

Sustainable ecological leadership for environmental conservation Liderazgo ecológico sostenible para la preservación planetaria global

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ABSTRACT

This research focuses on determining the effectiveness of a training program in ecological leadership for students of the Southern Scientific University in Lima, Peru. Its purpose emphasizes the necessary global planetary preservation. Methodologically, it was processed according to the quantitative approach and an explanatory type with a quasi-experimental design of experimental- control groups. It is evidenced that there is statistical modification in the field of bilateral significance for the experimental group at the time of the post-test (G1POSTEST), which indicates that the applied treatment has been effective in the population sample, therefore, the affirmative hypothesis is accepted (H1). As a conclusion, a holistic education is necessary to train from pedagogical aspects where ICTs may intervene, since the digital age is growing in a globalized society, which might contribute to minimizing the global impact of ecological destruction.

Descriptors: environment; environmental education; education for sustainable development. (Source: UNESCO Thesaurus).

RESUMEN

Esta investigación tiene su enfoque en determinar la efectividad de un programa de formación en liderazgo ecológico para estudiantes de la Universidad Científica del Sur, Lima, Perú. Su propósito enfatiza la necesaria preservación planetaria global. Se procesó metodológicamente en función del enfoque cuantitativo y un tipo explicativa con diseño cuasi experimental de grupo experimental – control. Se evidencia que existe modificación estadística en el campo de significancia bilateral para el grupo experimental en momento del postest (G1POSTEST), lo cual indica que el tratamiento aplicado ha sido efectivo a la muestra poblacional, por lo tanto, se acepta la hipótesis afirmativa (H1). Para concluir, se hace necesaria una educación holística pensada en formar desde vertientes pedagógicas donde intervengan las TIC, por cuanto la era digital se acrecienta en una sociedad globalizada, lo cual podría contribuir en minimizar el impacto global de destrucción ecológica.

Descriptores: medio ambiente; educación ambiental; educación para el desarrollo sostenible. (Fuente: Tesauro UNESCO).

Received: 13/9/2020. Revised: 23/9/2020. Approved: 29/11/2020. Published: 01/01/2021.

Research Paper Section



INTRODUCTION

The different social groups that have existed in the world according to each epoch have promoted changes in favor of humanity. Others have not been entirely beneficial for society; however, both changes have been fostered by leaders, a term that is used for people who have exercised certain qualities over the rest. In this regard, the actions that have benefited or harmed humanity in great mass have been carried out by "leaders" with the ability to influence other persons to achieve a certain goal (Yeager & Callahan, 2016).

Based on the above, business organizations must promote the forging of authentic leaders, that is, people who cooperate in significant changes for humanity and not harmful to it. This is how the training of people who may become leaders for the integral growth of society should be encouraged (Hermosilla, et al., 2016). In this way, they would contribute to developing solutions to many of the problems that the world is experiencing. One of these inconveniences is related to the ecological area, that is, to face the imminent deterioration suffered by the world due to global warming and other situations, such as: pollution, misuse of renewable and non-renewable resources, electrical energy, and food shortages, among others. People may emerge with the ability to disseminate a new ecological culture that allows working on the generation of viable alternatives to solve the problems of humanity presented until now (Boons, 2013).

The ecological problem that humanity is facing today is very complex because it not only involves the environmental damage that humans cause to their habitat, which is quite serious and inherent in all the dimensions of the person, but also, it is a problem that encompasses the ontological aspect of men (representation of the real, the social and the natural factors). Likewise, it is an epistemological inconvenience (because it generates new ways and forms of knowledge to understand and address the problem). This is a factor that creates new paradigms that may originate acceptance, rejection or a dialectical conflict in the order of social knowledge (Cifuentes-Ávila, et al., 2018).

On the other hand, aspects such as ethics are involved (the values, the limits of the human being that transcends beyond what is established by the natural order for obtaining social and economic benefits). Likewise, the economy (the alteration of modes of production and consumption), and also the political dimension of the human being (in which collective action and the organization of power may be indicated), standing out to involve the greening of society from a multidisciplinary perspective (Scully-Russ, 2015).

The aforementioned dimensions are modified as a result of the ecological deterioration in which humanity is immersed today, and which also threatens a progressive detriment if the necessary corrections are not taken in time for this purpose. At this point, the ecological problem becomes complex, due to all these areas tend to affect the biological - spiritual part of the human being, altering its reality, its values, its power and quality of consumption. All of this makes the means of production feel obliged to adapt to a new reality, which is not the most consonant for human development, that is, a reality surrounded by the ecological crisis that requires considering the development of interdependent relationships with nature as an understanding approach to transcend a social perspective of environmental preservation (Cifuentes-Ávila, et al., 2018).

In this sense, higher education must promote alternatives in its classrooms that allow generating significant knowledge for the paradigm shift, that is, going from a state where high consumption and environmental deterioration are promoted to a state where there is a balance in order to work on the promotion of a society based on ecological values as a means or instrument of solution to the serious crisis that is currently being experienced with respect to this issue; In this way, it will be possible to contribute to the formation of a moral leader who can lead environmental aspects in organizations where he interrelates as a professional (Torres-Flórez, 2016).

Based on the previous arguments, the necessary sensitivity must be generated in the participants of the university classrooms to attend from their training profile, the various needs that occur in society. In this way, viable alternatives may be generated in order to respond to the serious problems that humanity suffers from the reality of university education, specifically, the one related to the ecological issue.

In this respect, professionals who graduate or improve their knowledge in university education, will be able to provide valid alternatives according to the needs that are immersed in the



organizations that make life in society. Within this framework, an interest has arisen in contributing to the management of significant changes for society through professional training in the area of ecological leadership, which leads students to reflect and be participants in an ecological guidance that takes advantage of their favorable perceptions and make them enjoy a better world based on environmental preservation (Espino-Román, et al., 2015).

All of the above arises due to the serious crisis that the world is suffering at an ecological level and goes beyond this area, affecting, in this way, the human being in various dimensions (ontological, epistemological, ethical, economic and political). Therefore, work must be done in an attempt to generate changes that promote a new attitude towards the ecological issue and, from there, foster a social responsibility in accordance with modern times that are experiencing the environmental impacts produced from the organizational production processes (Navas-de-García, et al., 2015).

Consequently, talking about ecological leadership is nothing more than proposing an alternative to the serious environmental and economic crisis that the modern world is experiencing today. The ecological leader may be described as a person who is capable of generating awareness from their work environment in favor of beneficial changes for the group. He/she is a person with the ability to induce and influence positive attitudes in his/her peers. In this regard, they are proactive and trained people with the necessary talent to merge leadership with the ecological issue. In this regard, a paradigmatic change may be generated in business organizations capable of favoring the advancement of a society based in values that exalt the human being as the center of society and not the matter as its center; hence, it is important to incorporate pedagogy focused on a sustainable world within university education (Burns, 2015).

Based on the previously explained, the objective of this research was to determine the effectiveness of a training program in ecological leadership for students of the Southern Scientific University, Lima, Peru. This purpose emerged because global planetary preservation has been necessary, from a vision that seeks to minimize the environmental impact on society, as well as to promote a paradigm shift towards the ecological issue that counts on an ecological leader who promotes a state of winning - win in the environment, especially, in Peru that is a country with a diverse ecology and landscapes of great cultural and tourist interest for humanity.

METHOD

In order to process the investigation and achieve proposed objective, the following is presented:

Research type and design

It was methodologically processed according to the quantitative approach and an explanatory type with a quasi-experimental design of a control- experimental group, having for this purpose, the following nomenclature:

G1 = Experimental group in pretest (G1PRETES).

G2 = Control group in pretest (G2PRETES).

G1 = Experimental group in post-test (G1POSTEST).

G2 = Control group in post-test (G2POSTEST).

Population sample

The population sample consisted of 271 students from the Southern Scientific University, Lima, Peru, who were divided into two groups, as follows:

G1 = Experimental group made up of 137 students.

G2 = Control group made up of 134 students.

Information gathering technique and instrument

The survey was applied as a technique and a test of 21 response items as an instrument that served to qualify the students and make a comparison of means. This instrument was validated by the judgment of three experts. A pilot test applied to 20 subjects with similar characteristics to

the population sample allowed correcting possible errors, obtaining a Cronbach's Alpha result of 0.91, which qualified it as reliable for its application.

Statistical procedure

The information collected was calculated based on Student's t test for a sample, based on the version 25 of the IBM SPSS Statistics program, which contributed to organizing the results in relation to the research objective.

Investigation procedure

The program was designed and applied (treatment), which consisted of the following thematic modules: 1. Global sustainable and sustainable perspective. 2. Leadership and ethics. 3. Global ecological impact. 4. Introduction to systems theory. 5. Environmental policies of Peru.

-Once the treatment was designed based on an ecological pedagogy (Szokolszky, et al., 2019), participation was promoted among the students for the design of the experimental and control groups.

-The test-type instrument was designed, which was validated through a pilot test.

-A test was applied for the experimental and control group at time 0 of the treatment.

-The treatment was applied in 6 weeks.

-A test was applied for the experimental and control group at the end of the treatment.

-The statistical calculation of the collected data was estimated.

Ethical conflict

The researcher declares that he did not experiment with humans or animals during the research, and there is no conflict of interest between the parties involved.

RESULTS

In pursuit of the information gathering, the research results are presented:

Table 1: Student's t test

Test for a sample
Test value = 5

	T	gl	Sig. (Bilateral)	Difference means	of 95% confidence	
					Inferior	Superior
G1PRETEST	-39,2	135	0	-3,11765	-3,2749	-2,9604
G2PRETEST	-38,8	135	0	-3,30147	-3,4696	-3,1334
G1POSTEST	-2,9	136	0,004	-0,05839	-0,0982	-0,0186
G2POSTEST	-85,7	133	0	-3,76119	-3,848	-3,6743

It is evidenced that there is statistical modification in the field of bilateral significance for the experimental group at the time of the post-test (G1POSTEST), which indicates that the applied treatment has been effective in the population sample, therefore, the affirmative hypothesis is accepted (H1) and the null (H0) is rejected.

Hypothesis testing

H1: The application of a training program is effective in promoting university students' ecological leadership.

H0: The application of a training program is not effective in promoting university students' ecological leadership.



Discussion

The sustainable perspective is a comprehensive vision of the ecology of life, being immersed in the human, animal, plant, renewable - non-renewable resources, social - economic policies, migratory flows, among other factors of daily life. The idea is to apply multidisciplinary and concatenated strategies to achieve the survival on planet earth with the quality of enjoyment of the natural benefits. However, non-assertive handling of terms has been determined, such as: "Green", "sustainable" (sustentable), the latter is the one indicated from the semantic point of view and approved by the Royal Spanish Academy (RAE). It is worth mentioning that "green" gains space, especially, as an economic-business cliché (Conte-Grand & D-Elia, 2018). From this perspective, emphasis was placed on the applied program, in order to manage sustainability as the axis fundamental to connect with government policies through the Sustainable Development Goals (SDGs).

In the particular case of Latin America, effective compliance with the SDGs involves overcoming a series of challenges so that it may be considered inclusive in its entirety, therefore, emphasis is placed on economics, from the public financing point of view, which could lead to new indebtedness in order to achieve goals (Álvarez, 2016). In addition, the flow of foreign currency in the region could be an adverse factor, which is why, it is necessary to deepen in authentic alternatives of sustainable economic entrepreneurship that transcend towards economic independence and consider the real needs of each locality to keep them away from new financial crises.

In this regard, it is vital to take into account a holistic education designed to train from pedagogical aspects where ICTs intervene, since the digital age is growing in a globalized society, which should prioritize critical and divergent thinking, involving, for this purpose, the connection of the human being with the ecological area (Rodrigo-Cano, et al., 2019). Thus, the sustainable perspective of society is not constituted in mere rhetoric, but rather consolidates the projection of (Espino-Román, et al., 2015), who warns that students positively value the idea of a better world based on the environment.

Continuing with the above, the interconnected digital society opens the way to the formation of a moral leader (Torres-Flórez, 2016), capable of assuming social transformations that involve the generation of clean energies and favor a lifestyle in accordance with the ecology. In this way, action is articulated to recover urban coexistence spaces from a committed citizen perspective in favor of recreating a contributing framework and improving the climate from the cities. However, today, nature is compromised by the inadequate handling of humans that is contrary to the essence of good living as a model of holistic individual action.

Holistic human action must be understood from the proposal of (Uitto, 2016), who harbors the vision of understanding the environment as a global public good, in this way, individual - collective awareness may be taken to act in correspondence with the preservation of the planet as a flattering space for everyone's life. Such a position could help to minimize the global impact of ecological destruction based on a paradigm associated with unbridled consumerism and opt for the cooperative work as a social action that contributes to achieving the common construction of the environment.

In this respect, the system theory is essential, since it allowed the participants of the applied treatment to know the possibility of a complex society connected to the ecological from categories such as: autopoiesis, teleology, homeostasis and entropy (Peralta, 2016). It allows understanding that every cause has an effect on multiplicity of beings. In relation to this aspect, nature will not only affect a certain ecosystem, but will also cause an impact on various scenarios, requiring that synergy may be fostered as part of human action, in an attempt to promote a society based on mutual respect for all species that inhabit it.

In order to consolidate the aforementioned, it is necessary to design public policies that minimize harmful causes for global coexistence and, on the contrary, cooperate with the ecological sustainable vision as a whole. However, in the specific case of Peru, (Tumi-Quispe & Escobar-Mamani, 2018) warn about the existence of regional governments where projects related to the environment are not valued, which reflects a fragmented vision of social reality, far from the principles of complex global interconnectivity in which the world moves. Therefore, it is important



to project active citizen participation, in order to focus viable proposals for the preservation of planetary life, understanding itself as the whole where the species that inhabit it interact. For this, it is urgent to take concrete actions as state policies that intensify citizen education with a global ecological vision, since the air quality of the city of Lima is counterproductive for public health (Hernández-Vásquez & Díaz-Seijas, 2017).

CONCLUSION

Nowadays, a holistic education is necessary because society faces a digital age characterized by a globalized and pedagogical design that requires the use of ICTs. Such education may help to minimize the universal impact of ecological destruction and counteract a paradigm associated with unbridled consumerism opposed to the cooperative work as a social action. In this sense, a common improvement of the environment is pursued in order to seek the promotion of a society based on mutual respect for all the species that inhabit it, being urgent to take concrete procedures as State policies that contribute to promoting tangible actions and consolidate the global ecological vision.

FINANCING

Non-monetary

CONFLICT OF INTEREST

There is no conflict of interest with people or institutions linked to the research.

ACKNOWLEDGEMENTS

Thanks to the Southern Scientific University: Lima, PE, for its institutional support.

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