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THE IMPORTANCE OF RELATIONAL COORDINATION TO IMPROVE UNIVERSITY RESULTS: THE CASE OF THE STATE BOLIVAR UNIVERSITY

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Abstract

The State Bolivar University in Equator is immersed in a process of improving the teaching and learning organizational routines and the research results.

For this objective, the University has developed a project to diagnose the situation of start and define strategies in order to improve its results in teaching, learning and research processes in comparison with National and International Standards.

The project consists of applying the relational coordination model to different profiles at the University: lecturers, students and administrative staff to proof if higher degrees of relational coordination explain better academic results according to the required national standards.

The relational coordination model analyses the efficiency in human relationships and communication ties amongst different professional profiles working in teams. As far as all of them share the same objective, develop mutual respect and apply proper mechanisms for making tacit knowledge turned into explicit, from the relational ties, and communication is provided frequently, on time and oriented to solve problems from the communication ties, organizations reach better results.

We have applied the relational coordination model to a representative sample of lecturers, students and administrative staff to the Bolivar State University at Equator and in this paper the results are presented.

Results of the application of the relational coordination model in other contexts in the same country and in other countries have been presented in previous editions of the INTED Conference. In this paper we just focus in the case of the State Bolivar University.

The results of this analysis and previous ones can help Universities to promote organizational routines that best fit their teaching, learning and research objectives.

Keywords: relational coordination, organizational routines, mutual respect, shared objectives, communication mechanisms.

1 INTRODUCTION

Globalization has led to the internationalization of educational programs for both higher education and workplace training. Quality has become the main competitiveness indicator for education. Educational institutions must develop mechanisms in order to achieve better results in terms of performance and quality.

Educational processes are services, where it is important to define common objectives and establish the proper mechanisms that allow the agile flow of information amongst all the stakeholders in the educative value chain. Mutual respect amongst the different profiles assures certain degrees of quality in the final results. The relationship between coordination and final results at firms has long been studied [1], [2], [3]. Most analyses show that higher levels of relational coordination offer better organizational results. [4] offers a model of relational coordination that explains how high levels of communication of quality, common objectives, the sharing of knowledge and mutual respect in the organizational human capital drives to an improvement in final results. Under the perspective of mutual adjustment [5] [1] and the focus of coordination based in relationships [6] in high uncertainty and interdependent contexts, [4] describes her model under the relational coordination framework.
The model explains the reinforcement in the interaction between the communication and the relations developed with the main objective to reach task integration.

Countries in emerging economies are doing extra efforts to increase quality indexes in education. By having a look at other international experiences they realize on the importance of increasing the quality of their Upper Education Systems as the only way to become more competitive.

Ecuador is today in the process of improving their Upper Education System, and the government is doing an extra economic effort to reach this objective. The Good Living Practices described in their National Developing Plans for the period 2013-2017 in their objective 4 to reinforce the capabilities of citizens, more concretely in sub-objective 4.4 to improve the standards of quality and the process for accreditation and evaluation of all the educational levels. The challenge for this country is to reach excellence in their University System.

For this challenge, a National Project has been started with the main objective of create a National Research Network to work in the diagnosis and improvement of the University systems in the country. Each University has developed their own diagnoses.

In this study we focus in the Bolivar State University and the main objective of this research is to proof if the relational coordination [7] in students explains excellence in the systems.

The relational coordination model has been used to find out it. The model is based on the quality of relationships. It recognizes, therefore, the need of the relational side of coordination to reach organizational effectiveness. The model is structured around two types of dimensions: communication and relationship.

We have applied to a representative sample of students at the Bolivar State University in Ecuador a survey to measure it and in this paper we present the results.

This is the result of a project financed by the Education Ministry in Ecuador where a multidisciplinary group of researchers from the SENESCYT, the National Upper Education Secretary for Innovation and Technology in Ecuador. This is the Organisms responsible for promoting R&D policies in Ecuador [8].

The results of this Project will help to implement better organizational models in education and this way it will help to improve the creation of value of Universities in the country.

1.1 The Relational Coordination model

To measure and encourage good coordination, the relational coordination is a very precise and helpful way. The relational coordination is based on the relationships at the people who are emotional beings. For that, the relational coordination attempts to group all the connections between them, not only just like a task, not just the tool or the technical need, but rather in real ways for make people work efficiently. The relational coordination is built at the side of work coordination, at all the aspects of the relationship. It recognizes, therefore, the need of the relational side of coordination to reach organizational effectiveness.

The model is structured around two types of dimensions communication and relationships. Within the dimensions of communication, we find:

- **Frequent Communication**: Frequent communication helps to establish relationships among roles through the closeness generated as a result of repeated interaction [7].

- **Timely Communication**: Delays in communication may have negative implications for organizational performance; hence the importance of timely communication, and at the right time, for successful development of organizational tasks [9].

- **Accurate Communication**: So, accurate communication, regarding the content of relevant information, plays a critical role in the effectiveness of group tasks performance [10].

- **Problem-Solving Communication**: Effective coordination requires that those involved in the task, engage in communication to solve the problems that appear in a group performance characterized by high interdependence, rather than blame others involved or evading the responsibilities. This can lead to negative consequences that singularly affect performance [11].
Within relational dimensions in Gittell’s model we can find:

**Shared Goals**: This aspect plays a key role on the coordination of highly interdependent tasks [12]. Using a set of shared goals regarding the work process, involved individuals develop ties that allow them to reach conclusions that are compatible with the different ways of thinking and acting as new information is available [7].

**Shared Knowledge**: [13] points out that communication among those involved in the various tasks that constitute a process is not always effective because of different social backgrounds, training and experience, [7] states that when members know how their tasks are related to other members within the same process, it creates a dynamic in which everyone knows the impact that each change will reflect on each task and each role.

**Mutual Respect**: Respect for the competence of others involved in the process, provides a powerful tie that will be implemented in a comprehensive way across the whole process, generating as a result, and effective coordination [7].

Through this design, it follows that the RC model turns into a model of intensive coordination in communication and relationships, particularly useful to achieve higher levels of performance under high levels of interdependence among tasks, uncertainty and time constraints. So, it is an example of process improvement that allows a workgroup, department or organization, raise their production possibility frontier to more favorable positions, while achieving higher efficiency and quality. The relational coordination works on the team concept. Normally people are too individualistic and pay insufficient attention to their interdependence and thus to the need to work together. Organizational learning is interpersonal and relational, and often involves learning to coordinate work in a new way. For a good system, people have to recognize that they are interdependent [14],[15].

The relational coordination has been applied to different industries such as health, [7] has applied it to different medical units inside hospitals and finds that those units where higher degrees in terms of relational coordination are found are those showing best results in different medical outputs; [16], [17] have applied it to show excellence in the Spanish National Transplant System; [18] and [17] have measured the quality of teamwork by making use of the relational coordination model and his research has been applied in the process of myocardial infarct; [19] propose the relational coordination model to measure the effectiveness of coordination in the process of clinical practical guidelines. Information technology, [20] have applied it to show best results in cloud computing practices, and currently in Education, [21] proof that higher degrees of relational coordination at Universities ensure a greater degree of satisfaction in lecturers and students.

## 2 MATERIAL AND METHODS

### 2.1 Data collected and samples

In the State University of Bolivar (BOLIVAR) 250 lecturers taught 5700 students in 2014. 150 are full time lecturers, 60 half time and 40 of them are just part time.

A cross-sectional field survey method, using questionnaires has been applied. It has been built according to the “continuous approach” method. In the first place different sources of information have been used to develop it: a deep bibliographical revision, other previous relational coordination surveys performed by the researchers and applied to education, transport, new technologies and health industries in previous studies have been considered, and deep interviews have been done by a group of responsible profiles, mainly deans and sub-deans at the Faculties. As a result of it, and by considering relational coordination indicators, a first survey has been elaborated and sent to the directors of Departments in the Social Sciences Areas. Finally, once the previous questionnaire has been corrected, it has been sent to the lecturers. The questionnaire has also been presented and validated in the International Conference on Education EDULEARN 2013 in Barcelona and it has also been applied to other educational projects [21].

The survey that we present is divided in 7 groups of questions and is based in previous analysis [7], [2] adapted to the University lecturer’s profiles:

**General information**: type of university, size
Organizational benefits (three items since P1 to P3). Data related to the increase in lecturer’s satisfaction [2]. It includes aspects dealing with: perception of quality at the University, lecturing, researching, transfer, employability and lecturer’s profile.

- **Work practices (P4).** Work practices oriented to achieve final objectives: recruitment policies, policies for measuring performance, training programs, information systems, and external collaborations (adapted to University context from high performance systems used by [7]).

- **Communication mechanisms (P5, P6 and P7).** The frequency in the use of teaching and researching tools, the real need that different departments at the Universities have to offer information at certain times. The degree of accuracy, the frequency and problem solving nature of the information (measured according to [4] and adapted to University profiles).

- **Shared knowledge (P8).** The need that different profiles at the Universities have to share information and knowledge (according to [4], [7] and adapted to University profiles).

- **Mutual respect (P9).** The profiles solving problems when they appear, the perception researchers/professors have about how others respect their work (measured according to [4],[7]) and adapted to University profiles.

- **Sharing of goals (P10).** The perception different professors/researchers have about the sharing of goals in their departments (measured according to [4], [7], and adapted to University profiles).

32 questions related to six communication and relation dimensions, distributed in five blocks (from P5 to P10) graded by using likert scales (1 to 5). Cronbach alpha has been used as the reliability standard, and shows acceptable percentages for each group of variables.

**Quality indicators.** The CEAACES establish the following rates for quality indicators for all Universities that offer grades and post-grades: 40% Teaching, 20% Research, 10% Organization; 20% Infrastructure and 10% Academic effectiveness.

### 3 RESULTS

Data have been analyzed by using SPSS version 15.0 (SPSS, 2006). Descriptive analysis and group comparison has been done by making use of ANOVA and Tukey proofs in the quantitative variables; in previous analysis the interaction amongst non significant variables in the model have been removed (P>0,05). Contingency tables and the $\chi^2$ proof has been used to analyze the qualitative variables.

4,500 surveys have been collected from students coming from the Bolivar State University according to these two typologies

**Typology 1.** Traditional (face to face) students (from Monday to Friday).

**Typology 2.** Non traditional students (From Saturday and Sunday).

All the records containing students attending two or less years at the University have been removed.

#### 3.1 Quality of lecturers and indicators

Lecturers teach as a mean of 2.6 subjects, but we find a high variability, a 35% of lecturers teach more than 2 subjects and in some cases they reach 6. However, we find a 26% of them teaching less than 2 subjects. The mean value is high, with values around 3.49 over 5.

The scientific production of lecturers is low, a 85% of professors do not publish in the best recognized indexes, JCR. A 95% recognize that they have not published any book or even a book chapter.

An 89% of the lecturers’ lack of research projects and this percentage increases to a 98% in the case of projects with private firms. Finally in this part a 96% declare they have not participated in the development of any patent.

In the quality indexes, the number of mobility performed was questioned. It is observed that a 88% of lecturers have not moved to other Universities and in the 25% of the cases they declare to have done it, the time for the mobility action took place in less than a week.
Dealing with employment, just a 46% of students admit having found a work related to their studies. A 41% are employed in the private sector and a 8.67% in the public one.

Lecturers are above all instructors. In a 65% of the cases they are just instructors. A 30.8% are a mix between an instructor and an academic manager. Independently of these results, a 88% of lecturers think that the quality has been increased in a progressive way in the last five years.

As dependent variable the quality at the University has been used with the following grades

- **The quality at the University**

| Has progressively decreased in the last 3 years | 0 |
| Has progressively decreased in the last 3 years | 2 |
| Has been kept in the last 3 years | 1 |

And as factors

- **Factors that have improved or worsen the quality at the University**

| Administrative organization (application forms) | FA_Or_ad | 1 | 0 |
| Academic organization (timetables, planning of exams) | FA_Or_ac | 1 | 0 |
| Materials (classes, computers…) | FA_Med | 1 | 0 |
| Virtual Campus | FA_Campus | 1 | 0 |
| Lecturers | FA_Prof | 1 | 0 |
| Training contents | FA_Con | 1 | 0 |

### 3.2 Statistical analysis

A logistic multinomial regression for each of the teaching modalities has been done with the main objective to determine the factors that best explain the perception of quality by students.

**Results**

**Modality 1 (traditional, face to face)** From the 6 factor considered to explain the quality; two (Academic organization and lecturers) explain the variation in the perception of the quality at the university from the student’s perception.

Both factors have a positive impact; this is to say, when they are positively evaluated by the student, they explain better an improvement in the evolution of the quality (from 1 to 2). But when they are negatively evaluated, they do not explain a decrease in the perception of the quality (from de 1 to 0)

**Modality 2 (non traditional).** In this part four factors (apart from the Academic Organization and lecturers take part in Virtual Campus and other materials).

All these factors show a positive impact, except the lecturers that only explain a decrease in the quality (from 1 to 0)

In the next table the Odds Ratio are shown:
<table>
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<tr>
<th>MOD.</th>
<th>CALIDAD&lt;sup&gt;a,b&lt;/sup&gt;</th>
<th>B</th>
<th>Error tig.</th>
<th>Wald</th>
<th>gl</th>
<th>Sig.</th>
<th>Exp(B)</th>
<th>Intervalo de confianza al 95% para Exp(B)</th>
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</table>

In the traditional (face to face) model:

*in the step from 1 to cero: There are no relevant variables.

*In the step from 1 to 2 (increase of the quality). Academic Administration and lecturers are relevant and Academic Administration have more impact on this perception than the lecturers (1/1,95 vs 1/275) Lecturers are considered the most important factor and they explain the increase in the perception.

In the non traditional model

*In the step from 1 to 0 (decrease of the quality): lecturers are the only relevant variable and the Odds Ratio shows in increasing effect to present a 12 (reverse =0.08). This means that lecturers are the only variable to impact in this step but the value in negative. This means that whenever the lecturers are negativity valued, the effect on the quality is highly negative, but if the positive valuation in the normal state and the student perceives a maintained quality over time.

*In the step from 1 to 2 (increase of quality) the academic organization presents a positive impact, the materials and the virtual campus. This means that an improvement in one of the three variables presents an increase in the perception of the quality in the students (step from 1 to 2). The existent materials do not have an impact in the increase. The main question to solve according to these results is, Why training contents and the administration do not explain a modification in the quality?

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*a. La categoría de referencia es: 1 para el archivo segmentado MOD. = 1.

*b. La categoría de referencia es: 1 para el archivo segmentado MOD. = 2.

*c. Este parámetro se ha establecido a cero porque es redundante.
4 CONCLUSIONS

This paper applies the Relational Coordination model to diagnose the quality of the Bolivar University and shows main strengths and weakness. Policy makers at the University should put into action the proper mechanisms to improve the degree of relational coordination and incentive the reaching of results of quality in the system that are congruent with the National University Education policies to reach the best levels in the rankings.

For both modalities (traditional and non-traditional) the academic organization and lecturers have a great impact. The perception of lecturers is shown as the factor that highly impacts in the global perception of students in the quality, although it varies according to the student’s modality. In the traditional modality, positive perceptions of lecturers favor an increase of the global quality. On the contrary, in the nontraditional system, a positive perception of lecturers does not increase the levels of quality, although a negative perception generates a negative vision of quality.

Lecturers in nontraditional modality are considered of high quality. In the traditional one, the student relates the improvement of quality with the improvement of lecturers.

In the case of the non traditional style, the tool used (virtual or material) is considered important.

This is just a very exploratory analysis done over a restrictive sample of students. The project is now evolving by assuring a wider sample where we can analyze the different agents in the system.

REFERENCES


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