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Theme 4: Universities as interactive partners

Sub-theme: 4.1. From science push policies towards a Triple Helix perspective and the role of users

The Hidden Triad: a proposal of how to 'move' Latin American universities based upon studies of the state of affairs in Peru

Author: Ronnie Guerra

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Ronnie Guerra: General Coordinator of E-QUIPU Organizational System, Professor of Entrepreneurial Development, Faculty of Science and Engineering of Pontificia Universidad Católica del Perú (Pontifical Catholic University of Peru), Av. Universitaria 1801, San Miguel, Lima 32, Perú. Telephone: +511-6262128. Email: guerra.rh@pucp.edu.pe

Abstract

Latin American universities are not well recognized within international rankings. They are considered, in most cases, only as institutes for teaching and they waste many opportunities to generate wealth and knowledge by increased interaction and linking with industry and government. This is a common problem greatly influenced by the culture inherited from Spain and Portugal, which conquered the Latin American countries many centuries ago. Furthermore, in general, they cannot enjoy of many universities located in high positions in the rankings. Latin American countries must accept a low quality education as they cannot typically afford better. Citizens who inspire to be elected public officials have no real knowledge about the needs of their populations. Similarly, universities do not raise concerns about the importance of university life, then, when they elect students for representing them in the university government also fail because they are not prepared for do it well. This also happens with the unions of students or workers, however, as universities in the Triple Helix model, the unions are driving many changes in Latin America. Also, if we consider what creates value to college this occurs in groups of interest. Thanks to them the research, development, innovation and entrepreneurship appears in universities. However, they are often very disconnected to the necessary support from their government (academic authorities) because of its multidisciplinary spirit and without cooperation with the unions established. In the end, due to high mistrust and miscommunication, problems and delays raise. These cases show that each common University of Latin America is a tiny country. They reflect their culture, so each has a "tiny Triple Helix" made up: Groups of interest (industry), the University governance (Government) and Unions (University). They form what is called "The Hidden Triad" so, for revitalize universities in Latin America is important and necessary to know and articulate this triad. In this sense, from Pontifical Catholic University of Perú (PUCP) the Organizational System E-QUIPU is promoted as an alternative solution. A long road, but it is already paying off.

1. Introduction

Latin American universities, for the majority, only teach and subsequently lose or miss many opportunities to generate wealth and knowledge from interaction with industry and state, thereby, listing near the bottom of international rankings¹. The price is high for the various types of universities in the region, despite economic progress, to be the entity that acts as the competitive engine for their respective countries and coordinate effectively with global networks; producing and exchanging professional knowledge and innovation². The majority maintains a weak quality of education for the workplace, disconnected from the environment and from schools; all this, together with ineffective policies to solve these problems and opting not to participate in global development, is evidenced in the continued low proportion of investment in research and development with respect to Gross Domestic Product relative to each country³. In this framework the “*Triple Helix*” (University - Industry - State), remains very weak because the entity which could stimulate this model and promote innovation, the university⁴, “is not moving”, it is languid and is not contributing to society as well as it could. Furthermore, though positive changes are taking place, they are not well articulated⁵.

In Peru this situation is no exception⁶. The autonomy that universities have (pursuant to Article 1 of Peruvian university law⁷) is a great cause of⁸:

- (1) *Isolation from the Ministry of Education without strong priority for state politics*
- (2) *A weak connection to the National Council of Science, Technology and Technological Innovation or government enterprises and research centers, whose focus is to develop technological transfer*
- (3) *Poor interaction with the private sector to generate science, technology and innovation*
- (4) *An internalized culture which does not permit efficient coordination of existing interest groups whether they be internal or external.*

¹ Cf. Oppenheimer, Andrés. *¡Basta de Historias! la obsesión latinoamericana con el pasado y las 12 claves del futuro*. Buenos Aires: Debate, 2010, p. 9 - 39.

² Cf. Brunner, José Joaquín. “*Educación superior en Iberoamérica: Informe 2011*”. Santiago, Chile: Ril editores, Universia, Cinda, 2011. p. 49-78, 111-128, 153-180, 209-2016, 239-254, 281-300, 325-330, 399-408.

³ Cf. Organization of Ibero-American States for Education, Science and Culture. “*Metas Educativas 2021: La educación que queremos para la generación de los bicentenarios*”. Cepal – OEI. P. 50-51, 137-139.

⁴ Etzkowitz, H. and L. Leydesdorff (2000), ‘*The dynamics of innovation: from National Systems and ‘Mode 2’ to a Triple Helix of university-industry-government relations*’, Research Policy, 29 (2): 109-123.

⁵ Cf. Seminário Hélice Tríplice na América Latina: Conhecimento para a Inovação. EDIPUCRS– Editora Universitária da Pontifícia Universidade Católica do Rio Grande do Sul, 2010.

⁶ Cf. United Nations. “*Science, Technology & Innovation Policy Review: Peru*”. 2011. p. 2

⁷ Ley Universitaria Peruana (Ley N.º23733)

⁸ Cf. Villarán, Fernando. “*Emergencia de la Ciencia, la Tecnología y la Innovación (CTI) en el Perú*”. Lima: Organización de Estados Iberoamericanos – OEI, 2010. p. 33-42

In parallel, while the country's economy has shown tremendous growth during the last half century, there still exists high inequality and distrust between Peruvian citizens, resulting in many social conflicts⁹. To change the present scenario is indeed a difficult endeavor, one requiring the consolidation of its formal structures, as the internal culture of universities and organizations in the country are often rigid and obdurate making change difficult.

The Peruvian university is a direct reflection of society, which is often considered as a "small republic" whose citizens are the "scholars" and which overlaps the values of democratic organization of this "small country" on the values to which universities should prioritize, as the search for truth, scientific and academic rigor and knowledge management¹⁰. The challenge is immense for one who wants to improve the condition.

2. Hypothesis and Method Overview

On the claim that Peruvian universities resemble the country, it is a postulated hypothesis that a "*Hidden Triad*" exists within Peruvian universities. This "*Hidden Triad*" is a simile of the "*Triple Helix*" and can be articulated through appropriate policies in the houses of study, in as much, it is believed that these organizations can play a more effective role in joining Industry with State.

This conjecture I have formulated is based on methodological and longitudinal observations conducted over a period of nearly 10 years as a professor, thesis advisor, consultant, university executive, and student. Further enriched by experiences as orator and dissertationist at conferences within universities and businesses located throughout (from the Pacific coast, through the Andean highlands, to the low-lying jungles) this country; Interspersed with visits and interviews with academic authorities, teachers and students of numerous institutions of various countries.

As verification, this dissertation analyzes the forms of government and customs of the most prestigious universities and traditions of Peru¹¹. In as much, evidence of this *triad* found,

⁹ As cited by "El PNUD en Perú" in the Websited "Programa de las Naciones Unidas para el Desarrollo" <http://www.pe.undp.org/content/peru/es/home/countryinfo/>

¹⁰ Cf. Universidad Nacional Mayor de San Marcos. "*Temas de reflexión en torno a la universidad peruana: Conversatorio por una nueva Reforma Universitaria*". Lima: 2005. p.8.

¹¹ Please consider the 2012 ranking of magazine, America Economía. <http://rankings.americaeconomia.com>. Four of the top five universities in the ranking have shown clear evidence Hidden Triad existence. Also, in all, 52% emulate this behavior in your organization.

presents the similarities of approximately 50% of Peruvian universities¹² with what occurs in our nation. Additionally, it investigates the internal workings of these organizations, with the aim of exposing the three entities that equate to the “*Triple Helix*”. Finally, this paper outlines an alternate path to facilitate internal articulation and allow the Peruvian university’s “*Hidden Triad*” to take a protagonist role in society as the key to the success of the model “*Triple Helix*”.

3. The Peruvian university: a microcosm of the country

The number of universities in Peru has increased in recent years. In the 1960s, there were only ten. By 1990, this number increased to more than fifty¹³. By the end of the twentieth century, there were 75 and according to the National Assembly of Rectors of 2013 there is now 137 in operation; nevertheless, this growth has not been accompanied by improvement in education because the majority of specialties offered by universities are not nationally accredited¹⁴. In as much, this growth has not proven to be prosperous in the quality of education for students, thus creating discontent and distrust, both internal and external to these institutions.

In the case of the most traditional and prestigious universities, they are recognized as autonomous non-profit organizations (government and private). Its internal structure is based on a shared government in which power is distributed between teachers and students, who are elected as representatives (authorities) for their respective groups, generating a co-government¹⁵. This type of management is not practiced only on Peruvian universities but also at universities in other parts of the world, including the U.S. and Europe¹⁶.

In this aspect, great similarities between the university and the country have been seen. Students, even of young age and maturity, may vie for office to for such co-government; as well as older citizens (no special study requirements), both may stand for election¹⁷. In either case, if

¹² According to the National Assembly of Rectors (2013), <http://www.anr.edu.pe>: In Peru there are 137 universities, of which, 76 are institutionalized (31 state and 45 private) and 61 are in the organizational process (20 state and 41 private).

¹³ Universia Perú. Estadísticas (2006).

¹⁴ The “Board of Assessment, Accreditation and Quality Assurance of Higher Education University” has no enough leadership. This state agency has accredited only five careers (information according to their Website: <http://www.coneau.gob.pe>). In this situation, some private universities have chosen to be accredited by international organizations.

¹⁵ Peruvian University Law (Ley N.º23733), articles: 1, 14, 27, 28, 31, 38, 39, 58, 60, 61, 90, 91 y 92.

¹⁶ Cf. Vid. Peter Scott. “*From Professor to ‘Knowledge Worker’: Profiles of the Academic Profession*”. Minerva, June 2007, Volume 45, Issue 2, pp 205-215.

¹⁷ Depending public office to which citizens wishing to apply, age requirements vary. More information in: “Election Law” (Ley N.º26859, Artículos: 106, 112) and “Municipal Elections Law” (Ley N.º26864, Artículo 6)

elected as representative for their community, it is evident that the educational system does not prepare them to face such a task, so imminently they fail. They are neither aware of existing problems nor proposed solutions, thus generating dissatisfaction with elected officials and the voters alike. Moreover, in Peru, inside the traditional universities, student participation reaches to the third party of the governing bodies in those institutions. This practice began as a student movement in Argentina in 1918 and in the first half of the twentieth century spread to several countries, including Peru¹⁸. Unfortunately, many universities that practice this co-administration have shown that the student representatives (third student) does not necessarily belong to the upper third of academic performance, therefore, even during election of its officers they generate practices of political clientele and internal conflicts¹⁹.

Furthermore, because the presidents and deans are elected by the university assembly and faculty councils²⁰, respectively (incorporated bodies only by representatives of the above groups), they tend to focus resources on the professors. Those who have been with and will likely stay longer with the institution is more apt to be chosen for continued terms of office, instead of students

Furthermore, the Peruvian university system has not set strong internal policies that permit joining that which is produced by the University to create a partnership of industry and state. It prevails that in many cases the system could resemble a "feudal culture", where as there is no cooperation between areas or units post reparation of its organizational complications (although these features are common at universities in other countries²¹). Prime evidence of this situation is that there still exist a problem of professional entitlement and we have yet to allocate any resources to fix it, which would directly benefit college students. Undergraduate students from all universities of Peru, after completing the courses spread out over five years of study, automatically obtains the academic degree of "bachelor" which qualifies them as "graduates of the university" or simply said "graduates". However, if these graduates wish to pursue professional projects with the State and validate their signature, they will need to register with their respective professional associations, with the indispensable requisite "Professional Title in

¹⁸ Javier Pablo Hermo & Cecilia Pittelli. *"The University Reform of Córdoba (Argentina) in 1918. Its influence on a renewed emancipating thought in Latin America"*. Ciudad de Buenos Aires, Buenos Aires: 2009. p. 2-3, 8, 16-18

¹⁹ Ministry of Education (2013). *"La Universidad en el Perú"*. Dirección de Coordinación Universitaria. Lima: 2006. 113-114.

²⁰ According PerúPress.com (2013): The election of the academic authorities by "universal suffrage" (in which the entire university community vote) only applies to three universities: the University of Cajamarca, in the Altiplano and in San Cristobal de Guamanga.

²¹ Houck, James P. *"The Feudal Society in Today's University"*. Bayshore Institute Paper 90-1A. 1990.

the name of the Nation," which in Peru is issued by the universities and is the so-called "degree". According to Article 22 of Peruvian university law, graduates may obtain said professional title after submittal and approval of their thesis (mode that supports creating a culture of research and development), demonstrate three years titular experience or other mode deemed qualifying by the institution. Although the vast majority (69%) of college students say they prefer to develop a thesis for his degree, the reality is that just over one-third (35%) of graduates actually gain their title this way and about half (45%) never attempt to gain their degree by any mode²². While no official figures exist (as the dissertation database of the National Assembly of Rectors is outdated²³ and most universities do not have a Web system to corroborate this information), the few thesis that are realized, are not aligned to help altruistic organizations such as the National Association of Scouts of Peru, Civil Defense, Red Cross or volunteer firefighters. The link to society for an undergraduate is still weak. Trying to produce as such, rather than as a graduate, worsens the situation and reflects in that much less than a third of students who complete their master comes to support his thesis²⁴. For PhDs the situation is worse, as having a very narrow range of programs of study in the country, there are very few who dare to attempt it and yet fewer who finish, evidenced in 2008 with only 79 graduate doctors in Peru²⁵.

The aforementioned demonstrates that universities have weak internal and external linkage (with minimal multidisciplinary ideals), and what's even more striking, these institutions are a reflection of the country (a "Little Peru"), which also greatly lacks internal articulation between state institutions and does not cooperate with neighboring countries to generate technological transfer.

Instead of being the microcosm "of society that could be based on an economy of knowledge", the Peruvian university is "an organization that moves languidly and does not manage knowledge."

²² Universia Perú, "Universitarios prefieren tesis para obtener título profesional", 07 de setiembre del 2012.

²³ Asamblea Nacional de Rectores. "Catálogo de Tesis". (2013), <http://200.48.39.42/desarrolloacademico/tesis/>

²⁴ Comisión Nacional por la Segunda Reforma Universitaria. "Diagnóstico de la Universidad Peruana: Razones para una nueva reforma universitaria". Congreso de la República del Perú. Lima: 2002. p 43.

²⁵ United Nations. "Science, Technology & Innovation Policy Review: Peru". 2011. p. 105

4. Possible explanation: cultural influence

This situation is a reflection of culture, making it very difficult for the "*Triple Helix*" model to work in Peru. Geert Hofstede's studies is quite possibly one of the best elements of explanation on this subject, with conclusions based on statistical and differential analysis to the cultures of the countries according to six dimensions²⁶.

The first dimension expresses how societies behave according to hierarchical differences and how they are accepted "from the bottom up". Peru having a rating of 64 out of 100, indicates that the structure more accepted in society tends to be staunchly vertical.

The second dimension refers to the ways of coping with uncertainty and how it's controlled or accepted. Peru received a rating of 87 out of 100, reflecting the high bureaucracy of organizations with little acceptance of change and new proposals.

The third dimension focuses on how society is individualistic (being the opposite of collectivistic). Peru, scoring 16 of 100, tends to simulate a collectivist society. Individuals prefer to integrate into groups (close network of friends with strong bonds) like tight-knit families, frequently being extended with aunts, uncles, cousins, and grandparents, which continue protecting in exchange for unconditional loyalty from the uncertainty of change. The word collectivism in this sense has no political meaning: it refers to the group, not the state.

The fourth dimension reflects the emotional implications of being born as a girl or boy in society. Hofstede calls it the degree of masculinity and Peru has a score of 42 out of 100, which makes it considered a society in which women have modesty values similar to that of men, unlike masculine countries showing values assertive and competitive.

The fifth dimension refers to the long-term orientation, in which Peru was rated 25 out of 100, reflecting that the population does not think to plan a great future, in contrast, they tend to "live for the moment".

The sixth dimension reflects indulgence versus restraint. Peru shows a score of 46 out of 100. This indicates how difficult society finds it to achieve satisfaction of their basic needs, to enjoy life and have fun²⁷, as there are social norms that constrain it.

²⁶ Dimensions of national Cultures, Website of "Geert Hofstede & Gert Jan Hofstede" (2013).

²⁷ A recent study by Ipsos Peru revealed that "83% of successful professionals sacrificed some aspect of their personal life to get where they are, especially their relationships: family, friends and partner". *El profesional exitoso*. Ipsos Public Affairs. Lima: 2013. p14.

Notably, Hofstede scores demonstrates that the countries of the Americas share great similarity with the scores of countries that conquered, (i.e. Spain and Portugal) as well as those that colonized (England)²⁸, revealing the great influence of the cultural mix.

The combination of the aforementioned provides much insight into the Peruvian citizens' proclivity to shy away from change and innovation^{29, 30} and this characteristic is clearly reflected in the students of their universities.

One clear example, in the case of the educators; scarcely are the teachers self-critical to teaching methodologies and scope of academic goals, which are the basis for the accreditation of professional careers. Rarely does it occur where cases, such as that of Professor Eric Mazur, who made public some problems recognized in teaching of physics to Harvard students (despite the high prestige of the institution) in the mid-1990s³¹. If this case of Prof. Mazur had happened in Peru, it quite possibly would not have been exposed and never seen nor the problem ever solved. If someone wants to make changes, you run the risk of being "changed".

Another example of the lack of openness in science, technology and innovation is evident in the very low number of patent applications in Peru, which in 2010 reached only 300 (87% of these requests were made by foreigners) leaving the country that year with a 0.13 coefficient of invention (the lowest in South America in that year)³². Many of the reasons given often cite a strong cultural component. According to Peruvian experts in these topics, the most accepted hypothesis to explain this situation would be³³:

- a. The ignorance and disinterest of political authorities to invest in research, development, science, technology and innovation.
- b. The colonialism mentality, which generates population value and appreciates more the imported "models" rather than striving to create "their own models" of development.
- c. Mediocrity, subservience and inability existing Peruvian institutions.
- d. Authoritarianism and fear of critical thinking, which impedes novel thinking and innovative proposals that will be off to be perceived as radical or revolutionary.

²⁸ Matrix of dimension scores, Website of "Geert Hofstede & Gert Jan Hofstede" (2013).

²⁹ Hofstede, Geert. *Culturas y organizaciones: el software mental - la cooperación internacional y su importancia para la supervivencia*. Madrid: Alianza Editorial, 1999. p. 214

³⁰ What about Peru?, Website of "The Hofstede Centre" (2013)

³¹ Cf. Brunner, José Joaquín. *Educación superior en Iberoamérica: Informe 2011*. Santiago, Chile: Ril editores, Universia, Cinda, 2011. p. 49-78, 111-128, 153-180, 209-2016, 239-254, 281-300, 325-330, 399-408.

³² RICYT, The Network for Science and Technology Indicators –Ibero-American and Inter-American. *"Patent applications" & "Invention coefficient"* (2013).

³³ Villarán, Fernando. Cf. óp cit. p. 40-42.

- e. Corruption embedded in public institutions with elected officials seeking personal gain instead providing public service to the community.

The Peruvian university is in crisis and "not moving" and although various analyses have been generated from different points of view demonstrating the need for change, little has been achieved. Our universities are not pro-active, they cannot generate proposals for solutions to the problems of the country, providing much meaning to the phrase: "*Peru has problems: Universities, faculties...*".

5. A small Triple Helix at the University: The Hidden Triada

The *Triple Helix* model implies that the university can play a greater role in driving innovation in society and be a driving force in the transfer of knowledge due to their network of relationships with industry and the state³⁴. The University is the key to get the system "moving".

For this model to work, in the Peruvian context, it will be necessary to modify university culture, to initiate changes that may appear drastic but are absolute in necessity. As they are now (the universities, which *should* have an active role in society) "do not move". Whereas these organizations behave like a "little Peru" there should be located, within those organizations, the three entities equivalent to a "small Triple Helix" in order to energize both "motivate" the university.

In this context, the State in the Peruvian government is equivalent to university government, whereas, authorities are democratically elected by their community (sometimes with problems), and not necessarily strongly linked with their environment. For this, they cannot focus and quickly resolve important issues that benefit of the university community. The burdensome internal bureaucracy and numerous representatives of the governing body consume time and take too long to make decisions. Like the state, the university government usually focuses on urgent issues only, "putting out fires" and "applying band-aids" in lieu of creating lasting solutions, "curing the disease".

In the case of industry, its relationship with a country is to move the economy, maintaining dynamism, fortify and generate wealth for the country. Thanks to them, we have currency exchange, produce new products and jobs; consider the importance of knowledge

³⁴ Etzkowitz, H. and L. Leydesdorff (óp. cit): 109-123.

management, the use of new technologies, outsourcing of jobs and the creation of partnerships³⁵. In today's university, in addition to education and research, it has become very important to generate and manage knowledge through multidisciplinary approaches, being the birthplace of entrepreneurial activities and establishing networking partners that will enhance ones career³⁶. This occurs through interest groups existing within and multidisciplinary interactions (allowing faster progress by "cutting through the red tape" when there are many formalities or excessive bureaucracy). This is the wealth they produce to the benefit of society and by them research, development, innovation and spirit of entrepreneurship flourish inside. Motivated by their passion guided by their will to succeed, they move on towards their objective through positive action. However, they can be very difficult to locate, since they are not always listed in any one place, bearing some resemblance to some Peruvian companies: many are informal³⁷ and therefore unreachable.

If we recall the university of the Middle Ages, we note what was the root circumstance that began student guilds (a group of scholarly people who came together to educate and share knowledge). Now, many centuries later, the guilds have evolved while still following that internal organization framework. They elect their representatives and maintain leadership in their home studio. One way or another they continue to exist within Peruvian university campuses (and those of other universities), often having the ability to "propel" or "cripple" their institutions. Often they organize as federations or associations, a combination of both students and employees.

For these reasons, they (the guilds) are proposed as the third entity. Ironically, a shared similarity with the *Triple Helix* is that these organizations also have a weak connection to existing interest groups on their campuses. They maintain a feeble culture of documentation. Their websites are usually outdated³⁸ and changes are poorly controlled. Very few (or no) proposals are generated and presented to university government showing a clear path of how to improve or resolve their problems, despite having resources (facilities, grants, cabinets, etc.) that could be used to their advantage to promote and generate research, development and innovation. It is for this reason that the interest groups and the university community tend not to

³⁵ Drucker, Peter Ferdinand. *"El management del futuro"*. Buenos Aires: Sudamericana, 2003. p. 224-236.

³⁶ Cf. Wissema, J.G. *"Towards the Third Generation University: Managing the University in Transition"*. Edward Elgar Pub, March 2009. p. 30 - 33.

³⁷ Perry, G.E.; Arias, O.S.; Fajnzylber, P.; Maloney, W.F.; Mason, A.D.; Saavedra Chanduvi, J. *"Informality: Exit and Exclusion"*. Washington: The World Bank. 2007. p. 29.

³⁸ Nowadays the "Student Federation of Peru", use his Facebook (<https://www.facebook.com/FEP.PERU>) instead of its Webpage (<http://federaciondeestudiantesdelperu.blogspot.com/>) which not updated since 2011.

value the work of the unions, because they do not identify with their work nor do they know how to represent the interests and needs of students and employees. This decanted into a lost opportunity to generate transformational leadership in their community, just as it happens with universities, to reflect not the product of research, development and innovation that these institutions can provide to society; instead only identified as schools and places to create employees rather than be a potential driver for the country.

This "tiny Triple Helix" (university government, interest groups and guilds) is referred to herein as "the Hidden Triad" and due to cultural uncertainties, likewise, have little confidence and still do not cooperate with each other in mutual benefit.

In this sense, the role of the *Triple Helix* model is very important in universities. It is paramount to promote a society based on knowledge and innovation from its interface with the Industry and the State. In the *Hidden Triad* model, the analogy can be made to "move" the unions and generate appropriate channels of communication and interaction with existing interest groups already inside the university and its government.

The university guilds with the resources they have could investigate the needs and requirements of the interest groups that exist on their campuses based on an appropriate methodology. With that, information would have the ability to generate proposals that may be presented to university government in order to energize and empower interest groups and promote "movement" of the university and while at the same time generate knowledge. So, instead of making only "protests" they begin generating a culture of "proposals".

This exercise of prospective³⁹ would change Peruvian society to a positive scenario by internally changing its customs and administrative practices of government and university unions, especially those that are composed of students. Since they tend to show greater concern for interests related to the university community (low prices on food and free education) and perhaps with less fear of being excluded from the system (compared to the guilds composed of workers who often focus only on wage increases), they will be much more careful to bridle formal structures for fear of reprisals, as happens in other countries⁴⁰.

³⁹ According Gaston Berger (1957) "*the 'prospective' is designed to serve action through decision-making, policy-design and flexible planning*" según Fabienne GOUX-BAUDIMENT (Academia.edu, 2013)

⁴⁰ El País. "*Me he enfrentado a una vaca sagrada*". Madrid, 30th Oct. 2006.

A Latin American case that demonstrated how student unions can "move" their universities and the country (for Education) recently took place in Chile⁴¹; their rally was awarded international⁴² review yet remains unresolved⁴³ (June 2013). However, as stated before, the challenge is that the organizational structures of these guilds allow them to link with and support existing interest groups, hence generating valid proposals rather than simple protests (sometimes violently and without the basis of a appropriate analysis), which is still common in Peruvian⁴⁴ state universities.

In addition, there are cases⁴⁵ that corroborate a transit cycle in the university stage known by Peruvian leaders: first start in an interest group, then enter student unions and end as a teacher or school authority (university government). Then, curiously, elected officials in the state, having not internalized the culture of cooperation and linkages professionally, realize (with entities of the Hidden Triad) the cycle repeats itself and the *Triple Helix* will not move.

6. Two cases of Hidden Triad: UNI and PUCP

National University of Engineering (Universidad Nacional de Ingeniería - UNI) had a very peculiar case that showed the existence of the *Hidden Triad*⁴⁶. In 1999, Professor Robert Morales (R.I.P. c. 2008), then Dean of the Faculty of Civil Engineering at the university, led to the creation of an interest group, which would then be the first student chapter of the "Project Management Institute" (PMI) in Peru. This interest group was created to provide young students of project management tools from the university and create their own company. Initiative spread rapidly in 2002 that led to thirteen universities with their own student chapters of PMI. Thus, the First National Congress of Project Management (PMI-UNI)⁴⁷ was born and in 2003, the event had participation of foreign exhibitors⁴⁸. Following this, and with Professor Morales as rector at UNI, he started "Pro Entrepreneurs" which was well supported by the rector as a unifying

⁴¹ According to the "Matrix of dimension scores" of Hofstede, Chilean society has very similar scores to those of Peru in the first five dimensions.

⁴² As cited in "The Letelier-Moffitt Human Rights Awards" <http://www.ips-dc.org/about/letelier-moffitt>

⁴³ La Tercera (Chile). "Con 189 detenidos termina marcha estudiantil autorizada en Santiago", 29th March, 2013.

"Marcha estudiantil estuvo marcada por baja convocatoria e incidentes aislados", 28th May, 2013.

⁴⁴ As a recent example in Huaraz - Perú: Universidad Nacional Santiago Antúnez de Mayolo, 21th March 2013.

<http://www.rpp.com.pe/>

⁴⁵ No se cuenta con datos exactos pues los gremios no han tenido costumbre de documentar sus actividades. Sin embargo, en el caso de la PUCP varios ex integrantes de sus centros federados son actualmente docentes, autoridades universitarias, representantes públicos u ocupan cargos políticos.

⁴⁶ Information provided by Elias Sanchez, teaching assistant at PUCP and former assistant of professor Roberto Morales in the interest group "PMI UNI".

⁴⁷ Universidad Nacional de Ingeniería, Memoria UNI 2002. p. 172.

⁴⁸ Universidad Nacional de Ingeniería, Memoria UNI 2003. p. 76.

entrepreneurial activity for students and administered by the interest group PMI-UNI. The first big step was made in December 2002 in an agreement with the Business School of Lima ESAN (now University Esan) to train college students at UNI entrepreneurship and project management⁴⁹. The PMI Group's interest grew, and following the project, and meeting entrepreneurs, "Pro Entrepreneurs" began experiential workshops called "EJES⁵⁰" also supported by university governance.

Then, in 2004 the initiative "Pro Entrepreneurs" was nominated for a competitive fund abroad, with an objective; to obtain financing for interest group participants of PMI and provide "seed money" to incubate and set up companies efficiently. The result was positive. UNI then financed the expansion and strengthened the interest group of PMI.

The news was not well received by the student unions. They were not aware of the activities of PMI Interest Group (in that time activities and progress were not shared via Web pages or social networks). They believed the funds and resources would be allocated to student minority groups rather than be used to strengthen laboratories and infrastructure that the university so desperately needed (the state allocates few resources for science and technology). Therefore, for various internal reasons and having great ignorance of the great contribution PMI group gave to their university, the student unions took control of the UNI campus, generating erroneous communications in academic and national society⁵¹. The problem took more than three months to resolve. This was recorded in the 2004 Report (p. 85) at the opening of disciplinary proceedings to those who participated in the UNI student protest. Unfortunately, as result, the foreign organization withdrew its offer to finance "Pro Entrepreneurs", subsequently withdrawing its website. Furthermore, not having external funds, they could not continue to support "irregular possibilities". The student unions eventually withdrew their protests and UNI continued its normal activities. However, by not having the funding, UNI-PMI could not grow as it had initially and the movement was never the same. The student unions` protesters began believing they could direct the funds toward improvements in facilities and equipment instead of benefiting the interest group (PMI). They did not realize what they (PMI) had been doing so community profit was not generated. It was then that the disconnection between unions, interest

⁴⁹ Universidad Nacional de Ingeniería, Memoria UNI 2002. (2013) p. 187.

⁵⁰ Universidad Nacional de Ingeniería, Memoria UNI 2004. (2013) p. 77.

⁵¹ La República. "Pese a rechazo mayoritario, rector de la UNI se mantiene en el cargo". Lima: 16th Sep. 2004.

groups and university government was evident in the UNI, as well the possibility of "moving the college" through student unions.

Another case occurred at the Pontifical Catholic University of Peru (PUCP) in September 2007, when a worker of a foreign company was painting the asbestos roof of the Faculty of Arts, who, by not following safety procedures required for this work, fell off the roof⁵². This incident prompted the Federated Union of Students of the Faculty of Arts to initiate internal demonstrations on campus for PUCP community support and expedite the construction of the new pavilion of its faculty. Mobilizing over a hundred students, they held a peaceful demonstration in front of the rectory building, requesting to expedite the decision to build a new pavilion. Soon after, the university announced in its internal newspaper the political decision to build a new building for the Faculty of Arts⁵³, which opened in 2008⁵⁴. In this particular case the student union focused on a common need of students and interest groups of power: resulting in the change of asbestos roofs and building facilities more comfortable. So doing, their protests "moved" the university government to settle their demands quickly.

7. Conclusions

So, it is discovered that the Peruvian university acts as a microcosm of society and in the in as much, those with greater prestige and tradition have a higher possibility of the *Triple Helix* being reflected within their institution: the State would amount to the university government, the Industry is identified as interest groups, while the University equates to guilds. In this "*little Triple Helix*" referred to herein as "*the Hidden Triad*". These entities are not likely to disappear or cease to have prominence in universities since the culture in Peru aims to "generate no changes."

The Triple Helix model highlights the role that the University should play to boost the industry and state, with them "moving" the country towards a knowledge-based economy through innovation. In Peru the universities "do not move", showing little relation between industry and state and focuses on teaching, with minimal investment and results in research, development, science, technology and innovation. Still, the Peruvian university, with the few

⁵² Universia Perú. "Comunicado de la PUCP" 6 de setiembre del 2007. (2013) <http://noticias.universia.edu.pe/>

⁵³ Pontifical Catholic University of Peru. Punto EDU. Año 3 N0 89 / Peru. September 2007. p. 5-6. <http://es.scribd.com/doc/34335651/PuntoEdu-Ano-3-numero-89-2007>

⁵⁴ Website of Pontifical Catholic University of Peru. "Historia de la Facultad de Arte PUCP" (2013).

resources that exist, always has the potential to generate strong relationships with industry and state that can favor society. However, due to the culture and government structure change is obstructed.

The unions have shown their ability to "move" the university; to set priority to an issue and demand their rights in protests. Their statements are often the most important subjects on campus, because, as explained previously, they did not train for this. Moreover, it would be unfair to criticize their actions, for those who dare to participate risk much (there is no salary and often students are "eliminated" for low ratings). Still, as a foresight exercise, the time and resources invested on student unions to generate effective interaction channels with interest groups and university government, the future may achieve a new model of university. one that promotes a new culture, encouraging interaction and cooperation with groups from different disciplines and with their leaders, formulate plans based upon social needs and as professionals, forming the keystone of the *Triple Helix*.

Unions, properly coordinated with two other Hidden Triad entities, initiate a current of greater confidence in this microcosm. By identifying the university, as "society as it should be" publicly displayed, will help facilitate the ability to easily locate activities, projects and initiatives that have these three entities and help will eliminate the barriers that tend to separate them.

8. Alternative Solution: Organizacional Systema E-QUIPU

Organizational System E-QUIPU⁵⁵ designed and proposed as a solution to reveal the *Hidden Triad*. Based on the universities reputation as an incubator of research, development, and innovation, a professor at Pontifical Catholic University of Peru and winner of the Latin American Andrés Bello Award⁵⁶ (2007), created this system. E-QUIPU promotes entrepreneurship among students, kindles their passion and creativity, and provides them a website⁵⁷ where they can showcase their projects and activities. A place where they can interact for mutual benefit, develop bonds of trust, enhance deliberate practice⁵⁸ and obtain feedback

⁵⁵ Ismodes, Eduardo and Guerra, Ronnie. "Cómo Pedir Peras al Olmo: La Experiencia E-QUIPU". VI Congreso Iberoamericano de Docencia Universitaria. (2010). P. 2-8.

⁵⁶ Awarded to Professor Eduardo Ismodes, for his research entitled: "Building Knowledge through teaming Interest: An alternative exchange for developing countries". As cited in Website of Association of Universities of Latin America and the Caribbean, <http://www.udual.org>

⁵⁷ Website of E-QUIPU: <http://www.e-quipu.pe>

⁵⁸ K. Anders Ericsson, Michael J. Prietula, and Edward T. Cokely. "The Making of an Expert". Harvard Business Review. 2007. p. 1-7.

from prospective mentors. They can communicate in this non-formal space without the need to go through the whole university bureaucracy, which will increase their ability to be experts in their areas of interest. Experience shows that if the government supports our universities that other interested parties will present themselves enabling faster interaction. Additionally, the guilds and interest groups will have an easier job locating and making public their proposals, creating an atmosphere of confidence in the university. All this within a "non-formal" system (not to be confused with the "informal") and faster moving than the "formal" system.

For example, the case recorded in 2004 at the UNI would have had a very different outcome if the unions and interest groups at the university were participants in an organizational system like E-QUIPU with the support of their campus government. In this ideal case, the unions have had the opportunity to meet through its Web platform and be aware of all activities being undertaken by the PMI-UNI. This would affect the students positively as well the competitive funds, which were favored to strengthen students' abilities. Also, interest groups (in addition to PMI), would have known the reasons why student unions were protesting, and paralyzing the college. Channels of communication, fast and reliable, being in place would have allowed interest groups and student unions to engage in fruitful dialogue and facilitate mutually beneficial solutions. The government of the university would have been be aware of communication errors within the student community, preventing any possible unfounded protest, managing the university and quickly realizing your campus needs.

Also, in this case, the undergraduate students would be generating a culture of cooperation and developing a quick link between interest groups of various disciplines and faculties, with existing unions and university government. In this way, the confidence rises between these components of the *Hidden Triad* and generates a positive scenario for the future, for many of these students will be the teachers and administrators of tomorrow.

Another recent experience worth mentioning took place in 2012. A professor of the Faculty of Science and Engineering PUCP participated in a competitive fund supported by the Administrative Vice President of this institution. The directive was to convene and train university students to generate innovative proposals for a "productive women's group in units of human settlements". Thanks to strong contact with a non-governmental organization, (ONG

Hagámoslo⁵⁹) altruistic activities performed in a vulnerable area. When it was discovered that the Organizational System E-QUIPU of group PUCP would grant funds to help finance the idea this initiative started to move. Thus, work began with the interest group "Collective Psynergy" (a team of students specializing in psychology) and the student union "Adein" (who represent students in the specialty of industrial engineering).

The activity assembled to start in August 2012 at PUCP included over a hundred students from various disciplines and universities. It involved intensive training sessions and innovation tools including a visit to a human settlement which it would favor. It is for this requirement that led only thirty students, who formed six multidisciplinary groups with proposals for said production units. This activity was called "Programa Intensivo de Capacitación Académica Analista Junior de Innovación" (or say "Intensive Junior Academic Analyst Innovation Training Program") which by its initials in Spanish named him "PICA AJI".

Another case, similar to what went down in several Peruvian universities; in this project it became clear that student unions have resources that the university gives (local, showcase and economic subsidy) while interest groups do not easily receive these benefits. However, it was found that the interest group "Collective Psynergy", who put forth more effort to connect from the start; for which, due to their interaction in this activity, realized they could participate in other competitive funds, intended only for students. This allowed them to win and finance another project in the same human settlement. It goes to say that because the university began to generate information on the problems of the human settlement one could also serve to make proposals.

This project also showed that the link to intellectual property (such as the use of existing patents) is not present among students⁶⁰ (as in the Peruvian universities). AJI PICA's proposals, while applicable, lacked a strong component of science and technology. Still, this has served as a starting point. It was properly documented on the website of E-QUIPU⁶¹ and an external student made a video⁶². Then, because of the interest group "Voluntary Health Brigade Administration" (*Brigada Voluntaria de Administración en Salud*) of the Universidad Peruana Cayetano Heredia - UPCH (institution also has E-QUIPU) participated and liked the experience

⁵⁹ ONG Hagámoslo. <http://www.ong-hagamoslo.org.pe>

⁶⁰ Vera, Carlos; Mariño, Carlos; Guerra, Ronnie. "Análisis Multidisciplinario de Unidades Productivas de Mujeres del AAHH Nueva Caledonia II - Chorrillos". Lima: 2013.

⁶¹ Website of E-QUIPU. "Programa Analista Junior en Innovación" (2013). <http://www.e-quipu.pe/pucp/>

⁶² Website of E-QUIPU TV. "Proyecto PICA AJI" (2013). Video produced by Juan Gárate.

of PICA AJI, They then decided to present a competitive fund to their university, in order to transfer this initiative, supported by the resources of their student guild (student Center and Administration Public Health) and the "Collective Psynergy" (*Colectivo Psinergia*) experience. Fortunately this proposal was approved in 2013 and the PICA AJI will be held at UPCH⁶³. That tells us, the interest group is giving good results and creates value for the university, despite not having physical resources but plenty of passion for what they do. Following this evidence, the student union "Adein" now interested in being the organizer of the PUCP, AJI PICA and is expected to perform well this year with their resources.

While Organizational System E-QUIPU is experiencing positive results in joining the *Hidden Triad*, but the road is still long and bumpy. Since the culture in Peruvian universities fear change and trust is "a four letter word" the entities of the Hidden Triad remain weak. The Peruvian custom is incredulous and they say "seeing is believing". So recently, with evidence of PICA AJI (documents, videos and testimonials) has been able to integrate the student union (Adein) and they have been convinced of the importance of cooperation to achieve mutual benefit.

Considered in its organizational chart a vice presidency, dedicated to Research and Development, while another vice presidency dedicated to Entrepreneurship and Innovation, both in favor of its principal represented: Industrial engineering students of PUCP⁶⁴. This organizational change, for the student environment is very important. While delaying full implementation Adein would make a difference compared to the usually performance of other student unions (out of habit and/or tradition PUCP and other private universities in Lima) strongly devoted to the organization of recreational activities (parties or sports games), training and conference call, and less social support to disadvantaged areas. These practices are commonly highlighted in the showcases that are available to student unions (which are changed little in each semester).

Another big challenge is to constantly improve Web platform that is E-QUIPU to facilitate the group interaction that it hosts. The speed of changes in cyberspace is always faster than the speed at which the university reacts. Still, support from the Vice President Administrative PUCP remains strong in this initiative. Thus, a Web platform available to entities of the *Hidden Triad*

⁶³ Universidad Peruana Cayetano Heredia. "Resultado del Concurso de Proyectos de Responsabilidad Social UPCH" (2013) <http://www.upch.edu.pe/rector/durs/docs/concurso/Proyectos%20Ganadores.pdf>

⁶⁴ The board of Adein by chart consists of five students: the President, three Vice (Further Education and Imaging, Research and Development, and Innovation and Entrepreneurship) and a Secretary General. Before joining E-QUIPU conformed its board ten students. The specialty of Industrial Engineering is the second most PUCP students.

may facilitate rapid interaction in a non-formal system to their mutual benefit, repositioning the University with an active role in the generation of knowledge. The road is long, but it is paying off.

9. Discussion

The study has the following limitations:

- It does not have access to previous studies of this type because of low (or near zero) participation of universities in developing this kind of research for valid information nor the unions and interest groups (which also lack culture publication and documentation). For these reasons we cannot pretend that the Hidden Triad is feasible to extrapolate all Peruvian or foreign universities
- There are no survey results shown on this subject, as they have not previously passed by an ethics committee to validate, thus preventing a more detailed expansion of the *Hidden Triad* information. Still, it offers academic authorities profound studies for the future.

However, after analyzing the data given, the existence of the *Hidden Triad* is a reality, which has served the Organizational System E-QUIPU to hone your strategies conducive to be a hotbed of change and effective coordination the infrastructure of the universities and on this basis, get the universities to "move".

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