Sciences Citation Index).
Evaluation Method and Design	Documents were evaluated based upon the following criteria: direct relevance to institutional-level issues of student assessment in higher education; publication credibility; and/or substantive content. A total of 291 documents met these criteria. Of this final subset, only 58 documents were identified as being based on systematic research and 27 were conceptually or theoretically grounded.
Findings	Related to this research: Academic leadership support is a key factor in student assessment. No systematic examination of leadership styles on institutional support for assessment Balance between internal and external forces will decide institutional support for assessment
Descriptors	Study # 7
Major Domain (s) of Interest	To examine the nature, extent, and impact of student-assessment strategies
Author, Source, Year Published	M a r v i n W . P e t e r s o n, et. al. National Center for Postsecondary Improvement 1999
Variables or Research Questions	What approaches had they adopted toward student-assessment practices? What organizational and administrative support had been instituted? How was the information being used by Academic Administrators?
Population / Sample	Chief academic officers at 1,393 public and private institutions
Evaluation Method and Design	Mailed survey
Findings	Related to this research: Institutions have a tendency not to focus on gaining an understanding of the role of the institution in improving student academic performance. Administrators are not using assessment to enlighten their budgetary decisions. There are few links between measures of student assessment and the faculty's classroom responsibilities. Institutions reported they are not using student-assessment data extensively in the academic decision-making process due to the perception of the little or no impact of this information on institutional performance. The pressure of state agencies and institutional accrediting bodies for adopting assessment activities by postsecondary institutions appears to have little impact on how institutions have supported or used student assessment to improve their academic performance.

Table 60 (continued)

Descriptors	Study # 8
Major Domain (s) of Interest	Actions to support the use of quality concepts in the Academe.
Author, Source, Year Published	Hank Grant Proceeding 1993 Frontiers in Education Conference 1993
Variables or Research Questions	What were the challenges in order to use Quality Concepts in the Academe? What were the efforts to use Quality Concepts in the Academe?
Population / Sample	All the Deans of Engineering Programs in the U.S. in the Spring of 1992
Evaluation Method and Design	Mailed survey
Findings	Related to this research: Forces resisting the use of Quality Concepts in the Academe, in the particular case of Schools of Engineering Activities to overcome the resistance of faculty to use of Quality Concepts in the Academe, in the particular case of Schools of Engineering

Descriptors	Study # 9
Major Domain (s) of Interest	Perception of the accreditation process as a quality initiative
Author, Source, Year Published	Charles J Andersen American Council on Education 1986
Variables or Research Questions	What is the respondent's experience with accrediting bodies and procedures? What is the opinion concerning the usefulness of accrediting bodies? What is the opinion on the importance of courses of action that have been proposed to make the accreditation process more effective?
Population / Sample	President, Provosts, Academic Deans, and other officials from a sample of 520 institutions
Evaluation Method and Design	Mailed survey
Findings	Related to this research: 90% of respondents felt that institutional accreditation provides a useful index of institutional quality; 75% of respondents reported that specialized accreditation provides a useful index of program quality; 70% of respondents agreed that most of their programs could benefit from the self-study required by specialized accrediting agencies

Table 60 (continued)

Descriptors	Study # 10
Major Domain (s) of Interest	Faculty and the process of change
Author, Source, Year Published	Bjorklund, Stefani A. & Colbeck, Carol L. 29th ASEE/IEEE Frontiers in Education Conference 1999
Variables or Research Questions	What do the leaders perceive to be the two most significant changes in engineering education during the last 10 years? What do the leaders believe to be the sources and pervasiveness of the changes? How— in the leaders' opinions— has each change influenced policy and practice in engineering education? What are the best ways to encourage faculty involvement in the changes?
Population / Sample	27 deans, chairs, faculty, industry leaders, and association officers who comprise the leadership of national engineering education societies and the Accreditation Board for Engineering and Technology.
Evaluation Method and Design	semi-structured one-hour interviews
Findings	Related to this research: Forces supporting the implementation of a quality initiative as a change process Forces resisting the implementation of a quality initiative as a change process Activities to overcome the resistance of faculty to change

Table 61: Selected Cases related to Regional and Professional Accreditation, and Continuous Improvement in Schools of Engineering.

Descriptors	Case # 1
Major Domain (s) of Interest	Quality initiative as a process of change
Author, Source, Year Published	Cynthia L. Tomovic Frontiers in Education '96 1996
Title	Managing Resistance to Classroom and Student-learning Assessment: Lessons Learned From the Past
Activity	Development and implementation of a bidirectional support model for implementing TQM
Population	School of Technology – Purdue University
Findings	Related to this research: Forces supporting the implementation of a quality initiative as a change process Forces resisting the implementation of a quality initiative as a change process Activities to overcome the resistance of faculty to change

Table 61 (continued)

Descriptors	Case # 2
Major Domain (s) of Interest	Actions to overcome resistance of faculty toward assessment
Author, Source, Year Published	Charles F. Yokomoto, Clifford Goodwin & David Williamson 1998 Frontiers in Education Conference 1998
Title	Development of a School Wide Assessment Plan - Questions Answered and Questions Raised
Activity	Implementation of assessment activities
Population	Indiana University-Purdue University Indianapolis (IUPUI) School of Engineering and Technology
Findings	Related to this research: Forces supporting the implementation of a quality initiative as a change process Forces resisting the implementation of a quality initiative as a change process Activities to overcome the resistance of faculty to change

Descriptors	Case # 3
Major Domain (s) of Interest	Actions to overcome resistance of faculty toward assessment and CI process
Author, Source, Year Published	Jack McGourty, Catherine Sebastian & William Swart 1997 Frontiers in Education Conference. 27th Annual Conference. 'Teaching and Learning in an Era of Change'. 1997
Title	Performance Measurement and Continuous Improvement of Undergraduate Engineering Education System
Activity	Implementation of a transformation process, to move from an anecdotally-based assessment to a formal, rigorous, valid, and useful assessment and continuous improvement process.
Population	New Jersey Institute of Technology
Findings	Related to this research: Forces supporting the implementation of a quality initiative as a change process Forces resisting the implementation of a quality initiative as a change process Activities to overcome the resistance of faculty to change

Table 61 (continued)

Descriptors	Case # 4
Major Domain (s) of Interest	Actions to overcome resistance of faculty toward assessment and CI process
Author, Source, Year Published	Molly W. Williams, Daniel M. Litynski & Daniel K. Apple Frontiers in Education Conference, 2001. 31st Annual 2001
Title	Process Education and Continual Process Improvement at Western Michigan University (WMU)
Activity	Re-examination of academic programs, instructional methods, and implementation of a system of continuous assessment and quality improvement.
Population	the College of Engineering and Applied Sciences at Western Michigan University
Findings	Related to this research: Forces supporting the implementation of a quality initiative as a change process Activities to overcome the resistance of faculty to change

APPENDIX B

ENGLISH AND SPANISH VERSION OF COVER LETTER AND E-MAIL TO PARTICIPANTS IN THE SURVEY

Pittsburgh, August 15, 2005

To:
Participant
School of Engineering
Address Line 1
Address line 2
Argentina

Reference: Accreditation Process in the Argentine Republic Research

Dear Colleague:

I am writing you to request your participation in a research study that I am conducting on the Accreditation Process in the Argentine Republic. Your participation will be a valuable contribution not only to the education field but also to the quality in higher education institutions.

The instrument to be used is a mail survey that you are receiving in a printed version with this cover letter and an electronic version you will receive at your e-mail address. The expected time to complete the survey is approximately twenty – thirty minutes. A stamped and pre-addressed enveloped is included in order to return the form after its completion if you choose to fill the printed version.

This survey is primarily focused in three areas: 1) what are the most important aspects of the current accreditation process identified by administrators and department chairs of Argentine Schools of Engineering?, 2) to what extent do senior administrators and department chairs have different perspectives of the importance, effectiveness, degree of implementation and impact of the current accreditation process?, and 3) what do senior administrators and department chairs recommend to improve the accreditation process?. Demographic information related to the respondents as well as their institutions will also be requested.

This research is formulated following the Ethic Code and the Rules of the Internal Review Board of the University of Pittsburgh (IRB Number: 0504128). An individual identification for coding purposes has been assigned to each participant and it is located on the bottom of the last page of the enclosed survey to avoid duplicated mail. You responses will remain confidential and will be aggregated with responses of other survey participants for research purposes only. Your personal identity will remain confidential, and no attempt will be made to attach you identity to your answers within the response database.

Your participation in the study is completely voluntary, and you may withdraw at any time by contacting me by e-mail to esa9@pitt.edu. In addition, there is no compensation for individuals who choose to participate. Finally, if you would like to receive a copy of the final results of the survey, please check the appropriate box in the form or send a request containing your mail address to esa9@pitt.edu. Please, return the completed questionnaire by September 10th, 2005. Thank you for your interest and your time.

Best regards

Esteban Anzoise
Department of Administrative and Policy Studies
School of Education – University of Pittsburgh

Agosto 23, 2005

Participant
School of Engineering
Address Line 1
Address line 2
Argentina

Referencia: Investigación sobre el proceso de acreditación en las facultades de ingeniería en la República Argentina

Estimado Colega:

Le escribo a usted para invitarlo a participar en la investigación que estoy conduciendo sobre el proceso de acreditación en la República Argentina. Dado el enorme impacto de la UTN en la formación de ingenieros en Argentina, el análisis de su proceso de acreditación será el primer paso en este estudio. La valiosa información que usted proveerá será no solo una invalorable contribución para el campo educativo sino también para la calidad en instituciones universitarias. Los datos serán recolectados usando un formulario electrónico que llegará a su correo electrónico. Si usted prefiere puede llenar el formulario impreso de la encuesta que acompaña esta carta. El tiempo promedio para llenar el cuestionario es de veinte a treinta minutos. Si usted decide llenar el cuestionario impreso, por favor utilice el sobre con la dirección impresa para retorno así como la orden de franqueo internacional adjunta para pagar el franqueo.

Este cuestionario esta focalizado principalmente en tres áreas: 1) ¿cuáles son los aspectos más importantes del actual proceso de acreditación identificados por los administradores académicos de más alta jerarquía y los jefes de departamento de las facultades de ingeniería argentinas?, 2) ¿tienen los administradores académicos de más alta jerarquía y los jefes de departamento una perspectiva diferente de las fortalezas y debilidades del actual proceso de acreditación?, y 3) ¿qué es los que recomiendan los administradores académicos de más alta jerarquía y los jefes de departamento para mejorar el proceso de acreditación?

Esta investigación sigue el Código de Ética y las Reglas de la Comisión Interna de Investigación de la Universidad de Pittsburgh y está identificada con el número I.R.B. 0504128. Un número de identificación ha sido asignado a cada participante y esta impreso al final del cuestionario. Este número será utilizado solamente para evitar duplicación de la correspondencia. Las respuestas que usted brinde serán confidenciales y serán combinadas con las respuestas de los otros participantes. Su identidad permanecerá confidencial y de ningún modo se relacionará su identidad con la información que usted provea en la base de datos ad-hoc.

Su participación es este estudio es completamente voluntaria y usted puede dejarlo en cualquier momento con solo contactarme por e-mail a esa9@pitt.edu. No hay compensación monetaria para aquellas personas que acepten responder este cuestionario. Finalmente si usted desea recibir una copia de los resultados de esta investigación por favor marque la opción correspondiente en el cuestionario o envíeme su pedido por e-mail a esa9@pitt.edu. Por favor, regrese el cuestionario electrónico o el impreso tan pronto como pueda. Gracias nuevamente por su interés y su tiempo.

Atentamente

Esteban Anzoise
Department of Administrative and Policy Studies
School of Education – University of Pittsburgh

Estimado Colega:

Le escribo a usted para invitarlo a participar en la investigación que estoy conduciendo sobre el proceso de acreditación en la Republica Argentina. Dado el enorme impacto de la UTN en la formación de ingenieros en Argentina, el análisis de su proceso de acreditación será el primer paso en este estudio. La valiosa información que usted proveerá será no solo una invalorable contribución para el campo educativo sino también para la calidad en instituciones universitarias. Los datos serán recolectados usando un formulario electrónico que usted puede acceder mediante el link al final de este e-mail. Una versión impresa de esta encuesta llegara también por correo regular. El tiempo promedio para llenar el cuestionario es de veinte a treinta minutos. Si usted decide llenar el cuestionario impreso, por favor utilice el sobre con la dirección impresa para retorno así como la orden de franqueo internacional adjunta para pagar el franqueo.

Este cuestionario esta focalizado principalmente en tres áreas: 1) ¿cuáles son los aspectos más importantes del actual proceso de acreditación identificados por los administradores académicos de mas alta jerarquía y los jefes de departamento de las facultades de ingeniería argentinas?, 2) ¿tienen los administradores académicos de mas alta jerarquía y los jefes de departamento una perspectiva diferente de las fortalezas y debilidades del actual proceso de acreditación?, y 3) ¿qué es los que recomiendan los administradores académicos de mas alta jerarquía y los jefes de departamento para mejorar el proceso de acreditación?

Esta investigación sigue el Código de Ética y las Reglas de la Comisión Interna de Investigación de la Universidad de Pittsburgh y esta identificada con el número IRB 0504128. Un número de identificación ha sido asignado a cada participante y es legible al final del cuestionario impreso. Este número será utilizado solamente para evitar duplicación de la correspondencia. Las respuestas que usted brinde serán confidenciales y serán combinadas con las respuestas de los otros participantes. Su identidad permanecerá confidencial y de ningún modo se relacionara su identidad con la información que usted provea en la base de datos ad-hoc.

Su participación es este estudio es completamente voluntaria y usted puede dejarlo en cualquier momento con solo contactarme por e-mail a esa9@pitt.edu. No hay compensación monetaria para aquellas personas que acepten responder este cuestionario. Finalmente si usted desea recibir una copia de los resultados de esta investigación por favor marque la opción correspondiente en el cuestionario o envíeme su pedido por e-mail a esa9@pitt.edu. Por favor, regrese el cuestionario electrónico o el impreso llenado con sus respuestas para Septiembre 10, 2005. Gracias nuevamente por su interés y su tiempo.

Atentamente

Esteban Anzoise
Department of Administrative and Policy Studies
School of Education
University of Pittsburgh

Por favor haga click en el siguiente link para acceder al formulario electrónico o copie y pegue la dirección en su browser:

APPENDIX C

ENGLISH AND SPANISH VERSION OF REMAINDER LETTER AND E-MAIL TO PARTICIPANTS

Pittsburgh, May 15th, 2004

To:
Participant
School of Engineering
Address Line 1
Address line 2
Argentina

Reference: Accreditation Process in the Argentine Republic Research

Dear Participant:

About two weeks ago I wrote you seeking your views on the Accreditation Process in the Argentine Republic, in the particular case of the Schools of Engineering. As of today I have not received your questionnaire.

Given the great impact of UTN in the preparation of engineers in Argentina, the research about its accreditation process will be the first step in this study. Your participation will be a valuable contribution not only to the education field but also to the quality in higher education institutions. The purposes of this study are 1) what are the most important aspects of the current accreditation process identified by administrators and department chairs of Argentine Schools of Engineering?, 2) to what extent do senior administrators and department chairs have different perspectives of the importance, effectiveness, degree of implementation and impact of the current accreditation process?, and 3) what do senior administrators and department chairs recommend to improve the accreditation process?. Demographic information related to the respondents as well as their institutions will also be requested.

If you have already completed and returned the questionnaire to me, please accept my sincere thank you. If not, and you still wish to participate in the study, please complete and return the printed questionnaire or the electronic format that you have received in your mailbox. The expected time to complete the survey is approximately twenty – thirty minutes. If you choose to fill the printed version, please used the stamped and pre-addressed enveloped to return the form after its completion.

Your participation in the study is completely voluntary, and you may withdraw at any time by contacting me by e-mail to esa9@pitt.edu. In addition, there is no compensation for individuals who choose to participate. Finally, if you would like to receive a copy of the final results of the survey, please check the appropriate box in the form or send a request containing your mail address to esa9@pitt.edu. Please, return the completed questionnaire as soon as possible. Thank you for your interest and your time.

Thank you for your help!

Best regards

Esteban Anzoise
Graduate Researcher
Department of Administrative and Policy Studies
School of Education – University of Pittsburgh

Octubre 1ro, 2005

To:
Participant
School of Engineering
Address Line 1
Address line 2
Argentina

Referencia: Investigación sobre el proceso de acreditación en las facultades de ingeniería en la República Argentina

Estimado Colega:

En las últimas dos semanas, debe haber llegado a su oficina una carta invitándolo a participar en una investigación sobre el proceso de acreditación en las facultades de ingeniería en la República Argentina. A la fecha, todavía no he recibido su formulario.

Dado el enorme impacto de la UTN en la formación de ingenieros en Argentina, el análisis de su proceso de acreditación será el primer paso en este estudio. La valiosa información que usted proveerá será no solo una invalorable contribución para el campo educativo sino también para la calidad en instituciones universitarias. Este cuestionario esta focalizado principalmente en tres áreas: 1) ¿cuáles son los aspectos más importantes del actual proceso de acreditación identificados por los administradores académicos de más alta jerarquía y los jefes de departamento de las facultades de ingeniería argentinas?, 2) ¿tienen los administradores académicos de más alta jerarquía y los jefes de departamento una perspectiva diferente de las fortalezas y debilidades del actual proceso de acreditación?, y 3) ¿qué es los que recomiendan los administradores académicos de más alta jerarquía y los jefes de departamento para mejorar el proceso de acreditación?

Si usted ya ha completado y regresado su cuestionario, por favor acepte mi más sincero agradecimiento por su ayuda. Si todavía no lo ha hecho y aun desea participar en esta investigación, por favor complete el formulario impreso o el electrónico en cuenta de e-mail. El tiempo promedio para llenar el cuestionario es de veinte a treinta minutos. Si usted decide llenar el cuestionario impreso, por favor utilice el sobre con la dirección impresa adjunto para retorno así como la orden de franqueo internacional adjunta para pagar el franqueo que llego con la primera invitación.

Su participación es este estudio es completamente voluntaria y usted puede dejarlo en cualquier momento con solo contactarme por e-mail a esa9@pitt.edu. No hay compensación monetaria para aquellas personas que acepten responder este cuestionario. Finalmente si usted desea recibir una copia de los resultados de esta investigación por favor marque la opción correspondiente en el cuestionario o envíeme su pedido por e-mail a esa9@pitt.edu. Por favor, regrese el cuestionario electrónico o el impreso tan pronto como pueda. Gracias nuevamente por su interés y su tiempo.

Atentamente

Esteban Anzoise

Department of Administrative and Policy Studies
School of Education – University of Pittsburgh

Estimado Colega:

En las últimas dos semanas, debe haber llegado a su oficina una carta invitándolo a participar en una investigación sobre el proceso de acreditación en las facultades de ingeniería en la República Argentina. Si usted todavía no recibió el primer e-mail con el link para acceder al formulario electrónico, puede acceder a dicho formulario mediante el link al final de este e-mail.

Una segunda copia de esta encuesta llegara también por correo regular. El tiempo promedio para llenar el cuestionario es de veinte a treinta minutos. Si usted decide llenar el cuestionario impreso, por favor utilice el sobre con la dirección impresa adjunto para retorno así como la orden de franqueo internacional adjunta para pagar el franqueo que llego con la primera invitación.

Si usted ya ha completado y regresado su cuestionario, por favor acepte mi mas sincero agradecimiento por su ayuda.

Su participación es este estudio es completamente voluntaria y usted puede dejarlo en cualquier momento con solo contactarme por e-mail a esa9@pitt.edu. No hay compensación monetaria para aquellas personas que acepten responder este cuestionario. Finalmente si usted desea recibir una copia de los resultados de esta investigación por favor marque la opción correspondiente en el cuestionario o envíeme su pedido por e-mail a esa9@pitt.edu. Por favor, regrese el cuestionario electrónico o el impreso llenado con sus respuestas para Octubre 10, 2005. Gracias nuevamente por su interés y su tiempo.

Atentamente

Esteban Anzoise
Department of Administrative and Policy Studies
School of Education
University of Pittsburgh

Por favor haga click en el siguiente link para acceder al formulario electrónico o copie y pegue la dirección en su browser:

APPENDIX D

LAST FOLLOW UP TO PARTICIPANTS

Estimado Colega:

Estoy concluyendo la recopilación de datos sobre el proceso de acreditación en la UTN. En las últimas tres semanas, debe haber llegado a su oficina una segunda carta invitándolo a participar en una investigación sobre el proceso de acreditación en las facultades de ingeniería en la República Argentina. Si usted todavía no decidió llenar el formulario impreso, ésta es la oportunidad de compartir sus experiencias y recomendaciones accediendo al formulario electrónico mediante el link al final de este e-mail.

El tiempo promedio para llenar el cuestionario es de veinte a treinta minutos. Si usted decide llenar el cuestionario impreso, por favor utilice el sobre con la dirección impresa adjunto para retorno asi como la orden de franqueo internacional adjunta para pagar el franqueo que llegó con la primera invitación.

Si usted ya ha completado y regresado su cuestionario, por favor acepte mi mas sincero agradecimiento por su ayuda.

Su participación es este estudio es completamente voluntaria y usted puede dejarlo en cualquier momento con solo contactarme por e-mail a esa9@pitt.edu. No hay compensación monetaria para aquellas personas que acepten responder este cuestionario. Finalmente si usted desea recibir una copia de los resultados de esta investigación por favor marque la opción correspondiente en el cuestionario o envíeme su pedido por e-mail a esa9@pitt.edu. Por favor, regrese el cuestionario electrónico o el impreso llenado con sus respuestas para Octubre 10, 2005. Gracias nuevamente por su interés y su tiempo.

Atentamente

Esteban Anzoise
Department of Administrative and Policy Studies
School of Education
University of Pittsburgh

Por favor haga click en el siguiente link para acceder al formulario electrónico o copie y pegue la dirección en su browser:

APPENDIX E

SURVEY QUESTIONNAIRE

Accreditation Process in the Schools of Engineering

in the Argentine Republic Research - I.R.B. Nº: 0504128

1. Please rate the following statements in terms of your judgment of the importance of the Accreditation process for your school.

		STRONGLY AGREE	*AGREE*	*NEUTRAL*	*DISAGREE*	*STRONGLY DISAGREE*	*DON'T KNOW*
Accreditation plays an important role in improving our institution		*1*	*2*	*3*	*4*	*5*	
Efforts to evaluate the effectiveness of our institution are worthwhile		*1*	*2*	*3*	*4*	*5*	
Accreditation activities are an important component of my job responsibilities		*1*	*2*	*3*	*4*	*5*	
Accreditation is not a fad		*1*	*2*	*3*	*4*	*5*	
Accreditation will continue to have a high priority in our institution		*1*	*2*	*3*	*4*	*5*	
Accreditation at our institution would be strengthened by more active participation of faculty members		*1*	*2*	*3*	*4*	*5*	
Resources dedicated to accreditation activities are investments in the long term health of our institution		*1*	*2*	*3*	*4*	*5*	
Accreditation restricts the academic freedom in our school		*1*	*2*	*3*	*4*	*5*	
Accreditation budget have a negative impact on other more important activities		*1*	*2*	*3*	*4*	*5*	
Accreditation demands more attention from senior administrators than other activities		*1*	*2*	*3*	*4*	*5*	
Accreditation process has increased the cooperation between faculty and senior administrators		*1*	*2*	*3*	*4*	*5*	
Accreditation process often triggers the interest for other quality initiatives		*1*	*2*	*3*	*4*	*5*	
Assessment plays an important role in improving our institution		*1*	*2*	*3*	*4*	*5*	
Other impacts (Please, specify):		*1*	*2*	*3*	*4*	*5*	
		1	*2*	*3*	*4*	*5*	
		1	*2*	*3*	*4*	*5*	
		1	*2*	*3*	*4*	*5*	

2. What is the current status of the accreditation process in your department?

	NOT GRANTED
	3 YEAR ACCREDITATION
	6 YEAR ACCREDITATION
	STILL AWAITING FOR THE RESULTS

(Please, over)

3. Please, rate the extent of the implementation of planning activities to support the accreditation process.	*FULLY IMPLEMENTED* *ALMOST FULLY IMPLEMENTED* *MODERATELY IMPLEMENTED* *ALMOST NOT IMPLEMENTED* *NOT IMPLEMENTED* *DON'T KNOW*					
Organizational planning for the accreditation process		*1*	*2*	*3*	*4*	*5*
Communication System for accreditation information (E-mail/Document/Website/Formal Meetings / Informal Meetings)		*1*	*2*	*3*	*4*	*5*
Steering Committee for the accreditation process		*1*	*2*	*3*	*4*	*5*
Dealing with various groups inside and outside the university about accreditation issues		*1*	*2*	*3*	*4*	*5*
Open hearings as part of the accreditation process		*1*	*2*	*3*	*4*	*5*
Final Evaluation of the planning process for accreditation		*1*	*2*	*3*	*4*	*5*
Others actions (Please, specify):						
		1	*2*	*3*	*4*	*5*
		1	*2*	*3*	*4*	*5*

4. How effective were the planning activities to support the accreditation process?	*VERY EFFECTIVE* *EFFECTIVE* *MODERATELY EFFECTIVE* *LITTLE EFFECTIVE* *NOT EFFECTIVE* *DON'T KNOW*					
Organizational planning for the accreditation process		*1*	*2*	*3*	*4*	*5*
Communication System for accreditation information (E-mail/Document/Website/Formal Meetings / Informal Meetings)		*1*	*2*	*3*	*4*	*5*
Steering Committee for the accreditation process		*1*	*2*	*3*	*4*	*5*
Dealing with various groups inside and outside the university about accreditation issues		*1*	*2*	*3*	*4*	*5*
Open hearings as part of the accreditation process		*1*	*2*	*3*	*4*	*5*
Final Evaluation of the planning process for accreditation		*1*	*2*	*3*	*4*	*5*
Others actions (Please, specify):						
		1	*2*	*3*	*4*	*5*
		1	*2*	*3*	*4*	*5*

5. To what extent were the following factors present in your school during the Accreditation process?		*PRESENT TO EXTENSIVE EXTENT*				
		PRESENT IN LARGE EXTENT				
		PRESENT TO AVERAGE EXTENT				
		PRESENT TO SMALL EXTENT				
		NOT PRESENT AT ALL				
		DON'T KNOW				
General trust in university administration by faculty		*1*	*2*	*3*	*4*	*5*
Preparing the self study		*1*	*2*	*3*	*4*	*5*
The perception of the accreditation process as a threat to your school		*1*	*2*	*3*	*4*	*5*
Allocated budget to the accreditation process		*1*	*2*	*3*	*4*	*5*
Sustained attention by academic administrators		*1*	*2*	*3*	*4*	*5*
Local administrative restrictions on how the accreditation process must be implemented		*1*	*2*	*3*	*4*	*5*
Different perceptions and goals between faculty and academic administrators		*1*	*2*	*3*	*4*	*5*
Collaborative approaches to engage faculty in the accreditation process		*1*	*2*	*3*	*4*	*5*
Faculty concerns about possible uses of the information collected during the accreditation process		*1*	*2*	*3*	*4*	*5*
Faculty fears they will loss control over the curriculum		*1*	*2*	*3*	*4*	*5*
Governmental pressure for accreditation of your school		*1*	*2*	*3*	*4*	*5*
Public perception of dissatisfaction with higher education in engineering		*1*	*2*	*3*	*4*	*5*
Publicly stated support to the accreditation process on the part of academic administrators		*1*	*2*	*3*	*4*	*5*
Increased interest in quality initiatives in higher education among faculty and administrators		*1*	*2*	*3*	*4*	*5*
Knowledge of the accreditation process by faculty and administrators		*1*	*2*	*3*	*4*	*5*
Knowledge about quality in engineering schools by faculty and administrators		*1*	*2*	*3*	*4*	*5*
Increased understanding of the need of change by faculty and administrators		*1*	*2*	*3*	*4*	*5*
Other factors (Please, specify):						
		1	*2*	*3*	*4*	*5*
		1	*2*	*3*	*4*	*5*
		1	*2*	*3*	*4*	*5*

(Please, over)

7. To what extent the following factors impacted the Accreditation process in your school?		*VERY LARGE IMPACT*	*LARGE IMPACT*	*NEUTRAL*	*SMALL IMPACT*	*NO IMPACT AT ALL*	*DON'T KNOW*
General trust in university administration by faculty		*1*	*2*	*3*	*4*	*5*	
Preparing the self study		*1*	*2*	*3*	*4*	*5*	
The perception of the accreditation process as a threat to your school		*1*	*2*	*3*	*4*	*5*	
Allocated budget to the accreditation process		*1*	*2*	*3*	*4*	*5*	
Sustained attention by academic administrators		*1*	*2*	*3*	*4*	*5*	
Local administrative restrictions on how the accreditation process must be implemented		*1*	*2*	*3*	*4*	*5*	
Different perceptions and goals between faculty and academic administrators		*1*	*2*	*3*	*4*	*5*	
Collaborative approaches to engage faculty in the accreditation process		*1*	*2*	*3*	*4*	*5*	
Faculty concerns about possible uses of the information collected during the accreditation process		*1*	*2*	*3*	*4*	*5*	
Faculty fears they will loss control over the curriculum		*1*	*2*	*3*	*4*	*5*	
Governmental pressure for accreditation of your school		*1*	*2*	*3*	*4*	*5*	
Public perception of dissatisfaction with higher education in engineering		*1*	*2*	*3*	*4*	*5*	
Publicly stated support to the accreditation process on the part of academic administrators		*1*	*2*	*3*	*4*	*5*	
Increased interest in quality initiatives in higher education among faculty and administrators		*1*	*2*	*3*	*4*	*5*	
Knowledge of the accreditation process by faculty and administrators		*1*	*2*	*3*	*4*	*5*	
Knowledge about quality in engineering schools by faculty and administrators		*1*	*2*	*3*	*4*	*5*	
Increased understanding of the need of change by faculty and administrators		*1*	*2*	*3*	*4*	*5*	
Other factors (Please, specify):		*1*	*2*	*3*	*4*	*5*	
		1	*2*	*3*	*4*	*5*	
		1	*2*	*3*	*4*	*5*	
		1	*2*	*3*	*4*	*5*	

(Please, over)

6. How important are the different criteria in the accreditation standards?		*ESSENTIAL*				*GREAT IMPORTANCE*	*AVERAGE IMPORTANCE*	*MINOR IMPORTANCE*	*NOT IMPORTANT AT ALL*	*DON'T KNOW*
I. Institutional Context		*1*	*2*	*3*	*4*	*5*				
II. Curricula and Professional Preparation		*1*	*2*	*3*	*4*	*5*				
III. Faculty		*1*	*2*	*3*	*4*	*5*				
IV. Students and Alumni		*1*	*2*	*3*	*4*	*5*				
V. Infrastructure and Laboratories		*1*	*2*	*3*	*4*	*5*				

8. Were there problems during the Accreditation process?		Yes		No		Don't Know

9. Please describe below one or more important problems that need to be addressed in future accreditation cycles.

10. What changes are needed, if any, to improve the current criteria used in the accreditation process?

11. Please, provide the following related information

11.1. Did you participate actively in the Accreditation process? ☐ Yes ☐ No

11.2. What is your current position? (Check all that apply)

- ☐ Dean
- ☐ Vice Dean
- ☐ Assistant Dean
- ☐ Department Chair
- ☐ Faculty

11.3. If you are an Academic Administrator (Dean, Vice Dean, Assistant Dean, Chairman), how long have you been working in your highest current administrative position?

- ☐ LESS THAN 1 YEAR
- ☐ 1 TO 3 YEARS
- ☐ 4 TO 7 YEARS
- ☐ 8 TO 11 YEARS
- ☐ OVER 11 YEARS

11.4. How long have you been working as faculty in this school?

- ☐ LESS THAN 1 YEAR
- ☐ 1 TO 3 YEARS
- ☐ 4 TO 7 YEARS
- ☐ 8 TO 11 YEARS
- ☐ OVER 11 YEARS

Thank you for your participation!

Best regards,

Esteban Anzoise
Graduate Researcher
Department of Administrative and Policy Studies
School of Education – University of Pittsburgh

Please Return Survey in the pre-paid envelope to:

Esteban Anzoise
Higher Education Accreditation Research
Institute for International Studies in Education
School of Education – University of Pittsburgh
5706 Wesley W. Posvar Hall
230 S. Bouquet St
Pittsburgh, PA 15260
USA

APPENDIX F

SPANISH VERSION OF SURVEY QUESTIONNAIRE

ENCUESTA DE INVESTIGACIÓN SOBRE EL PROCESO DE ACREDITACIÓN
EN LAS FACULTADES DE INGENIERÍA EN LA REPÚBLICA ARGENTINA I.R.B. Nº: 0504128

1. Por favor evalúe los siguientes enunciados sobre la importancia que usted le atribuye al proceso de acreditación en su facultad.		*NO SE*	*TOTALMENTE EN DESACUERDO*	*PARCIALMENTE EN DESACUERDO*	*OPINION NEUTRA*	*PARCIALMENTE DE ACUERDO*	*TOTALMENTE DE ACUERDO*
El proceso de acreditación tiene un rol importante en la mejora de nuestra institución		*1*	*2*	*3*	*4*	*5*	
Los esfuerzos para evaluar la eficacia de nuestra institución son valiosos		*1*	*2*	*3*	*4*	*5*	
Las actividades relacionadas con el proceso de acreditación son una parte importante de mis responsabilidades laborales.		*1*	*2*	*3*	*4*	*5*	
La acreditación no es algo pasajero que será reemplazado por otra iniciativa.		*1*	*2*	*3*	*4*	*5*	
La acreditación seguirá teniendo alta prioridad en nuestra institución		*1*	*2*	*3*	*4*	*5*	
La acreditación de nuestra institución sería fortalecida con una más activa participación de los profesores.		*1*	*2*	*3*	*4*	*5*	
Los recursos dedicados a las actividades de acreditación son inversiones en el bienestar de nuestra institución a largo plazo.		*1*	*2*	*3*	*4*	*5*	
La acreditación restringe la libertad académica en nuestra facultad		*1*	*2*	*3*	*4*	*5*	
El presupuesto asignado al proceso de acreditación restringe otras actividades más importantes		*1*	*2*	*3*	*4*	*5*	
La acreditación demanda más atención por parte de los administradores de más alta jerarquía que otras actividades		*1*	*2*	*3*	*4*	*5*	
El proceso de acreditación ha incrementado la cooperación entre profesores y administradores académicos de más alta jerarquía		*1*	*2*	*3*	*4*	*5*	
El proceso de acreditación a menudo despierta el interés por otras iniciativas relacionadas con la calidad		*1*	*2*	*3*	*4*	*5*	
El proceso de evaluación tiene un rol importante en la mejora de nuestra institución		*1*	*2*	*3*	*4*	*5*	
Otros impactos (Por favor, especifique):		*1*	*2*	*3*	*4*	*5*	
		1	*2*	*3*	*4*	*5*	
		1	*2*	*3*	*4*	*5*	
		1	*2*	*3*	*4*	*5*	

2. ¿Cuál es el actual status del proceso de acreditación en su departamento?

	No concedida
	Acreditación por tres años
	Acreditación por seis años
	Todavía a la espera del resultado

3. Por favor evalúe en que medida las siguientes actividades de planificación fueron implementadas para ayudar al proceso de acreditación.		*TOTALMENTE IMPLEMENTADA* *CASI TOTALMENTE IMPLEMENTADA* *MODERADAMENTE IMPLEMENTADA* *CASI NO IMPLEMENTADA* *NO IMPLEMENTADA* *NO SE*					
Planificación organizacional del proceso de acreditación		*1*	*2*	*3*	*4*	*5*
Sistema de comunicación para informar sobre los avances del proceso de acreditación (E-mail/Documentos/Website/Reuniones Formales/Reuniones Informales)		*1*	*2*	*3*	*4*	*5*
Comité Asesor o Responsable del proceso de acreditación		*1*	*2*	*3*	*4*	*5*
Proceso de negociación con diferentes grupos de opinión dentro y fuera de la universidad sobre el proceso de acreditación		*1*	*2*	*3*	*4*	*5*
Debate Público como parte del proceso de acreditación		*1*	*2*	*3*	*4*	*5*
Evaluación final del proceso de planificación para la acreditación		*1*	*2*	*3*	*4*	*5*
Otras acciones (Por favor, especifique):						
		1	*2*	*3*	*4*	*5*
		1	*2*	*3*	*4*	*5*
		1	*2*	*3*	*4*	*5*

4. ¿Cuán efectivas fueron las actividades de planificación para ayudar a la implementación del proceso de acreditación?		*MUY EFECTIVAS* *EFECTIVAS* *MODERADAMENTE EFECTIVAS* *POCO EFECTIVAS* *NO EFECTIVAS* *NO SE*				
Planificación organizacional del proceso de acreditación		*1*	*2*	*3*	*4*	*5*
Sistema de comunicación para informar sobre los avances del proceso de acreditación (E-mail/Documentos/Website/Reuniones Formales/Reuniones Informales)		*1*	*2*	*3*	*4*	*5*
Comité Asesor o Responsable del proceso de acreditación		*1*	*2*	*3*	*4*	*5*
Proceso de negociación con diferentes grupos de opinión dentro y fuera de la universidad sobre el proceso de acreditación		*1*	*2*	*3*	*4*	*5*
Debate Público como parte del proceso de acreditación		*1*	*2*	*3*	*4*	*5*
Evaluación final del proceso de planificación para la acreditación		*1*	*2*	*3*	*4*	*5*
Otras acciones (Por favor, especifique):						
		1	*2*	*3*	*4*	*5*
		1	*2*	*3*	*4*	*5*
		1	*2*	*3*	*4*	*5*

5. ¿En qué medida los siguientes factores estuvieron presente durante el proceso de acreditación en su facultad?		*AMPLIAMENTE PRESENTE*	*PRESENTE EN GRAN MEDIDA*	*PRESENTE EN REGULAR MEDIDA*	*PRESENTE EN PEQUEÑA MEDIDA*	*NO ESTUVO PRESENTE*	*NO SE*
Confianza general de los profesores en la administración de la universidad		*1*	*2*	*3*	*4*	*5*	
El proceso para preparar la autoevaluación		*1*	*2*	*3*	*4*	*5*	
La percepción del proceso de acreditación como una amenaza a su facultad		*1*	*2*	*3*	*4*	*5*	
Recursos financieros para el proceso de acreditación		*1*	*2*	*3*	*4*	*5*	
Atención constante al proceso de acreditación por los administradores académicos		*1*	*2*	*3*	*4*	*5*	
Imposición por parte de la administración en cómo el proceso de acreditación se tiene que implementar		*1*	*2*	*3*	*4*	*5*	
Diferentes percepciones y objetivos entre profesores y administradores académicos		*1*	*2*	*3*	*4*	*5*	
Estrategias colaborativas para que los profesores sean parte del proceso de acreditación		*1*	*2*	*3*	*4*	*5*	
Los profesores están temerosos de la real aplicación de la información que se recoge durante el proceso de acreditación		*1*	*2*	*3*	*4*	*5*	
Los profesores están temerosos de perder control sobre el currículum		*1*	*2*	*3*	*4*	*5*	
Presión gubernamental para que su institución participe del proceso de acreditación		*1*	*2*	*3*	*4*	*5*	
Presión de la opinión pública por no estar satisfecha con la educación universitaria en ingeniería		*1*	*2*	*3*	*4*	*5*	
Los administradores académicos han hecho público su apoyo al proceso de acreditación		*1*	*2*	*3*	*4*	*5*	
Interés creciente, entre profesores y administradores académicos, en iniciativas relacionadas con la calidad en la educación universitaria		*1*	*2*	*3*	*4*	*5*	
Profesores y administradores académicos conocen cómo implementar el proceso de acreditación		*1*	*2*	*3*	*4*	*5*	
Profesores y administradores académicos entienden el concepto de calidad para escuelas de ingeniería		*1*	*2*	*3*	*4*	*5*	
Profesores y administradores académicos tienen una creciente comprensión de la necesidad de cambio		*1*	*2*	*3*	*4*	*5*	
Otros factores (Por favor, especifique):							
		1	*2*	*3*	*4*	*5*	
		1	*2*	*3*	*4*	*5*	
		1	*2*	*3*	*4*	*5*	

7. ¿En qué medida los siguientes factores impactaron en el proceso de acreditación en su facultad?		*NO SE*	*NO IMPACTO*	*IMPACTO EN PEQUEÑA MEDIDA*	*IMPACTO NEUTRO*	*GRAN IMPACTO*	*ENORME IMPACTO*
Confianza general de los profesores en la administración de la universidad		*1*	*2*	*3*	*4*	*5*	
El proceso para preparar la autoevaluación		*1*	*2*	*3*	*4*	*5*	
La percepción del proceso de acreditación como una amenaza a su facultad		*1*	*2*	*3*	*4*	*5*	
Recursos financieros para el proceso de acreditación		*1*	*2*	*3*	*4*	*5*	
Atención constante al proceso de acreditación por los administradores académicos		*1*	*2*	*3*	*4*	*5*	
Imposición por parte de la administración en cómo el proceso de acreditación se tiene que implementar		*1*	*2*	*3*	*4*	*5*	
Diferentes percepciones y objetivos entre profesores y administradores académicos		*1*	*2*	*3*	*4*	*5*	
Estrategias colaborativas para que los profesores sean parte del proceso de acreditación		*1*	*2*	*3*	*4*	*5*	
Los profesores están temerosos de la real aplicación de la información que se recoge durante el proceso de acreditación		*1*	*2*	*3*	*4*	*5*	
Los profesores están temerosos de perder control sobre el currículum		*1*	*2*	*3*	*4*	*5*	
Presión gubernamental para que su institución participe del proceso de acreditación		*1*	*2*	*3*	*4*	*5*	
Presión de la opinión pública por no estar satisfecha con la educación universitaria en ingeniería		*1*	*2*	*3*	*4*	*5*	
Los administradores académicos han hecho público su apoyo al proceso de acreditación		*1*	*2*	*3*	*4*	*5*	
Interés creciente, entre profesores y administradores académicos, en iniciativas relacionadas con la calidad en la educación universitaria		*1*	*2*	*3*	*4*	*5*	
Profesores y administradores académicos conocen cómo implementar el proceso de acreditación		*1*	*2*	*3*	*4*	*5*	
Profesores y administradores académicos entienden el concepto de calidad para escuelas de ingeniería		*1*	*2*	*3*	*4*	*5*	
Profesores y administradores académicos tienen una creciente comprensión de la necesidad de cambio		*1*	*2*	*3*	*4*	*5*	
Otros factores (Por favor, especifique):							
		1	*2*	*3*	*4*	*5*	
		1	*2*	*3*	*4*	*5*	
		1	*2*	*3*	*4*	*5*	

6. ¿Cuán importantes son para usted los diferentes criterios de las normas para la acreditación?		*ESENCIAL*				
		DE GRAN IMPORTANCIA				
		IMPORTANCIA PROMEDIO				
		DE MENOR IMPORTANCIA				
		NO IMPORTANTE				
		NO SE				
I. Contexto Institucional		*1*	*2*	*3*	*4*	*5*
II. Plan de Estudios y Preparación Profesional		*1*	*2*	*3*	*4*	*5*
III. Profesores		*1*	*2*	*3*	*4*	*5*
IV. Estudiantes y Graduados		*1*	*2*	*3*	*4*	*5*
V. Infraestructura y Equipamiento		*1*	*2*	*3*	*4*	*5*

(Por favor, de vuelta la página)

8. ¿Existieron problemas durante el proceso de acreditación?		SI		NO		NO SE

9. Por favor describa uno o más problemas que deben ser considerados en los futuros ciclos de acreditación.

10. ¿Cuáles serían los cambios necesarios, si se necesitara alguno, para mejorar los actuales criterios usados en el proceso de acreditación?

(Por favor, de vuelta la página)

11. Por favor, provea la siguiente información:

11.1. ¿Usted participó activamente en el proceso de acreditación**?** ☐ Si ☐ No

11.2. ¿Cuál es su cargo actual**?** (Marque todas las opciones que correspondan)

- ☐ Decano
- ☐ Vicedecano
- ☐ Secretario Académico
- ☐ Jefe de Departamento
- ☐ Profesor

11.3. Si usted es uno de los administradores académicos de más alta jerarquía (Decano, Vicedecano, Secretario Académico, Jefe de Departamento), ¿desde cuándo está usted ocupando el mas alto cargo**?**

- ☐ Menos de 1 año
- ☐ 1 a 3 años
- ☐ 4 a 7 años
- ☐ 8 a 11 años
- ☐ Más de 11 años

11.4. ¿Desde hace cuánto tiempo usted está trabajando como profesor en esta facultad?

- ☐ Menos de 1 año
- ☐ 1 a 3 años
- ☐ 4 a 7 años
- ☐ 8 a 11 años
- ☐ Más de 11 años

Por favor, indique si desea recibir una copia de los resultados de esta investigación ☐ Si ☐ No

¡Gracias por su participación!

Muy atentamente

Esteban Anzoise
Department of Administrative and Policy Studies
School of Education
University of Pittsburgh
Coding:

Por favor regrese esta encuesta completa usando el sobre y la orden de franqueo internacional adjuntos a:

Esteban Anzoise
Higher Education Accreditation Research
Institute for International Studies in Education
School of Education – University of Pittsburgh
5706 Wesley W. Posvar Hall
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Pittsburgh, PA 15260
USA

APPENDIX G

OTHER PLANNING ACTIVITIES MENTIONED IN SURVEY QUESTION 3

Table 62: Other Planning Activities with their Rating and Demographic Data of Respondents

Question 3: Others actions (Please, specify):	Rating	Position		Years in the Position	Years as a Faculty
		Senior	Chair Person		
Actions to implement the accreditation process					
Formar a los docentes para qué puedan colaborar en el proceso de acreditación.	4	1		2	5
Plan de capacitación	2		1	5	5
Se implementó un sistema de procesamiento de datos específico para la acreditación	3	1		N/A	5
Montaje de un operativo concreto para relevar la información necesaria.	5		1	N/A	5
Pruebas diagnóstico	5		1	5	5
Evaluación de conocimientos y competencia de los alumnos avanzados (ACCEDE)	5	1		3	5
Modificación parcial de los planes de estudio	3		1	5	5
Seguimiento del plan de mejoras	4		1	4	5
Plan de mejoras implementadas	5		1	4	5
Generación de planes de mejoras académicas	5		1	3	5

Table 62 (continued)

Question 3: Others actions (Please, specify):	Rating	Position		Years in the Position	Years as a Faculty
		Senior	Chair Person		
Communication System					
Informar a los alumnos y personal administrativo sobre el proceso de acreditación.	4	1		2	5
Reuniones de Directores de Departamento de la distintas carreras con presencia del Decano y Secretario Académico de la Facultad	3		1	3	5
Reuniones con docentes de la carrera y Consejo Departamental	3		1	3	5
Negotiation with different groups					
Consulta con Unidades Académicas afines	4	1		1	1
Fijar líneas de acciones conjuntas con otras facultades regionales de la UTN.	4	1		2	5
Coordinación con instituciones similares	3		1	5	5
Participación de graduados	2		1	3	5
Participación de estudiantes	2		1	3	5
Encuestas a alumnos y profesores	5	1		3	5

APPENDIX H:

EFFECTIVENESS OF OTHER PLANNING ACTIVITIES MENTIONED IN SURVEY QUESTION 4

Table 63: Effectiveness of Other Planning Activities with their Rating and Demographic Data of Respondents

Question 4: Others actions (Please, specify):	Rating	Position		Years in the Position	Years as a Faculty
		Senior	Chair Person		
Actions to implement the accreditation process					
Formar a los docentes para qué puedan colaborar en el proceso de acreditación.	N/R				
Plan de capacitación	2		1	5	5
Se implementó un sistema de procesamiento de datos específico para la acreditación	3	1			5
Montaje de un operativo concreto para relevar la información necesaria.	5	1			5
Pruebas diagnóstico	4		1	5	5
Evaluación de conocimientos y competencias de alumnos avanzados	4	1		3	5
Formularios	4	1		3	5
Auto evaluación institucional	5	1		3	5
Programas de mejora	5	1		3	5
Communication System					
Informar a los alumnos y personal administrativo sobre el proceso de acreditación.	N/R				

Table 63 (continued)

Question 4: Others actions (Please, specify):	Rating	Position		Years in the Position	Years as a Faculty
		Senior	Chair Person		
Communication System					
Reuniones de Directores de Departamento de la distintas carreras con presencia del Decano y Secretario Académico de la Facultad	4		1	3	5
Reuniones con docentes de la carrera y Consejo Departamental	4	1		3	5
Reuniones con los Consejos Departamentales de cada una de las Carreras en proceso de acreditación.	3	1		2	5
Reuniones con los docentes designados como responsables del proceso de acreditación de su carrera.	4	1		2	5
Reuniones con las autoridades para la coordinación en la implementación del proceso de acreditación.	5	1		2	5
Reunión particulares de profesores comprometidos con el proceso de acreditación	5		1	5	5
Negotiation with different groups					
Consulta con Unidades Académicas afines	4	1		1	1
Fijar líneas de acciones conjuntas con otras facultades regionales de la UTN.	N/R				
Coordinación con instituciones similares	3		1	5	5
Participación de graduados	N/R				
Participación de estudiantes	N/R				
Encuestas a alumnos y profesores	N/R				

APPENDIX I

PRESENCE OF OTHER FACTORS MENTIONED BY RESPONDENTS IN SURVEY

QUESTION 5

Table 64: Extent of the Presence of Other Factors during the Accreditation Process with their Rating and Demographic Data of Respondents

Question 5: Others factors (Please, specify):	Rating	Position		Years in the Position	Years as a Faculty
		Senior	Chair Person		
Internal support					
La presentación al proceso fue voluntaria	5		1	4	5
Interés creciente, entre alumnos y administradores académicos, en iniciativas relacionadas con la calidad en la educación universitaria	3	1		2	5
Temor de los estudiantes por la posibilidad de perder los años cursados	4		1	3	5
Los alumnos se involucran en el proceso de acreditación	4		1	5	5
External support					
Competencia con otras universidades	3		1	5	5
Necesidad de contar con un sello de calidad externo	5	1		3	5
Se consultó el ámbito empresario en la zona de influencia	1		1	5	5
Las empresas ya solicitan profesionales de facultades acreditadas	5		1	3	5
Mala situación de la educación en la Argentina	4	1		1	1
Resistance Factor: Cultural resistance					
Diferentes percepciones y objetivos entre alumnos y administradores del proceso de acreditación	3	1		2	5
La obligación de cumplimentar los papeles antes que pensar en una mejora del proceso educativo.	5		1	N/A	5

Table 64 (continued)

Question 5: Others factors (Please, specify):	Rating	Position		Years in the Position	Years as a Faculty
		Senior	Chair Person		
Angustia ante la responsabilidad de llevar a buen término el proceso de acreditación de la carrera	5		1	3	5
Agobio ante los plazos a cumplir.	5		1	3	5
Los evaluadores conocen los objetivos de la institución	2		1	5	5
Evaluación responsable de parte de los pares que visitaron la institución	1		1	2	5

APPENDIX J

IMPORTANCE OF OTHER IMPACTS OF THE ACCREDITATION PROCESS MENTIONED BY RESPONDENTS IN SURVEY QUESTION 1

Table 65: Importance of Other Impacts of the Accreditation Process with their Rating and Demographic Data of Respondents

Question 1: Others impacts (Please, specify):	Rating	Position		Years in the Position	Years as a Faculty
		Senior	Chair Person		
Accreditation improves the communication with other departments or institutions					
Mejor vinculación con otras facultades o universidades	4	1		4	5
Mejor relación con otros departamentos	5		1	4	5
El proceso de acreditación motivo el incremento de contactos con otras instituciones similares	5		1	5	5
Mejor vinculación con otras facultades o universidades	4		1	4	5
Accreditation makes all personnel aware of the institution					
General alto compromiso institucional	5	1		3	5
Concientización académica por parte de las autoridades administrativas	4		1	2	5
Accreditation improves the public and the organizational image of the institution					
Termina con prejuicios institucionales e interinstitucionales	5	1		3	5
Posiciona mejor la institución ante la sociedad	5	1		3	5

Table 65 (continued)

Question 1: Others impacts (Please, specify):	Rating	Position		Years in the Position	Years as a Faculty
		Senior	Chair Person		
Peer profile and indicators do not impact in the accreditation process					
Diseño técnico de los indicadores	2		1	3	5
Perfil de los evaluadores para ingeniería	2		1	3	5
Accreditation demands a reorganization of the institution and/or departments					
Organización técnico administrativa de los departamentos	5		1	3	5
Obliga a un alto reordenamiento de la institución	5		1	2	5
El proceso de acreditación llevo a revisar hábitos adquiridos	5		1	5	5
Asegura la homogenización de cada carrera que se dicta en distintos puntos del país	5		1	2	5
Accreditation demands adequate budget					
Al no asignarse recursos adicionales para el proceso de evaluación se afectan otras actividades	5		1	5	5
Asignación de fondos para equipamiento de laboratorios	5		1	3	5

APPENDIX K

MOST IMPORTANT PROBLEMS THAT NEED TO BE ADDRESSED IN FUTURE ACCREDITATION CYCLES AS REPORTED BY RESPONDENTS IN SURVEY QUESTION 9

Table 66: Problems Reported by the respondents in Survey Question 9

PROBLEM TO BE ADDRESSED	SENIOR ADMINISTRATOR	CHAIR PERSON
Peer Committee		
Uniformidad de criterio en los pares evaluadores	1	
Los integrantes de los comités de pares que realizaron la visita a la unidad académica, tenían criterios dispares para la evaluación.		1
En el caso de la UTN, que tiene Facultades distribuidas en todo el país, las mismas fueron visitadas por distintos grupos de evaluadores. Ante iguales situaciones las recomendaciones en algunos casos han sido diferentes		1
Los pares evaluadores deben ser entrenados y certificados para ejercer la evaluación, quizás similar a como se adiestran los auditores de gestión de calidad según norma ISO 9000		1
Se deben plantear instancias previas a las evaluaciones en las cuales se homogeinizen los criterios de análisis y evaluación por parte de los auditores (evaluadores) o sea debe transmitirse a todos los evaluadores los mismos criterios		1
Se les dio demasiada importancia a la investigación en desmedro de la calidad académica	1	
Historia de la institución y medio ambiente social en el que se desempeña	1	
Perfil de los evaluadores	1	
Los pares evaluadores son todos del área de investigación. Teniendo en cuenta que los graduados de nuestra facultad ingresan en su mayoría a PYMES o forman su propia microempresa como independientes, el comité de evaluadores tiene que estar integrado también por Ing. empresarios, Gerentes de planta e Ing. Empresarios independientes.	1	
Definición del perfil de los pares evaluadores	1	
Los pares evaluadores en general no son especialistas en la carrera que evalúan	1	

Table 66 (continued)

PROBLEM TO BE ADDRESSED	SENIOR ADMINISTRATOR	CHAIR PERSON
Elegir pares evaluadores alineados con la visión de la institución. En nuestra facultad recibimos la visita de pares evaluadores con formación científica (Licenciados en ciencia) cuya visión de la misión de la facultad se inclino hacia la investigación básica en desmedro de la investigación aplicada mas propia de una escuela de ingeniería		1
El proceso de acreditación debe ser mas minucioso, requiere de un análisis profundo de organismos colegiados mixtos compuestos por especialistas de la educación y profesionales de la ingeniería		1
Constatación previa de la idoneidad apropiada de los pares evaluadores	1	
On-site evaluation		
Tiempo de los evaluadores para realizar el trabajo (escaso)	1	
La visita a las unidades académicas deben ser de mayor duración.		1
Software to Submit Self-evaluation		
Software más amigable.		1
Sistema informático para la recolección de datos	1	
Problemas con el Software de las bases de datos, por incongruencia en la definición de los datos a cargar		1
Los sistemas de información enviados por la CONEAU	1	
Mal implementados todos los softwares, incompatibles entre sí. No servían para interpretar datos. No tuvieron en cuenta las carreras de ingeniería cuando no estaban en universidad tradicional. Se guiaron por otros modelos cuando las realidades eran otras. Quienes recogieron la información no conocen las realidades de las carreras y los actores debieron adecuarse a responder a medias muchas de las informaciones, con los consiguientes resultados estadísticos desastrosos		1
Graves problemas con el software para la carga de datos.		1
Accreditation Criteria		
Todo plan de mejoras deben acompañarse de facilidades de crédito de dinero para que sean factibles en tiempo y forma		1
Coherencia entre la política financiera educativa y las exigencias solicitadas para poder acreditar la carrera.		1
PROBLEMA: Necesidades presupuestarias acordes a las mejoras a implementar. DESCRIPCION: Durante el proceso no hubo posibilidades de planificar con el presupuesto acorde. Actualmente el Estado Nacional ha implementado programas y proyectos de financiamiento, a partir de los resultados de la acreditación.	1	
Las directivas ministeriales sobre los ítems a evaluar fueron insuficientes y confusas. Hubo requisitos que los conocimos recién cuando nos visitaron los pares evaluadores		1
Criterios de evaluación más claros y ecuánimes, teniendo en cuenta las características de las carreras: profesionalisantes o científicas.		1

Table 66 (continued)

PROBLEM TO BE ADDRESSED	SENIOR ADMINISTRATOR	CHAIR PERSON
Self-study report		
Seguimiento del egresado	1	
Seguimiento del alumno	1	
Relación ingreso vs. Egreso	1	
Inadecuación de la documentación relacionada	1	
Documentación muy compleja		1
Diseño de los indicadores	1	
Proceso mas ágil (menos tiempo)	1	
Respuestas a consultas realizadas al equipo técnico en la CONEAU	1	
Los plazos muy breves para presentación de los informes. Pocas personas a las cuales recurrir para consultas cuando se están elaborando los informes.	1	
El mayor problema se centró en el relevamiento de información.		1
Control sistemático durante el proceso de evaluación y revisión previa y minuciosa al envío del informe final a la CONEAU	1	
Faculty Participation		
Participación total de Docentes en las Planificaciones, Propuestas y Mejoras propias de cada Cátedra.		1
Para que el docente se involucre mas debe haber una carrera docente, evaluación continua, y mejores salarios		1
Mayor participación de docentes (y compromiso)	1	
La recopilación de los datos se vió comprometida por la demora en entregar las planillas por parte de algunos docentes.		1
la participación de todos los claustros	1	
El proceso de competencia puede ser atroz entre sedes muy cercanas con los mismos docentes. La racionalidad del sistema no debe provenir de sus actores sino de una política de estado coherente		1
grado de participación, interés decreciente por prolongarse demasiado los plazos	1	
Academic Administrators		
Integración participativa del grupo de Conducción con el resto de los Claustros, al efecto del proceso de Acreditación y Gestión Académica. Cumplimiento a plano de las Mejoras Propuestas, por todos.		1
No hubo suficiente difusión del tema hacia la comunidad educativa en general. Se dio publicidad al tema pero no hubo suficiente comunicación sobre los avances y compromisos		1
La compleja coordinación ente las distintas facultades que enseñan carreras de ingeniería		1
El/los administradores académicos deben ser idóneos en procesos de acreditación y conocer completamente la currícula de su escuela de ingeniería		1
Desconocimiento del proceso por parte de los administradores.		1
Se planteó el proceso como una competencia entre Departamentos. La institución falló al presentar una estrategia de trabajo en conjunto.		1

Table 66 (continued)

PROBLEM TO BE ADDRESSED	SENIOR ADMINISTRATOR	CHAIR PERSON
Community		
No se busco participación de la comunidad en general (autoridades y emperezas de la zona de influencia)		1
Incrementar la relación de las actividades de investigación con las actividades de grado	1	
Incrementar la difusión de los resultados de investigación al medio	1	
Fortalecer la vinculación de las actividades de departamentos y cátedras con el medio sea industrial y social		1
Accreditation Budget		
No se asignaron recursos adicionales para realizar los proceso de auto evaluación y acreditación lo que afecto el desarrollo de otras actividades e iniciativas en curso		1
Debería desarrollarse un programa de acreditación desde la secretaria de políticas universitarias que incluya el financiamiento necesario para las actividades e insumos del proceso. Las universidades argentinas en general tienen muy escasos recursos para funcionamiento, los que no deberían aplicarse a estas actividades	1	
Insuficientes recursos económicos para llevar a cabo el proceso.		1
Impact of Accreditation		
Muy buena la implementación del PROMEI por parte de la SPU, otorgando fondos a las carreras acreditadas en función de los planes de mejora y loe requerimientos de la acreditación	1	
Concertar con los organismos representativos profesionales los requerimientos determinantes del perfil profesional requerido por el país		1
Aumentar el número de docentes con formación de postgrado	1	
Aumentar el número de docentes con dedicación exclusiva	1	
Organizational improvement		
La importancia de las dedicaciones exclusivas de los docentes de grado de cátedras que incluya la docencia – investigación y transferencia		1
Coordinar y planificar las actividades de los grupos de investigación para evitar superposiciones de funciones	1	
Mejorar los laboratorios que permitan mejorar la practicas y desarrollar investigación, fundamentalmente aplicada		1
Assessment		
la toma de exámenes individuales a alumnos del ultimo año. Falta de cumplimiento en los plazos por el ente evaluador		1
Otros problemas se han presentado con el ACCEDE (exámenes a alumnos)al poder intervenir con un número de asignaturas, dándose casos donde no habían cursado algunas de las asignaturas de donde los problemas formaban parte.		1
Students		
La articulación entre el nivel Medio de Educación y la Universidad a efectos de tratar de disminuir la deserción temprana y el desgranamiento.		1

Table 66 (continued)

PROBLEM TO BE ADDRESSED	SENIOR ADMINISTRATOR	CHAIR PERSON
Revisar los sistemas de pasantías de los alumnos que provocan demora en su graduación y, en algunos casos, hasta la deserción tardía.		1
Deserción de alumnos	1	
Accreditation Status		
Se debe relacionar con mucho cuidado los presupuestos que se asignan a las unidades académicas vs. los resultados que se obtienen en la calidad académica.		1
El estudiante de nuestra facultad trabaja no menos de ocho horas diarias y esto no se tuvo en cuenta al medir la eficiencia académica de los educandos	1	
Debe considerarse el bajo presupuesto con que opera nuestra facultad, esto influye en el equipamiento de laboratorio, bibliografía, dedicaciones de los docentes, etc.	1	
cumplir con los planes de mejoras propuestos por CONEAU		1
Considero que no ha sido equitativo la valoración de las distintas instituciones	1	
Además deben intensificarse las reuniones de consistencia final de los dictámenes		1

APPENDIX L

MOST IMPORTANT RECOMMENDATIONS TO IMPROVE THE ACCREDITATION CRITERIA AND THE ACCREDITATION PROCESS AS REPORTED BY RESPONDENTS IN SURVEY QUESTION 10

Table 67: Recommendations Reported by the Respondents in Survey Question 10.

RECOMMENDATIONS	SENIOR ADMINISTRATOR	CHAIR PERSON
Peer Committee		
Unificar criterios de pares evaluadores	1	
Se podría plantear fortalecer y consensuar algunos criterios ya que, en ciertos casos, las opiniones de los evaluadores pesan en diferente medida en los dictámenes finales de carreras de igual denominación de distintas Universidades.	1	
Que los pares evaluadores adopten los mismos criterios para todas las Facultades y/o Universidades		1
Planificar cursos de capacitación de formadores		1
No prestar demasiada atención a la investigación sobre todo si tenemos en cuenta que el índice de ingenieros investigadores es mínimo en relación con aquellos que ejercen su actividad industrial	1	
La capacitación del evaluador. Fallaron sus criterios al analizar cada Universidad con sus peculiaridades. Eliminar el criterio subjetivo.		1
CONEAU También designó pares evaluadores sin la suficiente formación académica o científica. En general, no les pago lo acordado.	1	
Determinación del perfil del par evaluador por parte de las distintas partes intervinientes		1
Definir claramente el perfil de los pares evaluadores en las carreras de ingeniería		1
On-site evaluation		
Dar a cada facultad la posibilidad de discutir los criterios de los pares evaluadores		1
Mayor extensión de las evaluaciones in situ		1

Table 67 (continued)

PROBLEM TO BE ADDRESSED	SENIOR ADMINISTRATOR	CHAIR PERSON
Software to Submit Self-evaluation		
Mejoramiento del software aplicativo		1
Accreditation Criteria		
Los actuales criterios usados en el proceso de acreditación me parecen acertados	1	
Debatir sobre modelos universitarios adecuados en cuyo marco evaluar cada universidad argentina	1	
Creo que sería importante que la CONEAU de precisiones mas claras sobre los estándares que procura medir.		1
Añadir un criterio relacionado con la cantidad de horas (mínimas) a cubrir por toda carrera de ingeniería en el dictado de idioma extranjero (ingles y portugués, en particular)		1
Antes de determinar los criterios conocer a fondo los objetivos de creación de cada institución	1	
Adaptar el diseño de los indicadores de eficacia y eficiencia en las carreras de ingeniería		1
Debería introducirse criterios de gestión de indicadores		1
Debería haber menos alcance en criterios académicos		1
Normatización expresa y precisa que permita a las carreras ajustarse a las reglas y umbrales de acreditación evitando así estar sujetos a evaluaciones subjetivas por parte de los miembros de la CONEAU	1	
Self Evaluation Report		
Menor cantidad de datos a solicitar		1
Debiera existir una comunicación, más fluida entre la CONEAU y la Universidades durante el proceso de evaluación.		1
Ordenar y simplificar la documentación técnico administrativa relacionada con la evaluación		1
Mejor contacto entre la CONEAU y la Unidad Académica	1	
Mayor comunicación con los técnicos de la CONEAU	1	
Faculty Participation		
Profundizar la mirada hacia los docentes.		1
Realizar campañas de esclarecimiento para toda la comunidad educativa		1
Mayor participación de los docentes, lo cual esta relacionado con los bajos sueldos que un docente universitario percibe en la argentina lo que obliga en la mayoría de los casos tener la docencia como un trabajo secundario		1
Los docentes deben participar en mayor medida (el 9-1 tiene que ver) Su prioridad es el trabajo externo		1

Table 67 (continued)

PROBLEM TO BE ADDRESSED	SENIOR ADMINISTRATOR	CHAIR PERSON
Academic Administrators		
Mayor Comunicación, interna y externa. Mayor participación de todos y entre todos. Mejorar la Coordinación de la Gestión o proceso de Acreditación.		1
Disponer de un mejor sistema de comunicación para mejorar la red		1
Community		
Dar participación al sector empresario organizado de la zona de influencia de cada facultad		1
Tener en cuenta las necesidades educativas y objetivos de las autoridades zonales		1
Accreditation Budget		
Más recursos financieros, claramente asignados al proceso de Acreditación.		1
Organizational Improvement		
Mayor aporte de fondos para equipos de laboratorio y cátedras		1
Crear criterios de evaluación que estudie a fondo los contenidos de los planes de estudio con respecto a las incumbencias del título a otorgar		1
Potenciar la creación de distintas ramas de especialización profesional por cada carrera		1
Assessment		
Herramientas tendientes más a evaluar los resultados (Alumnos)que los medios.		1
Accreditation Status		
Se debería tener más en cuenta el entorno donde está inserta la facultad y las ventajas o desventajas provistas por ese entorno.		1
Tomar en cuenta la realidad económica-financiera de cada institución		1
Evitar que las ingenierías sean evaluadas exclusivamente desde el punto de vista de la investigación		1
La evaluación no puede ser una visión instantánea de un corto periodo, sino que debe tener en cuenta la historia, trayectoria, rol social, e inserción de la institución		1
Debería realizarse la evaluación por y no de la actividad total en un solo proceso. Considero que tanto la evaluación como la acreditación se haría [n](SIC) con mayor prolijidad	1	
Debería haber en general una mentalidad abierta en diferentes opciones para lograr el mismo resultado		1
Alumni		
Trabajar la evaluación de egresados		1
Implementar mecanismos de consulta y evaluación de carreras profesionales de los egresados de la facultad		1
La opinión del graduado luego de cinco anos de actuación profesional debería ser tenida muy en cuenta		1

Table 67 (continued)

PROBLEM TO BE ADDRESSED	SENIOR ADMINISTRATOR	CHAIR PERSON
CONEAU		
Durante el proceso de acreditación de las ingenierías no hubo ingenieros en el directorio de la CONEAU. Debió haberlos. Funcionarios de la CONEAU como profesores de Historia o Licenciados en Ciencias Económicas tuvieron un rol muy preponderante durante el proceso. Mantuvieron posiciones soberbias y tomaron decisiones inconsultas. No resultan interlocutores validos de los ingenieros, ni poseen el prestigio académico necesario	1	
La CONEAU acepto presiones políticas (intendentes, gobernadores, etc.) y modifico dictámenes.	1	
Cambiar la CONEAU. Los miembros son muy políticos y nivelaron los resultados hacia abajo. Castigaron a otros solo por estar dentro de un paraguas. No hubo criterios rigurosos en el proceso de acreditación y por lo tanto a todos les dieron la misma medalla de cuero de sapo....		1

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