

The Mixed Method for the Analysis of Academic Cooperation between Universities as a Factor of International Prestige: a Methodological Choice for a Complex Reality

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*El método mixto para el análisis de la cooperación académica entre universidades como factor de prestigio internacional: una elección metodológica para una realidad compleja*

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**Abstract:**

Some research problems are of such complexity that they merit a study of methodological consistency; this is the case of academic cooperation between universities at the international level. Indeed, for some authors, international cooperation is a factor of prestige for university institutions, while critics of an open policy of internationalization (north-south) these agreements lead to brain drain and the diaspora of academics. therefore, these authors would be more inclined to South-South cooperation agreements, replacing those types of cooperation that they consider asymmetric. The objective of this article is to determine which is the most appropriate method to address this research problem. The hypothesis is that the mixed method better meets the requirements of the study problem. The method and materials to be used will be the documentary review and critical analysis of four studies that have dealt with the subject between 2010 and 2020.

**Keywords:** Academic cooperation; University; Mixed method; Quantitative method; Qualitative method.

**Resumen:**

*Algunos problemas de investigación son de tal complejidad que ameritan un estudio de consistencia metodológica; este es el caso de la cooperación académica entre universidades a nivel internacional. En efecto, para algunos autores, la cooperación*

*internacional es un factor de prestigio para las instituciones universitarias, mientras que, según los críticos de una abierta política de internacionalización (norte-sur) estos acuerdos tienen como consecuencia la fuga de cerebros y la diáspora de académicos, por lo cual estos autores serían más proclives a convenios de cooperación Sur-Sur, en sustitución de aquellos tipos de cooperación que consideran asimétricos. El objetivo del presente artículo es determinar cuál es el método más adecuado para abordar este problema de investigación. La hipótesis es que el método mixto cumple mejor con los requerimientos del problema de estudio, entendiendo por tal, el método que combina la perspectiva cuantitativa y cualitativa. El método y materiales a emplear serán la revisión documental y el análisis crítico de cuatro estudios que han tratado la temática entre 2010 y 2020.*

**Palabras clave:**

*Cooperación académica; Universidad; Método mixto; Método cuantitativo; Método cualitativo.*

## **1. Introduction**

The 21<sup>st</sup> century university has been impacted by the vertiginous changes that have been occurring in communication since the end of the 20<sup>th</sup> century. This institution is in tune with the increasingly competitive global society. It is not surprising then, that the University uses Communication practices in harmony with this world of social exchanges in real time, which are carried out on a daily basis. These new realities add complexity to those who direct the communication policies of the current University. New problems require new procedures. The demands of the New Strategic Theory (NST) (Alberto Pérez & Massoni, 2009) in Communication cannot be approached with traditional methods. In Bendezú's opinion (2019, s.p.) is a praxis that "implies a departure from reductionist conceptions, giving a new meaning and significance to the communicational strategy". This implies not only a theoretical renewal, but a substantial change in the methodological designs. In Latin America, there is also a current of social researchers that advocates the inclusion of the mixed research paradigm within the methods that can be used in scientific work. Doctor Roberto Hernández Sampieri, social communicator and co-author of Research Methodology, his most recognized work, subscribes to this opinion. Yet, Hernández (2014, p. 532), considers that there is no method superior to another, but rather that methodological approaches should be used according to the nature of the research problem they address.

Indeed, for some authors, international cooperation is a factor of prestige for university institutions, while critics of an open internationalization policy (North-South) these agreements have the consequence of brain drain and the diaspora of academics, which is why these authors would be more inclined to South-South cooperation agreements, replacing those types of cooperation that they consider asymmetric.

In these positions, - that we consider static or dogmatic - influences the method with which the issue of international academic cooperation is approached. The international cooperation policies of universities must always take into account the internal reality

and the contexts, external impacts and meanings. Due to the aforementioned, the mixed method is studied in order to achieve a more assertive approach regarding the issue of academic internationalization. To this end, we will use the term mixed method as “a process that collects, analyzes and links quantitative and qualitative data in the same study or a series of investigations to respond to an approach”. According to Hernández (2014, p. 532) the mixed method is “a set of processes for collecting, analyzing and linking quantitative and qualitative data in the same study or a series of investigations to respond to a problem statement”.

This is where the problema is formulated: What types of research are used in international academic cooperation studies? What type of indicators are used in these studies? And in this context: what are the advantages of the mixed method to approach the issue of international academic cooperation? The objective of this research is to determine the relevance of the mixed method to deal with the issue of international academic cooperation. Our hypothesis is this: The mixed method better meets the requirements of the study problem.

### **Context**

To analyze the reality of the internationalization of Latin American Universities, it is necessary to understand the context in which higher education institutions operate in the region.

Politically, most of the states participate in the democratic system with the exception of the Cuban regime and of countries where the regime of liberties is severely questioned: Venezuela and Nicaragua. However, in general, countries are inserted into multilateral mechanisms and are represented in the international system.

Economically, the region can be considered as an area of abundant natural resources, with a young and diverse population and great potential for growth. However, from a social point of view, it is also one of the most unequal regions in the world. The social demonstrations in Chile and Ecuador made it clear that there is a social sector that suffers from exclusión, which not only wants job opportunities, but also equal opportunities.

It must be said that the key to social inequality is in education: the possibility of pursuing a university degree is restricted to a minority of the population. Furthermore, the educational system as a whole, has not been able to empower the population so that it can benefit from possibilities for social improvement implicit in science and technology.

In this context, the university in Latin America has great challenges: to become a center for the production of scientific knowledge in the region; reach a competitive level in the international arena; promote the dissemination of knowledge and development in our societies.

In this vein, in recent decades, the Latin American region has developed a great interest in the internationalization of its universities. Even when the quality of a group of higher

institutes in the region is recognized (where Brazil, Argentina and Mexico stand out), the region is still far from the canons of the best universities in the world, located in Europe and the United States.

## **2. Methodology**

The present work has a hypothetical-deductive character. To address the research problem, three investigations on the subject of international academic internationalization were selected, to which a methodological consistency matrix was applied. This instrument makes possible to detect the constitutive elements of the investigation and analyze their internal consistency. Indeed, the consistency matrix allows us to analyze the concordance relationships from the methodological point of view. The studies are between 2010 and 2020, since it is a period in which internationalization has reached a remarkable level. Two are case studies on the academic internationalization policies of leading universities in this process: studies at the University of Cuyo (Argentina) and the University of Nuevo León (Mexico). The third study is a scientific article “Dimensions and metrics of the internationalization of universities”, by Jesús Sebastián.

The combination of the analysis of three case studies with the theoretical approach of Jesús Sebastián obeys the methodological orientation that we have adopted. The hypothetical deductive approach is characterized by its dialectical nature that goes from the general to the specific and vice versa. According to Creswell (2013) and Hernández Sampieri and Mendoza (2008), mixed methods have the following characteristics:

Methodological eclecticism, diversity of methods:

Paradigmatic pluralism, which implies the diversity of knowledge models;

Iterative (repetition of procedures) and cyclical approach to research;

Direction towards the problem statement to define the methods to be used in a given study;

Approach that starts from a set of designs that are made according to the circumstances;

Emphasis on diversity and plurality at all levels of inquiry.

Propensity to balance between perspectives.

Pragmatic rationale.

Finding these characteristics in the consistency matrix warns us of the presence of mixed methods. On the other hand, the matrix is useful to be able to discriminate the consistency of the methodology of the analyzed studies. The opposite case may happen: the different research procedures are not consistent with the problems, objectives, and hypotheses formulated. In the first phase, the characteristics are recorded in the Methodological Consistency Matrix and a synthesis of the notable points of each of the tables was made. In the conclusions, a dissertation is made on the final interpretation of the findings.

### **3. Results**

#### *3.1. Results of the first phase and highlights*

In this first phase, the characteristics of the selected studies on academic internationalization are recorded. Then, from this matrix, the points to be highlighted are extracted, which will then be considered in the conclusions.

##### **3.1.1 The Internationalization at the University of Cuyo, Argentina.**

In formulating the problem, the author asks himself: a) What are the reasons of the university management to carry out internationalization? b) How the internationalization management processes are executed? c) How has international cooperation for the development of the internationalization of the University of Cuyo affected? Questions that are consistent with a qualitative case study, specifically a case study, as expressly stated by the author.

Other questions that appear in the work and are likely to be studied qualitatively inquire about the impact of Argentina's public policies, practices, strengths and challenges and finally the influence of the University of Cuyo in terms of internationalization at the regional level.

However, it should be that qualitative and quantitative indicators are present for the same variable, even for the same dimension. This does not invalidate it methodologically, on the contrary: the case study makes it possible to resort to a variety of resources.

The observation is that the one that he adhered to is clearly a mixed research method.

##### **3.1.2 The internationalization at the Autonomous University of Nuevo León (Mexico).**

The author chooses the case study as the research modality and qualifies the research level as exploratory.

The approach is qualitative and, consistent with this qualification, the author states as objectives a) to reflect on the progress in internationalization policies, and b) to understand and visualize the impacts of internationalization. However, an exploratory study - due to the scarcity of references - must apply the greatest diversity of resources possible. It is precisely a matter of validating the findings with more arguments.

On the other hand, the nature of the internationalization variable implies that the institution must be situated in a context, in an area that transcends it as an organization and needs to be considered. Even more so when the author wonders about the impacts of the internationalization of the UANL: data that allow such weighting are necessarily required.

This need for quantitative data becomes clear when analyzing the nature of the indicators "Accreditation of students and teachers", as well as "Mobility of students and teachers".

The study does not have a mixed design, but the nature of the problem, the variable and the indicators of this research would have allowed it to be applied. A mixed design would not only allow greater validation, but would also have provided inputs for an eventual theorization on the issue of internationalization.

To delve into the analysis, it is necessary to make two critical observations about the methodology that is usually used in these studies:

*Excessive emphasis on the equalitative:* qualitative studies became very popular at the end of the 20th century because they allowed to approach the issues from subjectivity, from motivation and perception and allowed contextualizing human behavior from the psychological and socio-cultural sphere. However, in the postmodern present we are witnessing another type of complexity, in which the particular and the general, the local and the universal, the normative and the exceptional count.

*Insufficiency of the monomethod for the study of university internationalization:* from the purely qualitative field we cannot compare ourselves with other realities, with similar institutions in other regions of the world. In effect, from the pure qualitative method we do not have adequate parameters to know if the institutions are advancing in the objectives that have been proposed.

### 3.1.3. Dimensions and metrics of the internationalization of universities

This scientific article presents the internationalization of universities as a dual process that has two dimensions: one internal and the other external. Addressing these two dimensions requires more than one approach that manages to capture the different impacts generated by this process.

As can be seen, the article identifies international cooperation as an instrument of internationalization. In the methodological consistency table, international cooperation is situated as a variable that has a high impact on the internationalization of universities. On the other hand, -as can be seen in the corresponding column- the author proposes a set of indicators for measuring internationalization, to carry out a self-evaluation of the intensity and characteristics of the internationalization of a university. This series of indicators that are intended to be used in comparative studies is characterized by being composed of quantitative and qualitative indicators.

Among the issues that these indicators measure are: the existence of processes that facilitate the recruitment of foreign students; actions aimed at hiring professors and researchers; incentives for the mobility of professors and researchers; incentives for student mobility; and in the promotion and incentive schemes.

Sebastián proposes a system with two modalities, one with twelve (12) indicators and another with fifty-eight (58), both are considered by the author as provisional. It is therefore understood that the free selection of these indicators, the self-composition made by the researchers depends on the specific purpose of the case, for example, whether it is a self-assessment or a comparative analysis.

A preliminary conclusion that can be advanced is that the university internationalization process is extremely complex. This is confirmed by the quantity and diversity of the quantitative and qualitative indicators that were proposed.

#### 3.1.4. The International Relations Offices in the process of internationalization of Higher Education.

The study is mixed because it combines the quantitative and qualitative approaches to solve your research problem. This statement coincides with the criteria of the author of the study (Abba, 2014, p.31).

Within the proposed mixed method, the quantitative approach is expressed in the comparative analysis of the variables, through a measurement scale. Consequently, the author chose the Likert scale as a measurement instrument to obtain a score according to each variable and each indicator included in it. (Abba, 2014, p.32)

The information that was expressed in graphs allows us to determine the level of development of each variable, the relationship of the research with the management and management of internationalization and international cooperation programs and projects.

From a methodological point of view, the information that can be obtained from the quantitative approach within the framework of a mixed method is remarkable. Sticking to the sample example, in this case:

The qualities of the objects of study; In the analyzed research, the weaknesses and strengths of each of the universities are weighted;

Precise comparisons between the investigated objects (in the cases of comparative studies);

Opportunity to categorize the object of the investigation. The quantitative approach requires a well-defined and delimited object of study: in the present case, the universities are compared within the three groups defined as large, medium and small universities. The important thing about this categorization is to determine what is the development of the ORI's management and its relationship with the size of the university.

## **4. Conclusions and recommendations**

### *4.1. Conclusions*

When reviewing the literature, it was found that the issue of international academic cooperation and internationalization of universities have been developed by universities predominantly based on case studies. The analyzed works were characterized as studies that could be approached from the mixed method. The reasons that would justify this methodological selection are the following:

The formulation of the research problem: in the formulation of the problem the author of the University of Cuyo asks questions that concern the field of meanings, such as: a) The reasons for carrying out internationalization; b) How the internationalization processes are carried out; c) How international cooperation for the development of the internationalization of the University of Cuyo has influenced, questions that are consistent with a qualitative case study, specifically a case study, as expressly stated by the author.

In the case of the UANL, the formulation of the problem is the impact of the internationalization of the university, which already suggests a quantitative analysis, but then in the objectives it speaks with the verbs reflect, understand and visualize, which also places this study in the qualitative field.

This does not preclude both studies from including quantitative indicators. In the case of the University of Cuyo, the quantitative elements are more regular than in the UANL case, even presenting themselves as indicators for each of the components. This reveals diversity and plurality at all levels of inquiry.

Indeed, and as can be seen in the preliminary results, qualitative and quantitative indicators are present for the same variable, even for the same dimension. It is, in fact, a mixed method investigation with a high degree of structuring. In this sense, it can be said that it complies with the heuristic proposal of the researcher Jesús Sebastián. The researcher states that the international cooperation process is a dual process, which contains an internal and an external dimension, which makes its study more complex.

The cases of UANL and UNCuyo are examples of the opportunity presented by these issues to apply mixed methods. We find elements corresponding to statistics, but also to thematic analysis. Other characteristics that could be verified in the cases studied were:

The study and design themes allow the combination of methods (methodological eclecticism).

Orientation towards the problem statement to define the methods to be used in a given study.

Tendency to balance between perspectives.

Pragmatic rationale.

#### *4.2. Recommendations*

One of the first initiatives that must be taken to achieve effective change is to alter how the problem of university internationalization is studied. The literature review has shown how the growing interest in the subject has generated a large number of case studies, an appropriate methodology for certain study purposes, insofar as it allows understanding the conditions in which each university operates, the specific reality from which it plans its institutional development.

That university internationalization must be implemented as an axis of study and research for all the faculties of the universities in their faculties of Sciences and Humanities. The Office of International Relations would monitor the findings of these investigations.

Let the case studied guide the investigations. The method used must be the mixed one, which nourishes possible theorizations on the subject with inductive studies.

Stimulate a more strategic than ideological thinking on the subject. In other words, knowing the strengths and weaknesses of the University, a plan should be drawn up that benefits its development, and this strategy can be, depending on the case, North-South or South-South cooperation treaties.

Promote professionalization in the matter of institutional internationalization.

Use in research a set of quantitative and qualitative indicators for each variable of interest. An example of widely recognized indicators is by the Spanish author Jesús Sebastián.

**Table 1**

*International Cooperation and the Management of Internationalization in Higher Education: the Case of the National University of Cuyo*

Problem:	Objectives	Hypothesis	Variable	Dimensions and indicators		Methodology	
				Dimension	Indicators	Configuration	Method
<p>What are the reasons for the University to carry out internationalization?</p> <p>How are the internationalization management processes carried out?</p> <p>How has international cooperation for development affected the internationalization process of the University of Cuyo?</p>	<p>Characterize the results of the internationalization process of the University of Cuyo, through the analysis of institutional policies, existing motivations and the management of the internationalization process, in order to analyze its leadership at the regional level.</p>	<p>The hypothesis from which this research starts is that the internationalization process of the University of Cuyo is built on the basis of three elements:                      1) public policies favorable to internationalization (at the international, national and institutional levels);                      2) the recognition of the importance of internationalization (reasons) reflected in a strategy and;                      3) efficient management of internationalization processes. All three elements favor the development of internationalization at the institutional level.</p>	<p>Strategic planning</p> <p>Internationalization</p>	<p>Management of programs and projects.</p> <p>Creation of programs and projects</p> <p>Monitoring and evaluation</p>	<ul style="list-style-type: none"> <li>· Creation of PyP</li> <li>· Quantity of P&amp;P generated by the university</li> <li>Monitoring and evaluation</li> <li>· Existence of project monitoring</li> <li>· Existence of impact evaluation</li> <li>· Survey and systematized information</li> <li>Political decision of the university authorities</li> <li>· Existence of an International Relations office (ORI) in the organizational structure of the institution.</li> <li>· ORI hierarchy in the organization chart</li> <li>· Number of people who work in the ORI</li> <li>· Number of human resources sent to these trainings.</li> </ul>	<p>Kind of investigation. applied                      Case study.                      Qualitative.                      Research level                      Exploratory.</p> <p>Research focus</p> <p>Qualitative framework (with quantitative elements).                      “Whenever information is obtained from the main actors, or who carry out the action” (p. 11)</p> <p>Research design                      Non-experimental                      causal correlational                      cross-section</p>	<p>Research Methods</p> <ul style="list-style-type: none"> <li>-Universal.</li> <li>Methodical</li> <li>-General.</li> <li>-Analytic and Univoco.</li> <li>-Inductive and deductive.</li> <li>-Abstraction and worldview.</li> </ul> <p>Specific:                      -Heuristic.                      -Historical.                      -Descriptive.                      -Comparative.                      -Hermeneutical.</p> <p>Instruments:                      - Questionnaire.                      - Interview guide.                      - Observation sheet.                      Techniques                      Survey.                      Interview.                      Observation.</p>

**Table 2**

*The Internationalization of Higher Education. UANL case*

Problem:	Objectives:	Hypothesis:	Variable	Dimensions and indicators		Methodology	
		General and specifics		Dimension	Indicators	Configuration	Methods
What are the impacts of the internationalization of the UANL?	<p><b>Reflect</b> on the progress in policies and trends that the UANL has implemented in matters of internationalization, international accreditation of programs, the mobility of students and teachers, the impact on the academic community and on the local, national and international social environment.</p> <p><b>Understand and visualize</b> the impacts of internationalization.</p>	It does not pose a hypothesis, but starts from the premise that internationalization guarantees the fulfillment of the associated academic objectives.	Internationalization	Internationalization of academic programs.	<p>Accreditation of students and teachers.</p> <p>Mobility of students and teachers.</p>	<p><b>Kind of investigation.</b> Case study.</p> <p><b>Research level</b> Exploratory.</p> <p><b>Research focus</b> Qualitative framework</p> <p><b>Research design</b> Non-experimental cross-section</p> <p>POPULATION Reports of the Rector for the years 2010 to 2015, as well as the UANL Institutional Development Plan 2012-2020.</p>	<p><b>Research Methods</b></p> <p>-<b>Universal.</b> Empirical.</p> <p>-<b>General.</b> -Inductive and deductive.</p> <p>-Abstraction and worldview.</p> <p><b>Specific:</b> -Heuristic. Instrument: -<b>Bibliographic file.</b> Techniques Documentary review and analysis.</p>

**Table 3**

*Dimensions and Metrics of the Internationalization of Universities, Jesús Sebastián*

Problem:	Objectives:	Hipótesis:	Variable	Dimensions and indicators		Methodology	
		General and specifics		Dimension	Indicators	Configuration	Methods
	<p><b>General purpose</b></p> <p>Analyze the "internationalization of universities as a dual process, with one dimension that is expressed inwardly and another that is expressed outwardly from the universities."</p> <p><b>Specific objectives</b></p> <ul style="list-style-type: none"> <li>- Analyze the role of international cooperation as an instrument for internationalization.</li> <li>- Classify how the dimensions (internal and external) contribute to internationalization (through) different and complementary strategies, modes of expression and impacts.</li> <li>- - Propose indicators for the measurement of internationalization, indicating a series of indicator families for the different components of the university.</li> </ul>	<p>Internationalization is a tool, a means, to improve the quality, relevance, effectiveness and efficiency of university functions, improve university research worldwide, with international standards and improve the projection and connection of the University in the world of education higher.</p>	<p>Internationalization</p> <p>International cooperation.</p>	<p>Políticas; organización y gestión; financiación; actores; actividades docentes; actividades de investigación y vinculación y proyección externa</p>	<p>Organization and management. Qualitative and quantitative indicators: - Weight of international cooperation in the organization chart - Quality and coverage of connectivity on the university campus -% international magazines in the library</p> <p><b>Qualitative indicators:</b> - Weight of internationalization among the objectives and processes in The Mission / Statutes / Institutional development plan - Existence of a Plan for internationalization</p>	<p>Kind of investigation. applied</p> <p>Research level Explanatory.</p> <p>Research focus</p> <p>Qualitative framework (with quantitative elements).</p> <p>Research design Non-experimental cross-section</p>	<p>Research Methods</p> <ul style="list-style-type: none"> <li>-Universal.</li> <li>Rational.</li> <li>-General.</li> <li>-Deductive.</li> <li>-Abstraction and worldview.</li> <li>Specific: -Heuristic.</li> <li>Instrument: - Observation sheet. Techniques Survey. Interview. Observation.</li> </ul>

**Table 4**

*The International Relations Offices in the process of internationalization of Higher Education. An analysis through management variables*

Problem:	Objectives	Hypothesis	Variable	Dimensions and indicators	Methodology
		Premises		Indicators	Method - Design
Lack of knowledge of internationalization management of the Argentine national universities, through the International Relations Offices (ORIs).	Analyze management variables of the international relationship of the International Relations Offices (ORI's) of 6 Argentine National Universities that were selected. (p.22)	<p>Premise 1. Due to the “context of increasing globalization” universities are no longer conceived in isolation.</p> <p>Premise 2. Universities are interconnecting with each other, seeking to overcome geographical barriers</p> <p>Premise 3. The space for international ties is represented in the International Relations Offices. (summarize, pg, 21)</p>	<p>1) Strategic planning.</p> <p>2) Program and project management</p> <p>3) Evaluation and monitoring processes.</p> <p>4) Political decision of the university authorities.</p> <p>5) Professionalization and training of staff.</p> <p>6) Linking research in management processes</p>	<p>1.1 Existence of P.E</p> <p>1.2 Amount of P. E.</p> <p>2.1 Creation of P and P.</p> <p>2.2 Amount of P and P. since the creation of the ORI.</p> <p>3.1 Existence of evaluation of P and P.</p> <p>3.2. Existence of a working group.</p> <p>3.3 Existence of publications on the results of the evaluations.</p> <p>3.4 Existence of impact evaluation.</p> <p>3.5 Survey and systematized information.</p> <p>4.1 Existence of an ORI in the organizational structure of the institution.</p> <p>4.2 Hierarchy of the ORI.</p> <p>4.3 Institutional documents.</p> <p>5.1 Number of people in the ORI.</p> <p>5.2 Existence of training.</p> <p>5.3 Number of people in training.</p> <p>6.1 Researchers on internationalization</p> <p>6.2 Linking researchers on internationalization with the ORI.</p>	<p><b>Method:</b> Mixed</p> <p><b>Comparative case study</b> “in depth” (Sampieri et al., 2006 p. 30). from the following universities:</p> <p>National University of Buenos Aires and National University of La Plata.</p> <p>National University of the Center of the Province of Buenos Aires and National University of Mar del Plata.</p> <p>National University of Tres de Febrero and National University of San Martín).</p>

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