

# Environment Concerns and Spiritual Leadership Related with Sustainability Ideas in Imaginative Projects of Mexican Architecture and Civil Engineering Students

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**Abstract**— In the current research article, free election was correlated in a projective way of sustainability ideas in architecture and civil engineering students with spiritual leadership and also, with environmental concerns. The variables shown in the results show strong correlations. Young students take into consideration the environment and use sustainability as part of their infrastructure and constructive models. In this discussion, the political and commercial pressure was analyzed when students arrive to the working life and most of them change priorities.

**Index Terms**— Sustainability, Spiritual Leadership, Environmental Care

## I. INTRODUCTION

“Leading” is the human process executed by a leader with the ability to influence followers through various characteristics, some of them are: Charisma, which can be defined as compelling attractiveness or charm that can inspire loyalty in others (Conger, J.; Kanungo, R.; Menon, S. 2000). Inspiration, which consists in trust, enthusiasm and realistic optimism (Reig, 2004), motivation which consists in offering rational and emotional motives to follow the goals previously proposed in the vision (Reig, 2004), and productive orientation (Reig, Jauli and Quintana-kawage, 2016). It is important to know how leaders are performing their duties, but it is also important to think about the potential they have in their leadership skills, this has been described by McCall (1994). Spiritual leadership is a specific kind of leadership that focuses in moral values, correct discernment and intuition (Reig, E and Jauli, I. 2012). With this combination of factors, spiritual leaders are able to lead taking into consideration the environment, each person’s well-being and carefully using natural resources in order to share it with the next generations, in other words, spiritual leaders normally have sustainable concerns increasing the trust of their followers and also with the person who commands them.

Trust is essentially a balance and sense of equity. There are

important values to manage difficult situations. Emotions are very important to develop trust in a leader’s followers, according to Raccanello, et Al (2011). There exist heuristic and rational motives to perform with people in order to correctly achieve goals. It is also mentioned how interesting relations between one’s perception of family members’ suffering and trying to recover their balance and equity, some people compensate their pain with money, in other words, they look to replace their grief with material objects (Reig, 2006 and 2011). The lack of balance, equity, consideration, and good leadership will cause terrible problems such as: climate change, pollution and environment degradation, these are consequences that are provoked by low profile leaders with conscienceless minds. Many of them emerged from famous institutions but insufficiently prepared to manage environment combined with productivity and competitiveness. Chakraborty, B. And Das, S. (2014) mentioned that, rural sustainability has historically received inadequate attention in many developing countries, but they also indicate important changes like the case of the Indian concern program probably developed by better leaders called: Mahatma Gandhi National Rural Employment Generation Act (MGNREGA). Leaders with high levels of consciousness are needed, but it is also important to investigate other factors related to bad leadership. For example, the size of firms. Gomes, C., Kneipp, J., Kruglianskas, I., Rosa, L. and Bichueti, R. (2015) mentioned that the number of associations between the management practices for sustainability and business performance is higher in larger companies; business performance differs according to the size of companies at least in the mining sector. What is the solution to bad leadership and insufficient programs to take care of the environment? Giacomoni, M., and Berglund, E. (2015) provide an approach to evaluate not one, but a combination of multiple strategies to effectively manage the increasing stress caused by, for example urbanization, population growth, and climate change. Is this possible? According to the same authors, it is demonstrated that adaptive demand management strategies can respond to water shortages resulting in long-term per capita demanding reductions. Leaders also need modern tools to design infrastructure. Koziolk, H., Domis, D., Goldschmidt, T. and Vorst, P. (2013) commented that it is difficult to express software architecture sustainability in a single metric; many aspects influence economic sustainability, including the design of decisions facilitating evolutionary changes, adherence to good modularization practices, and technology choices.

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Armstrong, R., (2010) commented that architecture systems offer new perspectives on the organization of the construction environment that enable architects to consider architecture as a series of interconnected networks with embedded links into natural systems. In the near future, it will be necessary to lead projects into energy conservation, Al-Hosany, N. and Elkadi, H. (2002) commented the need to apply social factors as well as technical aspects of energy conservation to achieve sustainable architecture in specific buildings. *The purposes* of the current research were: 1.- Determine in students of civil engineering and architecture the ways to learn about environmental care and concern. 2.- Build a questionnaire to measure the main factors associated with environmental care. 3.- Determine the relations between environment concern, sustainability ideas applied to infrastructure projects and spiritual leadership.

### II. MATERIAL, METHOD AND PROCEDURE.

Determine in civil engineering and architecture students, the ways to learn about environmental care and concern. In the first scouting with general private university students (both genders, ages between 20 to 32), in a sample of N=100 participants, we asked (using the method of social representation) the following:

When you listen to the phrase: *ways to learn about environmental care and concern*, select the two immediate concepts that you associate in your head:

a \_\_\_\_\_

b \_\_\_\_\_

<u>Answers associated to the question of concern and taking care of nature</u>	
Answers	Frequency
Teach (parents and/or professors) how to care about nature	42
Teach (parents and/or professors) children about nature	40
Learn how to eat in a natural way	39
Learn how to enjoy nature	37
Learn interact with nature	34

There were 200 responses (two options with 100 participants). As a result of this exercise, the sample associated to the concepts in the general question. We took the most frequent responses (more than 35):

After this, the following questionnaire was developed:

Please answer the following questions marking the option that you consider that matches with your personal opinion:

- 1.- It is necessary to care about nature.  
Totally Agree   Agree   Disagree   Totally Disagree
- 2.- It is necessary to teach children the wonders of nature.  
Totally Agree   Agree   Disagree   Totally Disagree
- 3.- It is necessary to learn how to eat in a more natural way.  
Totally Agree   Agree   Disagree   Totally Disagree
- 4.- It is necessary to learn how to enjoy nature.

Totally Agree   Agree   Disagree   Totally Disagree  
5.- It is necessary to learn how to interact in a healthy way with natural environments.

Totally Agree   Agree   Disagree   Totally Disagree  
The questionnaire was applied in a sample of architecture and civil engineering students of a university in Mexico (N= 128, 72 (architecture) 56 (civil engineering)).

On the other hand, the same sample was tested and answered on the spiritual leadership questionnaire. This questionnaire was published in the book called *Scales to measure human behavior at work*, (in Spanish: *Escalas de medición del comportamiento humano en el trabajo*. Romanya Valls Barcelona. Jauli, Cervantes and Reig (2006)) chapter 3, Syncretic scale of inner development.

Finally, an assessment question was applied:

Please design a private food factory located in a rural site of Mexico, this factory uses milk and will be close to a cow farm which produces more than they need, this new firm needs to process milk, they will have 100 employees (85 workers and 15 administrative) and they need space for machinery and administrative offices. Please explain the justification and functions of each part of the project for the next 15 years. Also, explain the goals of the owners, goals of the directive team, and goals of the employees.

It was measured if the participants consider or not the design and/or policies and goals of the sustainability concept.

Grades of sustainability are mentioned in the following agendas:

Agendas in the design	Sustainable concepts inside the essay yes (1) or no (0)
Justification of the company for the next 15 years	
Functions of each part of the new company	
Goals and/or policies of owners	
Goals and/or policies of executives	
Goals and/or policies of general employees	
Total	

If participants describe sustainability in the long term planning, and organizational functions, owners, directive and employees, the grade was 5, if they mentioned sustainability only 4 times, the grade was 4 and so on. One mention was 1 and non-mentions equal to zero.

### III. RESULTS

The descriptive statistics were: spiritual leadership ( $\bar{x}$ =6.0 from 1 to 7,  $\sigma$ =1.34) environment concern ( $\bar{x}$ = 3.1 from 1 to 4,  $\sigma$ = 1.45) and sustainable mentions ( $\bar{x}$ =3.6 from 1 to 5,  $\sigma$ = 2.23).

Reliability of the questionnaires

Variable	Cronbach's Alpha
Spiritual leadership	$\alpha$ .872
Environment concerns	$\alpha$ .819
Sustainability mentions	$\alpha$ .705

Correlation between scales of spiritual leadership, environment concern and sustainable ideas proposed in the virtual project.

Variable	1	2	3
1.- Sustainability mentions	-	-	-
2.- Environment concerns	.716**	-	-
3.- Spiritual leadership	.665**	.499**	-

\* Significant at .05 level, \*\* significant at .01 level

### DISCUSSION

There were significant correlated variables. The main hypothesis was accepted, however, this is an exploratory research, further research is recommended with the same variables but with a representative sample. It is interesting the way that young students reacted positively to the consideration of environmental care. They also projected sustainability ideas on their essays. Something happened after their thirties, probably due to commercial pressures but also due to a certain degree of weakness in their positive values. During the first years of labor work, it is recommended to take care of the young and idealistic inner positions. It is necessary to compare civil engineers and architecture professionals with students in order to demonstrate the possible deviation after their thirties and offer them logical options for environmental care. Guya, S. And Farmera, G. (2001) identified six alternative logics of ecological design which have their roots in competing conceptions of environmentalism, and explores the ways in which each logic prefigures technological strategies and alternative visions of sustainable places.

Enriching the curriculums with sustainable ideas should be necessary. Wright, J. (2003) while reviewing the priorities in architecture curriculums in USA commented: The task of integrating sustainability is not to be understated, but architectural education and practice needs to be focused beyond state and national levels. Global responsibility will need to be assumed.

It is also necessary to work with politicians and regulators, with appropriate laws who take care of the environment and laws who defend ethical positions about responsibility for next generations. Also, work with ethical commitment in government employees needs to be applied to certain laws.

The clean intentions of young students about environmental care needs to be stimulated to benefit future generations. In this sense, the inner consciousness conditions in leaders (and followers) will permit feelings of fulfilment, which means that society could be regulated independently of the laws and regulators. This is a huge challenge and needs hard work to develop inner consciousness in university professors to change the model of success in civil engineers

and architects giving privileges like social care, responsibility and sustainable solutions other than blind profits or projects. Leadership skills will be necessary for engineers and architects to convince clients to be responsible with the physical, animal and human environment.

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