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Relational coordination and higher education student's satisfaction

Coordinación relacional y satisfacción de estudiantes de enseñanza superior

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Abstract The objective of this research is to analyze the importance of the relational coordination theory on final satisfaction of higher education students. The Relational Coordination model has been adapted to collect information from higher education students and an index for measuring satisfaction has been built. A factor analysis has been applied to data. Results show that higher levels of RC between students and administrative staff, students and lecturers, students' representatives and mates at class, impact positively on their satisfaction. Findings can be useful to build organizational models that have a positive impact on higher education. Knowing the variables with the greatest discriminating power allows proposing concrete, simple and economic measures to improve student satisfaction at universities. Results also help to understand the importance of deploying styles of care and quality training appropriate to each student profile and to promote more efficient and innovative methods of relationships and communications.

Keywords: *Relational coordination, higher education, student's satisfaction*

Resumen El objetivo de esta investigación es analizar la importancia de la teoría de la coordinación relacional en la satisfacción final de los estudiantes de enseñanza superior. Se ha adaptado el modelo de Coordinación Relacional para recoger información y se ha construido un índice para medir la satisfacción. Se ha aplicado un análisis factorial a los datos. Los resultados muestran que mayores niveles de CR entre estudiantes y personal administrativo, estudiantes y profesores, representantes de los estudiantes y compañeros de clase, repercuten positivamente en su satisfacción. Los resultados pueden ser útiles para construir modelos organizativos que incidan positivamente en la educación. Conocer las variables con mayor poder discriminante, permite proponer medidas concretas, sencillas y económicas para mejorar la satisfacción de los estudiantes. Los resultados también ayudan a comprender la importancia de desplegar estilos de atención y formación adecuados a cada perfil de estudiante y a promover métodos de relación y comunicación más eficientes e innovadores.

Palabras clave: *Coordinación relacional, educación superior, satisfacción de los estudiantes*

1. INTRODUCTION

Improvement in higher education has received special attention from policy makers in the last years worldwide. Gittell (2002) defined relational coordination (RC) as a mutually reinforcing process of communicating and relating for the purpose of task integration and structured the RC model around two dimensions: communication and relationships. The communication dimensions are frequent communication: it helps to establish relationships via roles through the proximity generated as a result because of repeated interaction; timely communication, communication provided on time; Accurate communication, in the context of relevant information, plays a critical role in the effectiveness of a group's tasks performance; Problem solving communication, referred to effective coordination to solve problems. The relationship dimensions are: Shared goals: These play a key role in the coordination of highly interdependent tasks; shared knowledge: Communication among those involved in the various tasks that constitute a process is not always effective because of different social backgrounds, training and experience; mutual respect, that generates an effective coordination, because participant's profiles in the same process value the contribution of others and consider the impact of their own actions in others too. Understanding the RC factor relationships can be helpful to know how resources can be organized best to maximize an Institution's performance. RC has been positively related to organizational performance in different industries. Gittell et al. (2010) applied it to different medical units inside hospitals and observed that units with higher levels of RC produced the best performance. Havens et al. (2018) explained higher levels of job satisfaction, work engagement and decrease of burnout from the RC perspective. Haider et al. (2020) applied the RC to the banking industry to explain the relationship between high performance work systems and job satisfaction. Gallego et al. (2021) and Margalina et al. (2015) applied the RC model to explain the best results in online systems in higher education. Checa et al. (2020, 2023) located RC factors oriented towards sustainability in higher education. Student satisfaction is an important performance indicator for education. Students'

perceived satisfaction showed the efficiency of organizations at different areas of activity: Academic services, administrative services, teaching staff, training programs, etc. (Gallego et al., 2021). However, there is still a lack of empirical research that examines the importance of relationship dimensions in final students' satisfaction. The objective of this study is to identify the dimensions that from the relational coordination framework have a higher impact on final students' satisfaction.

Knowing the weights of the different RC dimensions on final student's satisfaction, universities can work in reinforcing organizational mechanisms and practices oriented to improve relationships and communications in the teaching learning process in higher education.

After this introduction, in part 2, the methodology used is described. In part 3 the results are presented. Following, in part 4 the conclusion is presented.

2. CONTEXT & DESCRIPTION

A stratified random sample composed of 593 students during the period from December 1st, 2024, to February 25th, 2025, was collected. An adapted metric from the relational coordination model has been applied to measure communication and relational ties of students with lecturers, peers and administrative staff. The survey was composed of 18 questions. A synthetic quality variable was created from the student's perception of satisfaction, verifying its validity through Generalized Linear Models (GLM) (Bandalos et al., 2018). The data has been analyzed using a principal axis factoring method, using a manual method for the selection of 5 the number of factors. The applied rotation method is promax. The software used has been JASP release 0.19.3 apple Silicon. Satisfaction has been measured by the level of student's perceived satisfaction dealing with the following aspects: Lecturers, peers, administrative staff, materials, communication channels and training contents with a Likert scale from 1 (non-satisfied) to 5 (very satisfied). In this case, the intervals between the scale points correspond to empirical observations in a metric sense.

Table 1 shows the different groups of items measured through the survey.

Table 1. Variables and items included in the survey

Variables	Items
Sociodemographic variables	Modality of studies Age Gender Area of studies Faculty Campus Level
Satisfaction	Self-perception of the quality of the University on time. Identification of organizational factors that have increased, maintained or decreased the self-satisfaction on time. Degree of satisfaction with different organizational practices and tools provided by different services and different profiles.
Communication ties	The extent to which people from different areas (lecturers, peers, administrative staff) provide information when needed. The frequency of communication with different profiles (lecturers, peers, administrative staff). The frequency with which different profiles (lecturers, peers, administrative staff) help to solve problems. The frequency with which different profiles (lecturers, peers, administrative staff) are aware of the work being done during higher education studies. The frequency with which different profiles (lecturers, peers, administrative staff) are aware of the problems you are facing in your studies.

	the frequency with which different profiles (professors, peers, administrative staff) provide you with the information you need to solve problems that arise with the university processes.
Relational ties	The frequency with which you feel that your work is valued as a student by different profiles (lecturers, peers, administrative staff). The frequency with which different profiles (lecturers, peers, administrative staff) share the same objectives as you do in terms of what the Higher Education Institution should offer you as a student.

3. RESULTS

Table 2 shows the results of factorial analysis.

Table 2. Factor loadings.

Factor Loadings						
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Uniqueness
15 FFAIcau	0.886					0.310
12FAYbuz	0.885					0.359
15 FFAIbuz	0.865					0.350
12 FAYcau	0.862					0.335
11 FCOMbuz	0.797					0.377
16 FVALpas	0.775					0.368
11 FCOMcau	0.769					0.413
17 FCOBpas	0.732					0.435
15 FFAIpas	0.728					0.465
13 FCOtpas	0.724					0.440
12 FAYpas	0.683					0.497
14 FCPROpas	0.682					0.434
10 OIbuz	0.632					0.540
10 OIcau	0.605					0.565
11 FCOMpas	0.559					0.626
10 OIpas	0.530					0.596
18 SUPas	0.495					0.519
16 FVALpdi		0.843				0.376
13 FCOtpdi		0.821				0.393
17 FCOBpdi		0.786				0.388
18 SUPdi		0.786				0.312
10 OIpd		0.736				0.470
11 FCOMpdi		0.735				0.472
15 FFAIpdi		0.724				0.413
14 FCPROpdi		0.703				0.474
12 FAYpdi		0.697				0.472
15 FFAIdel			0.844			0.251
18 SUIdel			0.823			0.349
12 FAYdel			0.800			0.333
11 FCOMdel			0.794			0.361
14 FCPROdel			0.785			0.312
16 FVALdel			0.770			0.290
13 FCOtdel			0.732			0.341
17 FCOBdel			0.668			0.402
10 OIdel			0.648			0.457
12 FAYcom				0.872		0.269
15 FFAIcom				0.807		0.288
13 FCOtcom				0.800		0.290
14 CPROcom				0.793		0.342
11 FCOMcom				0.722		0.373
17 FCOBcom				0.717		0.422
16 FVALcom				0.712		0.429
10 OIcom				0.680		0.470
9 MCALmmorde					0.635	0.682
9 MCALev					0.635	0.640
9 MCALcfor					0.619	0.509
9 MCALapps					0.599	0.652
9 MCALmmu					0.589	0.674
9 MCALint					0.578	0.676
9 MCALbib					0.558	0.738
9 MCALev					0.531	0.754
9 MCALprof					0.473	0.550
9 MCALoac					0.440	0.672
9 MCALimp					0.412	0.837
8 MCALu					0.408	0.603
9 MCALoad						0.713
12 FAYme						0.869
18 SUMm						0.617
18 SUMc						0.922
18 SUcf						0.476

Note. Applied rotation method is promax.

As main results for the exploratory analysis, we have found factorial loads over 0,4 in most of the variables analyzed. Factors identified by the model are:

- Factor 1: Relational coordination between the students and administrative staff providing services.
- Factor 2: Relational coordination between the students and lecturers.

- Factor 3: Relational coordination between the students and student's representative.
- Factor 4: Relational coordination between the students and their mates.
- Factor 5: Quality improvement perception.

Table 3. Factor characteristics

Factor Characteristics							
	Eigenvalues	Unrotated solution			Rotated solution		
		SumSq. Loadings	Proportion var.	Cumulative	SumSq. Loadings	Proportion var.	Cumulative
Factor 1	17.443	17.003	0.283	0.283	9.363	0.156	0.156
Factor 2	6.415	6.010	0.100	0.384	6.203	0.103	0.259
Factor 3	4.302	3.863	0.064	0.448	5.928	0.099	0.358
Factor 4	2.676	2.195	0.037	0.485	5.254	0.088	0.446
Factor 5	2.429	1.964	0.033	0.517	4.288	0.071	0.517

As presented in Table 3, the analysis of factor characteristics indicates that Factor 1, relational coordination with administration and support services, got the main proportion for the variance explanation 15.6% in the rotation solution followed by Factor 2, relational coordination with PDI (lecturers and professors), 10.3%.

Based on the factors detected by the exploratory analysis, we have proceeded to execute a confirmatory analysis. That confirmatory analysis has considered the identified factors as secondary factors including a primary factor that we have defined as overall satisfaction.

The result for the model shows a good fit, Chi-square test presents a p value <0.001

The factorial loads obtained in the confirmatory model are included in table 4.

Table 4. Factor loads of the confirmatory model

Second-order factor loadings									
Factor	Indicator	Std. estimate	Std. Error	z-value	p	95% Confidence Interval			
						Lower	Upper		
SecondOrder	PAS CAU BUZ	0.682	0.036	18.692	< .001	0.611	0.754		
	PDI	0.836	0.033	25.114	< .001	0.770	0.901		
	DELEGADO	0.569	0.047	12.080	< .001	0.477	0.662		
	COMPAÑEROS	0.500	0.052	9.641	< .001	0.398	0.601		
	MEJORA CALIDAD	0.650	0.049	13.174	< .001	0.554	0.747		

Factor loadings

In all cases, p is less than 0,001. The reliability analysis shows very good results for Cronbach alpha that obtains values more than 0,7 for all the factors (table 5).

Table 5. Reliability of the model

Reliability	
	Coefficient α
Administrative staff	0.949
Lecturers	0.926
Student's representative	0.941
Mates	0.932
Improvement of Quality	0.821
total	0.955

The path diagram, as shown in Figure 1, illustrates the structural relationships between the relational coordination factors and overall student satisfaction.

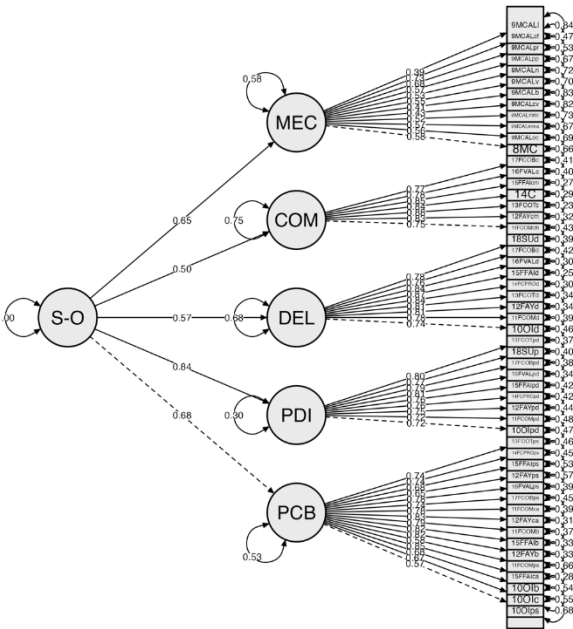


Figure 1. Factors that explain higher levels of students' satisfaction from the Relational Coordination Theory.

In the questionnaires completed by the students, each of the dimensions related to relational coordination included a final section for open-ended comments, allowing respondents to freely express aspects they deemed noteworthy. Most of the observations received were aligned with the feedback regularly conveyed in day-to-day interactions and pertain to the management of faculties and/or campuses in relation to routine operational matters, such as response times for administrative procedures, infrastructure, communication channels, timetable management, among others.

4. CONCLUSIONS

Five factors have been identified that explain higher levels of students' satisfaction in the teaching learning process at higher education: Factor 1: Relational coordination between the students and administrative staff providing services. Factor 2: Relational coordination between the students and lecturers. Factor 3: Relational coordination between the students and student's representative. Factor 4: Relational coordination between the students and their mates. Factor 5: Quality improvement perception.

Adopting measures that improve communication between administrative staff and the students will help to increase final satisfaction. University offices should simplify administrative processes, increase opening hours and provide students with the contact information of the staff in charge to ensure quick problem-solving options for students. Regarding the shared objectives amongst the students and lecturers and administrative staff, the availability of any of them is considered key in terms of final students' satisfaction. Mutual respect amongst students, lecturers and administrative staff allows for the elimination of status barriers, promoting a more efficient interaction. This allows for an environment of respect that will be conducive to university outcomes, coinciding with

the premises established in previous research. In addition, shared knowledge involves having knowledge of the entire process and not just the part that corresponds to each concrete profile. It consists of knowing what and how to do it. All these elements allow better communication ties oriented to solve problems.

Given that the sample selected for the study corresponds to a single university, with varying response rates across campuses and faculties, and data collected during a single period of time, only a cross-sectional analysis was feasible. This limitation precludes the identification of trends and the examination of the evolution of the variables under study.

Therefore, for future research, we propose expanding the scope of the study by increasing the sample size to ensure broader student representation across different academic areas, incorporating additional universities, and conducting the study and data collection across multiple time periods.

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