

**MEMORIA DE LAS ACTIVIDADES DESARROLLADAS  
PROYECTOS DE INNOVACIÓN EDUCATIVA  
VICERRECTORADO DE INNOVACIÓN Y CALIDAD DOCENTE  
CURSO ACADÉMICO 2012-2013**

**DATOS IDENTIFICATIVOS:**

**1. Título del Proyecto**

Evaluación del nivel de coordinación relacional en el proceso de enseñanza y aprendizaje de la Universidad de Córdoba (UCO) y la Universidad Rey Juan Carlos (URJC).

**2. Código del Proyecto**

**123035**

**3. Resumen del Proyecto**

El objetivo de este trabajo consiste en analizar si el modelo de coordinación relacional desarrollado por Jody Hoffer (2009-2010) explica los resultados que se obtienen en las Instituciones de Educación superior-Universidades

Según Gittel la coordinación relacional permite que las organizaciones obtengan mejores niveles de calidad y eficiencia. La coordinación relacional tiene que ver con la compartición de objetivos, la compartición de valores y la existencia de mecanismos eficientes de comunicación entre los trabajadores de una organización. De acuerdo a este modelo, la existencia de una alta coordinación relacional implica mayor nivel de excelencia universitaria y adecuación de la enseñanza y el aprendizaje a la demanda social.

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## 6. Asignaturas afectadas

Asignaturas afectadas		
Código y Nombre de la asignatura	Área de Conocimiento	Titulación/es
Economía de la empresa	Organización de empresas (UCO)	Grado en Relaciones Laborales
Estrategia y Organización de empresas	Organización de empresas (URJC)	Máster en Organización de Empresas
Impacto de las TICs y SI en los resultados empresariales	Organización de empresas (URJC)	Máster en Organización de Empresas
Sistemas Informativos de Gestión	Organización de empresas (URJC)	Grado en Administración de Empresas, ADE
Sistemas Informativos de Gestión	Organización de empresas (URJC)	Grado en Administración de Empresas, ADE
Dirección de la producción	Organización de empresas (URJC)	Grado en Administración de Empresas, ADE
Dirección de los Recursos Humanos	Organización de empresas (URJC)	Grado en Administración de Empresas, ADE
Administración de Empresas para Emprendedores	Organización de empresas (URJC)	Máster para Emprendedores
Teoría de la Decisión	Economía Aplicada (URJC)	Máster para Emprendedores
Dirección de Operaciones para Emprendedores	Organización de Empresas (URJC)	Máster para emprendedores
101461 Análisis de datos y Gestión Veterinaria	Producción Animal (UCO)	Grado en Veterinaria
5341 Gestión Veterinaria	Producción Animal (UCO)	Lcta. Veterinaria
8746 Técnicas estadísticas en investigación ganadera	Producción Animal (UCO-HUELVA)	Máster de Zootecnia
8747 Gestión de sistemas de uso múltiple	Producción Animal (UCO-HUELVA)	Máster de Zootecnia
8753 Economía ganadera y Análisis estratégico	Organización de empresas (UCO-HUELVA)	Máster de Zootecnia
8676 Gestión empresarial	Organización de empresas (UCO-CADIZ)	Máster en Agroalimentación
8670 El complejo Agroalimentario	Producción Animal (UCO-CADIZ)	Máster en Agroalimentación
8671 Innovación en ganadería	Producción Animal (UCO-CADIZ)	Máster en Agroalimentación
8677 Comercialización	Organización de empresas (UCO-CADIZ)	Máster en Agroalimentación

## MEMORIA DEL PROYECTO DE INNOVACIÓN EDUCATIVA

### **CASE I. QUALITY AND RELATIONAL COORDINATION IN THE VETERINARY SCHOOLS: A COMPARISON BETWEEN CORDOBA UNIVERSITY (SPAIN) AND THE PAMPA NATIONAL UNIVERSITY (ARGENTINA).**

#### **1. Introduction**

The quality of the University education system is key for the creation of value and it has become a priority for policy makers worldwide (Lord Brown Report, 2010; Horizon Report, 2012). Therefore, the improvement in the quality of education must also be oriented to the increase in the degree of the lecturer's coordination, the internal organization and the learning objectives. To this respect, Marengo y Dosi (2005) and Brunner (2011) indicate that the organizational system and the University governance regimes determine the success and the reaching of objectives in upper education. Likewise García-Morales et al. (2006) described the existence of promoters and barriers in the implementation of social responsibility systems at universities. Today, Latin American and European university systems are immersed in a process of deep transformation that comprises aspects related to the improvement of teaching and learning results, the linkages with society and the orientation of the research, financing and governance systems, etc. (García-Morales et al., 2006; Brunner, 2011; García-Herrera y Piña-Stranger, 2011; De Pablos, et al., 2012).

#### **2. Objectives**

Therefore, the main objective of this research is to proof if the application of coordination mechanisms amongst team members at the Veterinary School explains excellence. In the first place, the perception of quality amongst the lecturers is analyzed; later the degree of existent relational coordination in the organization is explained and finally the factors differentiating both Institutions are posited. The research may be of interest for Universities and policy makers in a framework of high competition where the search of excellence is a must.

#### **3. Material and Methods**

##### **- Data collection and sample**

A cross-sectional field survey method, using questionnaires has been applied. The database comes from a survey performed in 2012 by 75 lecturers of both Universities, 40 (24.0%) from the Cordoba University and 35 from La Pampa National University (17.16%). The data were collected in both Faculties between May and June 2012.

The survey was composed by the description of the Institutions and the perception of quality (3 items since P1 to P3), 1 item (P4) to evaluate the existence of defined mechanisms to realize organizational practices in the Institution (Table 1) and 32 questions related to six communication and relation dimensions, distributed in five blocks (from P5 to P10) (table 1) 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 (shown in the annex).

The relational coordination has been studied at two different levels: first, an analysis of the vision that lecturers have on the quality in their centers (P3) and of the relational coordination mechanisms established in their faculty (P4). The differences and similarities of both faculties were based on the chi-squared test.

In the second level the way in which lecturers use the established relational coordination mechanisms was analyzed. First, a factor analysis to identify latent variables (factors) has been developed from the existent inter-relations amongst the different items that measure them (P5 a P10). With the main objective of enabling the interpretation of the factors, orthogonal quartimax rotation has been used to reduce the number of required factors to explain each item, and besides, the non-parametric Mann-Whitney test has also been applied to establish significant

differences in each item. The Bartlett sphericity test and the Kaiser–Meyer–Olkin index was applied to verify sample adequacy (KMO > 0.7).

**Table 1. Factorial analysis results**

Factor	Explained variance (%)	Eigenvalue	Items	Loading
F1	28.6	6.3	P8_4	0.77
			P9_4	0.89
			P10_4	0.80
			P6_1	0.63
			P6_2	0.57
			P6_3	0.58
			P9_1	0.62
			P8_5	0.86
			P9_5	0.73
			P10_5	0.91
F2	13.3	2.9	P8_2	0.73
			P9_2	0.77
			P10_2	0.66
F3	11.2	2.5	P5_1	0.72
			P5_3	0.83
			P7_3	0.71
F4	8.2	1.8	P8_1	0.88
			P10_1	0.79
F5	7.7	1.7	P7_1	0.54
			P7_2	0.63
			P7_4	0.80
			P7_5	0.65
F6	5.5	1.2		

**Table 2. Logistic regression results**

Factors of relational coordination	Regression coefficient	Significance
F1. Inside work team	-0.07	0.581
F2. Institutional coordination	-0.44	0.010*
F3. Department coordination	0.68	0.014*
F4. Timely communication	0.18	0.549
F5. Supervisor coordination	0.14	0.668
F6. Profiles conflict resolution	0.76	0.000**
Constant	-15.14	0.212
Chi-square/sign.	24.82	0.000

The store for factors were treated as continuous variables; Scores between 0 y 1 (UCO=0; La Pampa=1).\* p value <0,05; \*\* P value <0,001

Finally the logistic regression model to identify differences and similarities of using the relational coordination mechanisms in both Faculties has been applied. As independent variable factor, the indexes built as the adding of responses of each lecturer have been applied in the group of items that compose the factor. The scale for each index varies according to the number of items between the minimum factor and 5 times the number of items that compose the maximum factor. This methodology has previously been used in other similar analysis, as Torjusen et al. (2001) explain. For the development of statistical analysis SPSS 15.0 was used.

#### 4. Results

##### -Perception of Quality

The chi-squared test suggests a non random data distribution. The existent differences between both Institutions were materialized in the lecturer's incentives (P4\_3), the sharing of information (P4\_8) and the industry relations (P4\_9) (p<0.05). The incentives or lecturer's

rewards were negatively evaluated in both Faculties, although in La Pampa shows lowest value. La Pampa shows upper values than Cordoba (P4\_8, P4\_9) in the sharing of information and the transfer of industry relationships.

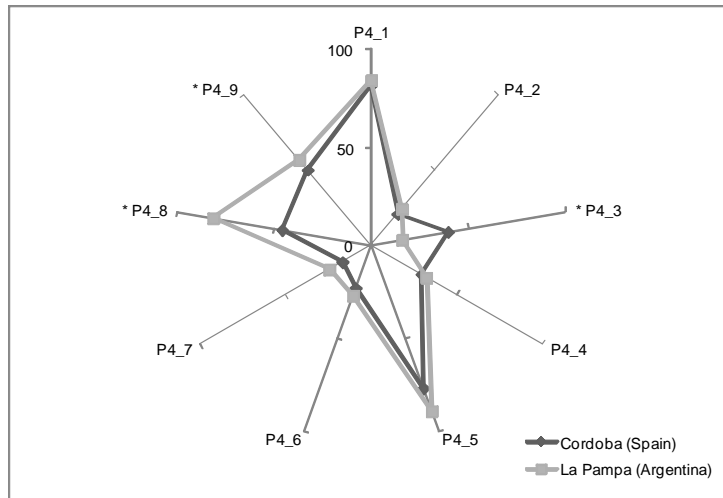


Figure 1. Relational coordination mechanisms in both universities.

#### - Relational coordination

The KMO test of sampling adequacy shows a value of 0.7 while the Bartlett's sphericity test shows a satisfactory likelihood value ( $p < 0.001$ ). The first six factors that accounted for 74.2% of the original variability were selected as indicated by other studies (Table 2).

In a second analysis a logistic regression explaining the factors that means differences for both universities is provided.

### 5. Discussion and implications

This study has made contributions to the knowledge and the discriminate factors of relational coordination in both Veterinary Faculties. It also explores how relational coordination can enrich the teaching purposes of veterinary schools. The implications of this study are discussed below.

**a) Quality in both Institutions.** The quality was differently perceived by both Faculties. The evaluation reports (certification and accreditation) indicate that both have been restructured, consolidated and the new buildings and facilities have been transformed into two modern Faculties. Many changes have been introduced, in education programmes and strategies and in organization and equipment to promote the inter-organizational coordination (Marengo y Dosi, 2005; Gang et al., 2008).

The lower degrees in quality perception that shows of Cordoba could be explained by external and internal factors. Spain faces a huge economic crisis (2007-2012) that is materialized in the population uncertainty and in the perception of quality in education services, compared to the economic welfare that Argentina has shown until May 2012. Internally differences coming from the Institutional organization were observed. While Cordoba has prioritized the generation of scientific knowledge (Oakley, 2009), The Pampa has promoted the lecturing and the transfer of technology to sector (Brunner, 2011). The inter-facultative structure presents operative advantages in Cordoba; a higher rate of a rational consumption of resources, the use of economies of scale, an interdisciplinary vision of the raw materials, the promotion of the transversal interaction amongst lecturers, etc. However also presents some

disadvantages, as for example the loss of the strong identity and the loss of common goals amongst lecturers and the concrete objectives of studies (Oakley, 2009).

Finally, the fact that the governance system differs in both centers contributes to promote different quality perceptions (García-Morales et al., 2006 and Garcia-Herrera et al., 2011). According to Brunner (2011) the change from a traditional and Institutional self-governed bureaucratized system (La Pampa) to another one showing higher rates of entrepreneurship spirit (Cordoba), generates conflicts that are shown in the indicators of quality.

In relation to the relational coordination mechanisms that have been implemented in both faculties, the positive evaluation of the routines that enable the recruitment and training of lecturers contrasts with the lack of agreement on the mechanisms used to measure lecturer's performance, rewards and conflict resolution. Cordoba presents upper values in lecturer's rewards that can be explained by the system of incentives for the research activity in Spain, where the recognition of a researcher is provided by an external evaluation mechanism (ANECA).

**b) Comparative relational coordination.** The organizational structure is different in both Centers; in Cordoba we find a dual structure: Departments-Teaching and Research Groups where both are directly independently linked to the Institution (F2: 0.44). Instead, in the Pampa lecturers are grouped around the Faculty and located in the Departments. These organs, define in a corporative way the objectives of the Degree, the working areas, the financing and the promotions of lecturer's positions (F3: 0.68).

The conflict resolution profiles in La Pampa are better defined than in Cordoba. In La Pampa are simple in the application of procedures which generate trust, implies agility and effectiveness in the lecturer's decision making process. To the contrary, in Cordoba these profiles keep unclear and promote uncertainty, slows the decision making process and decreases the perception of quality.

To recover the professional objectives from the faculty studies and to transform them in an element of cohesion, motivation that promotes the collaborative spirit of the lecturers is recommended.

## **CASE II. COORDINATION AND UNIVERSITY QUALITY: AN EMPIRICAL ANALYSIS AT THE REY JUAN CARLOS UNIVERSITY**

### **1. Introduction**

The creation of value of modern societies depends to great extent in the quality of the Upper Educational Systems [1],[2]. The proper implementation of coordination mechanisms in the work processes at Universities can explain better results in these systems.

Although communication mechanisms are not a big problem at University ecosystems, the lack of shared objectives and mutual respect may be a barrier in the search of excellence [3].

### **2. Objectives**

The main objective of this research is to proof if the application of coordination mechanisms [4], [5] amongst team members at the University departments explains excellence in upper education systems.

The research may be of interest for Universities and policy makers in a framework of high competition where the search of excellence is a must.

### **3. Material and Methods**

We have developed a study of the relational coordination in the teaching styles of a University, the Rey Juan Carlos University from Madrid, Spain.

The Rey Juan Carlos University (URJC) was founded in 1996 and is the sixth public university based in Madrid Region. One of its main goals is to achieve the maximum level of quality in teaching and the development of activities to achieve excellence in selected research areas. 29 university degrees are offered, belonging to four areas: Health Science, Science and

Technology, Communication and Social Sciences and Law. URJC is distributed over four campuses, for around 16.000 students with more than 1.100 teachers. Rey Juan Carlos University as a public research centre counts on the most advanced technology in its laboratories, and has built specific ones for the industrial sector in the Technological Support Centre.

The database we have used comes from a survey performed in 2012 to 156 lecturers of University, coming from different areas of expertise: Sciences, Social Sciences, Humanities and Engineering.

The survey is composed by aspects related to the Institutions (5 items) and 32 questions related to six communication and relation dimensions graded by using likert scales (1 to 5). Cronbach alpha has been used as the reliability standard, and shows the following percentages for each group of variables:

1. Relationships and coordination with the team work: 0.876.
2. Institutional Coordination: 0.854.
3. Department coordination: 0.812.
4. Information opportunity: 0.765.
5. Hierarchical relationships: 0.743.
6. Conflict resolution: 0.731.

For the data processing a factor analysis has been applied to identify the factors from the existent inter-relations amongst different variables. Quartimax orthogonal rotation has been applied to reduce the number of variables required to explain each dimension.

To establish the main differences between the compared variables according to the relational coordination model a logistic regression model has been developed. Faculty is the dependent variable and the factors are the independent ones. Previous analyses have agreed with this same methodology in previous analysis. For the processing of data SPSS version 15.0 has been applied.

#### **4. Results**

According to the results, the Chi-squared suggest a non random data distribution. By having a look at the distribution curve, we can appreciate that a 75% of the surveyed lecturers perceive an increased quality in University results along time, 10% perceive a decreased on it and a 15% think quality has been maintained on time. The KMO test of sampling adequacy showed a value of 0.6 while the Bartlett's sphericity test showed a satisfactory probability value ( $p < 0.001$ ), indicating the suitability of the analysis. The first six factors that accounted for 75.82% of the original variability were selected as indicated by other studies.

**Table 1. Factorial Analysis results.**

Factor	Explained variance	Eigenvalue	Items	Loading
F1	36.96	9.60	P8_1	0.646
			P8_2	0.818
			P9_1	0.551
			P9_2	0.776
			P10_1	0.558
			P10_2	0.710
F2	12.26	3.19	P8_5	0.563
			P9_4	0.616
			P9_5	0.770
			P10_4	0.680
			P10_5	0.840
F3	9.54	2.48	P5_2	0.661
			P5_3	0.745
			P6_2	0.800
			P6_3	0.610
			P7_4	0.612
F4	6.62	1.72	P8_4	0.716
			P7_1	0.770
			P7_2	0.671
F5	5.54	1.44	P7_5	0.672
			P7_3	0.747
			P8_3	0.799
F6	4.90	1.27	P9_3	0.714
			P10_3	0.730
			P5_1	0.832
			P6_1	0.864

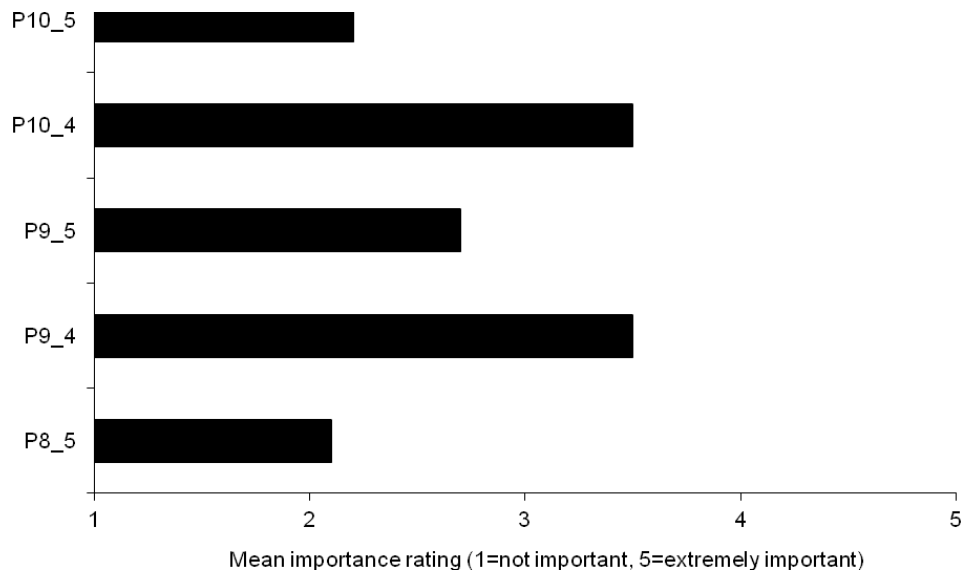
Factor 1 explains a 36.96% of the variance and is composed by 6 variables; the first three (P8\_4; P8\_2; P9\_1) are related to the relational dimensions dealing with team work (shared goals, shared knowledge y mutual respect). Afterwards 3 variables related to frequent communication (P9\_2, P10\_1 and P10\_2). This is Factor 1 of relational coordination inside work team and this group receives environmental feed-back.

In factor 1 the most important differences are appreciated in frequent communication and we have found significant differences in the communication established with Institution administrative staff (P9\_1:  $p < 0,05$ ).

Factor 2, composed by five variables (P10\_5, 4; P9\_5, 4 and P8\_5) explains a 12,26 of the existent variability in the organizational structure. The five variables refer to the relational dimension (share goals, share knowledge y mutual respect) with the human resources at the Institution. Therefore we name it Factor 2 as Institutional Coordination.

In Figure 3 results from both Institutions are compared for Factor 2.

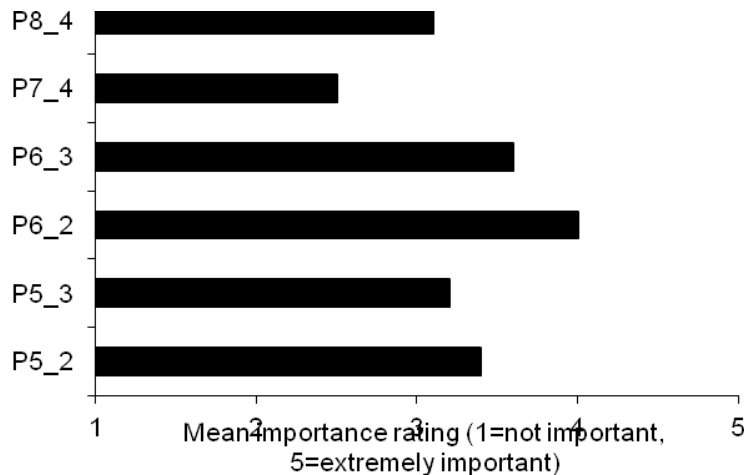




**Figure 3. Distribution of variables from Factor 2**

Factor 3 explains a 9,54% of the variance, and it is composed by six variables (P8\_4;P7\_4 y P6\_3,2, P5\_3,2 ) related to the relational dimension (share goals, share knowledge and mutual respect) with the Department management. Therefore we name it Factor 3 as Department Coordination.

We can stress the fact that there are significant differences ( $P < 0,05$ ) related to the fact that departments do not know their own lecturers' learning and research activities.



**Figure 4. Distribution of variables from Factor 3**

Factor 4 explains an 6,62% of the variability and it is related to timely communication and problem-solving communication (variables P7\_5, 2 and 1). The results of these variables are partly explained by the high lecturer's self-resolution.

Figure 5 shows significant differences for both variables explaining timely communication. We find that in the Rey Juan Carlos University there are organizational mechanisms that favourite an

accurate and timely communication for the success of organizational goals as Waller explains (1999).

Factor 5 is built from four variables (P10\_3, P9\_3, P8\_3 and P7\_3) related to sharing of goals and knowledge with the boss in the process. We name it Factor 5 of relational coordination with the supervisor and it explains a 5,54% of the variance. Figure 6 shows it.

The three first factors explain a 61,76% of the variance and they indicate in the first place that the significant differences in the organizational structure come from the relationships in the work group. In the second place they are explained by the relationships of lecturers with the Institution and finally with the Department.

The rest of factors explain a 17,06% of the variance and are linked to the timely communication, supervisor coordination and the definition of profiles solving conflicts in the Institution.

## 5. Discussion and implications

According to the results obtained in this analysis, we can affirm,

- An increase in the level of collaboration amongst departments is required.
- Faculty staff should promote knowledge sharing. Efficiency in the decision making can only be reached if the decisions of the decision makers, who are in different decision points, are coordinated in order to achieve the organizational goals. New models of collaboration to promote co-creation of value should be considered.
- The dimensions of relational coordination have shown that a 53,1% of the variability between faculties is explained by the relationships of lecturers with the Institution and Department.
- The factors analyzed show that the organizational structure of both institutions highly agrees.
- In a conflict the relational coordination takes place in the work group (they follow win-to-win strategies)
- The President or the Dean, the ones who solve the conflicts, in many cases the department does not know about lecturers work and conflicts...
- We propose to work in the improvement of the quality of the information that the lecturers receive.
- For obtaining best results, Universities must change their organizational routines.
- The role of Departments should be redesigned. Lecturers trust more in the group that in the department or the Institution.

This study means a point of start to explain the importance of personal interrelations in final organizational performance.

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En Córdoba y Madrid a 24 de Mayo de 2013



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