Environmental education and ecological awareness in students of the Educational Institution 32068 Santa Rosa de Mayobamba, Huánuco 2020

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Abstract

The purpose of the study was to prove that there is a high relationship between Environmental Education and Ecological Awareness in the students of the Educational Institution 32068 Santa Rosa de Mayobamba, Huánuco 2020; in this sense, a correlational research and non-experimental design was developed, working with a population-sample of 35 teachers, including the director of the educational institution. The data were collected with a test assessed with four dimensions and five indicators for each of them, for variable one, and without dimensions, with ten items for variable two. In the data processing correlational statistics and simple linear regression were used, obtaining the following result and conclusion: the null hypothesis is rejected based on the results of $0.9707 \ge 0.2746$. Consequently, it is concluded that there is a very high positive correlation between Environmental Education and Ecological Awareness in the Educational Institution 32068, and in accordance with what has been said, it is affirmed that Environmental Education has a high explanatory power (94,22 %) on Ecological Awareness of teachers and other educational actors of the Santa Rosa de Mayobamba Educational Institution 2020.

Keywords: Environmental education; ecological conscience; ecological awareness.

Resumen

El objeto del estudio fue probar que existe una relación alta entre Educación Ambiental y conciencia ecológica en los estudiantes de la Institución Educativa N° 32068 Santa Rosa de Mayobamba, Huánuco 2020. En ese sentido, se desarrolló una investigación tipo correlacional y diseño no experimental, se trabajó con una población-muestra de 35 docentes, incluido el director de la institución educativa. Los datos se recogieron con un test valorado con cuatro dimensiones y cinco indicadores por cada uno de ellos, para la variable uno y, sin dimensiones, con diez ítems para la variable dos. En el procesamiento de datos se usó la estadística correlacional y la regresión lineal simple, obteniéndose el resultado y conclusión siguiente: se rechaza la hipótesis nula ya que 0,9707≥0,2746. En consecuencia, se concluye que existe una correlación positiva muy alta entre Educación Ambiental y Conciencia Ecológica en la Institución Educativa N° 32068, y en concordancia a lo dicho se afirma que la Educación Ambiental tiene poder explicativo alto (94,22 %) sobre Conciencia Ecológica de los docentes y demás actores educativos de la Institución Educativa Santa Rosa de Mayobamba 2020.

Palabras clave: Educación Ambiental; Conciencia Ecológica.

Introduction

Huanuco is a region with lowland jungle, highland jungle and highlands at different altitudes, all of which are rich in biodiversity and have vast forested areas. Carpish is located on the road between Huanuco and Tingo Maria, which is a forested and humid area that regulates a very favorable microclimate for Huanuco and its surroundings; however, this climatic balance is being modified by human action.

It is now known that forests, like Carpish, not only provide timber, but also environmental services, sequester carbon, play a fundamental role in the water cycle, provide landscape, and provide habitat for native species of flora and fauna. These facts should give Carpish a chance to successfully confront human pressures and threats.

Sumptuary agriculture associated with intensive logging and burning, economic activities, as well as demographic pressure are decertifying the area, with serious consequences for climate change; that is why environmental education was implemented in the Educational Institution 32068 Santa Rosa de Mayobamba, first at the level of teachers so that they extend it to students who are future citizens and form them an environmental awareness and try to reverse the environmental damage being produced by the current inhabitants.

The environmental education imparted should be sustained and not sporadically with so-called cross-cutting themes, which have no serious impact on their personal self that would allow them a change of attitude or the formation of an environmental behavior favorable to the environment.

For this reason, the study proposed the application of environmental education in a sustained manner, including the environmental intention in the educational programs linked to each subject with the purpose that the classroom teacher teaches them, each subject with the analysis of the impacts they produce and the alternatives to mitigate such impacts in a preventive manner.

The intention was understood positively by the teachers of the Santa Rosa de Mayobamba Educational Institution, since, at the end of the

implementation of the Environmental Education, they showed high levels of environmental behavior in favor of nature, compared to the levels they had when they started the talks; in this sense, the hypothesis test showed a high correlation, therefore, a high degree of dependence between both variables studied.

For this reason, correlational studies were considered as antecedents, such as: (Machaca, 2013), who says that the environmental education program constitutes one of the practical solutions to environmental problems and contributes to form an ecological conscience, allowing the citizen to participate in a process of assimilation of knowledge so that he can then internalize it and manifest it significantly in his daily life.

Also, Vega-Marcote (2004) states that the environmental crisis in which the "humanized biosphere" is currently immersed is a problem of knowledge and requires a study that contemplates nature and society as two related and inseparable subsystems. Furthermore, social, economic and technological relations imply new ways of feeling, thinking and acting that are achieved through Environmental Education that allows a more just and sustainable future in an integrated and effective manner at all educational levels, and the knowledge and understanding of the basic concepts about the environment, which allows an awareness or change in attitudes towards the improvement of conservation and environment.

Others such as Losada (2005) and Moreno (2007) say that the school plays its role in the construction of environmental attitudes and behaviors; however, the effectiveness of Environmental Education as a cross-cutting theme in the school curriculum is questionable because it is not possible to articulate the curriculum and integrate it with the different subjects that comprise it. On the other hand, the environment is considered a complex system of interrelationships that connect the living, inert and social spheres.

For his part, Moreno (2007) says that environmental issues should be understood in a global sense, and that Environmental Education

plays an important role in the protection and global conservation of the environment in the cultural context of consumerism, hunger, foreign debt of undeveloped countries, overexploitation, and uncontrolled trade of natural resources in those countries where their level of development does not allow any other source of survival.

Materials and methods

The type of research was correlational (Paragua, 2014), with a non-experimental design (Paragua, 2012). n=35 teachers of the Educational Institution N° 32068 Santa Rosa de Mayobamba, determined in a non-random way. The data collection was done with the *Valued Test* for each variable, both validated for lower variability with a *pilot sample* (n=10), and was applied up to three times, with the respective corrections, and to these results, the experts found the Standard Deviation and issued the *expert judgment* of validity of the data collection instrument by *lower variability* (Paragua et al, 2021).

Results

The purpose of the study was to determine the level of dependence between Environmental Education (V1) and Ecological Awareness (V2). In this sense, V1 was dimensioned in Quality of Life (QOL), Natural Resources (NR), Healthy Patrimony (HP) and Environmental Policy (EP) and, through the study, the degree of dependence of V2 with respect to variable V1 was determined.

The analysis of relationship between the dimensions of V1 and V2 showed the following: the relationship between Quality of Life and Ecological Awareness was determined to be r = 0.9144, indicating a degree of dependence of $r^2\% = 83.61\%$ whose equation is y = -5.61 + 1.61x and allowing observing that the Quality of Life of the teachers of the Educational Institution N° 32068 Santa Rosa de Mayobamba, explained in a high degree the variability of the Ecological Conscience. It is

also said that the dimension QOL, accounts or explains in 83.61% of the variability EA in the teachers of the indicated Educational Institution. Then, 16.39% of the Ecological Conscience remain unexplained.

The relationship between the Natural Resources (NR) dimension and the Ecological Awareness (EA) variable was r = 0.9520, which indicated a dependence degree of $r^2\% = 90.62\%$, whose linear regression equation is y = -7.86 + 1.60x. This allowed to say that there is a very high and positive correlation, so that the degree of group dependence was 90.62%, between Natural Resources and Ecological Awareness of the units of analysis under study.

Meanwhile, the relationship between the healthy patrimony (HP) and ecological awareness (EA) dimension was r = 0.8988, which also configured the degree of dependence $r^2\% = 80.78\%$, with a linear regression equation y = -5.15 + 1.48x, which allowed to say that there is a high and positive correlation, so that the degree of group dependence is 80.78%, between Healthy Patrimony and Ecological Awareness of the teachers and other educational actors of the Educational Institution No 32068 Santa Rosa de Mayobamba, 2020.

The relationship between the Environmental Policy (EP) dimension and Ecological Awareness (EA) was r = 0.9539. This configured a degree of dependence of $r^2\% =$ 91% whose linear regression equation is y =-4.72 + 1.47x. The relationship between the Environmental Policy (EP) dimension and Ecological Awareness (EA) was, so it was affirmed that there is a very high and positive correlation, configuring the degree of group dependence of 91.00%, between Environmental Policy and Ecological Awareness of the teachers and other educational actors under study.

The relationship between the dimensions of Environmental Education and Ecological Awareness analyzed show, on average, a high degree of dependence that results in the statistics shown in Table 1.

Table 1. Level of dependence between environmental education (EE) and ecological awareness (EA) in teachers of the Educational Institution N° 32068, Santa Rosa de Mayobamba, Huánuco, 2020

REGRESSION STATISTICS	
Correlation coefficient (r)	0,9707
Coefficient of determination (r^2)	0,9422
Degree of dependence $(r^2\%)$	94,22%
Interception	- 8,20
Establishment of goals and expectations (x)	0,42
n	33,00

Source: Data collection instrument, Annex N° 02.

Design and statistical process: Researchers

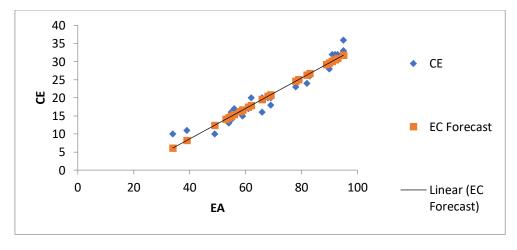
The regression statistics between the Environmental Education (V1), and Ecological Awareness (V2) show that with an adequate and committed management it can guide in a pertinent way the development and propitiate a better level of Ecological Awareness and other educational actors of the Educational Institution No 32068 Santa Rosa de Mayobamba.

The Environmental Education as a predicting or explicative variable shows that 94.22% of the variability in the development of the Ecological Awareness in the teachers and other educational

actors of the mentioned educational institution are explained, and only 5.78% of the variability remains unexplained; or, it has been developed by other factors.

The results show that an adequate, committed and planned management would raise the level of Ecological Awareness. The results show that adequate, committed and planned management raise the level will environmental awareness of the units of analysis, in accordance with the needs of the environment, which would implementation of innovative solutions to the problem of deforestation in the Carpish rainforest.

Figure 1. Level of dependence between Environmental Education (EA) and Ecological Awareness (CE) in teachers of the Educational Institution N° 32068, Santa Rosa de Mayobamba Huánuco, 2020.



Source: Data collection instrument, Annex N° 02.

Design and statistical process: Researchers

Figure 1 shows that the dispersion of the points corresponding to the variables under study is

better grouped with the linear equation: y = -8.20 + 0.42x. The analysis and interpretation accessible to any understanding of the figure is: the more and better management of the Environmental Education, the better

Ecological Awareness. The analysis and interpretation accessible to any understanding of the figure is: the more and the better the management of the Environmental Education, the better the teachers and other educational actors of the Educational Institution N° 32068 Santa Rosa de Mayobamba will develop.

For the hypothesis test, it was formulated: $Ho: \rho \le 0$ y $Ha: \rho > 0$, with a confidence level of 95% and significance of: $\alpha = 0.05$; furthermore, n = 35 and gl = 34. The test statistic was r, which is equivalent to ρ that reads rho; in that sense, the condition was rejecting $Ho \ si \ r \ge r_{0.05}$; and the value is $r_{0.05} = 0.2746$ from the table of critical values for Pearson's r. The result of the process shows the value of r = 0.9707 (Table N° 01), which allows the test to be performed: $r \ge r_{0.05} \rightarrow 0.9707 \ge 0.2746$.

Consequently, Ho was rejected since 0,9707 ≥ 0,2746 was rejected, and it was concluded that there is a very high positive correlation between Environmental Education and Ecological Awareness in the teachers of the Educational Institution No 32068 Santa Rosa de Mayobamba.

Conclusion: Environmental Education has explanatory power and a high degree of dependence (94,22 %) on Ecological Awareness of teachers and other educational actors of the Santa Rosa de Mayobamba Educational Institution 2020.

Discussion of results

The way in which educational actors and people in general perceive the environment, the attitudes they develop towards it and the social values they hold are at the basis of the ecological awareness that originates environmental behaviors, the same one that produces climate change (Rodriguez, 2013).

These behaviors are modified through the implementation of policies and programs of educational management and environmental education, which generate the appropriate scenarios for this long-term change to take place, which must necessarily come from the central government and be implemented in universities and educational institutions of

regular basic education, as is the case of the proposal (Acebal, 2010).

In coherence with what has been described, the object of the study was to determine the relationship that exists between quality of life and ecological awareness in the educational actors of the Santa Rosa de Mayobamba Educational Institution. In that sense, it was imperative to know the degree of explanation that quality of life, as a dimension of environmental education, had on the variability of ecological awareness (Garduño & Juárez, 2015). The results showed that there was a high and positive correlation, so the degree of group dependence is 83.61%, between Life Quality and Ecological Awareness in the units of analysis.

The Carpish rainforest is located in the area of influence of the Educational Institution under study, and is being cut down to obtain land for cultivation of hydrangea, which is not a native plant of the area; however, the medium to long term logging produces: desertification, erosion, disappearance of flora and wildlife; in general, a zonal climate change in approximately one hundred kilometers around. In that sense, the proposal was the application of environmental education to the units of analysis so that they, as teachers instill the problem to parents and other neighbors; also, as parents, spread the consequences of indiscriminate logging; and, students preserve their inheritance and that of their descendants (Mónico & Alas, 2000).

It is important to develop the regions and at the same time protect, preserve and conserve the planet's life support systems. It is known that all types of development generate environmental impacts from the very beginning, however, if generated in a systematic and planned manner, these impacts can be mitigated in high percentages (Mendoza, 2012).

It is curious that the characters who manage the country speak phrases like: "mining with respect for the environment", "fishing, or agriculture, or tourism, or ...". All this and much more merits that we have to educate and educate ourselves environmentally to generate planned developments and in a systematic way to produce smaller impacts than those that can be produced without due care; What has to be reversed is that a high percentage of professionals and people of civility do not

understand the impact that many human behaviors have had and continue to have on the environment, which justifies the application of environmental education to seek an awareness and subsequent change of attitude and positive environmental behavior.

The next object of study was to determine the relationship that exists between natural resources and ecological awareness in the educational actors of the Santa Rosa de Mayobamba Educational Institution; and, after processing the data, it was determined that there was a very high and positive correlation, so the degree of group dependence was 90.62%, between natural resources and ecological awareness of the units of analysis under study. In real terms, this means that ecological awareness is in direct relation to the integrity of the natural resources. In real terms, this means that there is a direct relationship with the integrity of the natural resources of the Carpish rainforest, so it is necessary to raise awareness among the general population about the negativity of indiscriminate depredation of the natural resources of the Carpish rainforest (Fasanando, 2015).

The global warming produced in the last fifty years, mostly corresponds to human activities, under the egocentric criterion of personal profit, as it happens in Carpish; hydrangea has been introduced, which is not native to the area. Therefore, it is invasive and thrives in that area, then forests are cut down on a large scale to gain land for cultivation, releasing tons of carbon dioxide, not capturing fog and the area becomes dry, loss of native flora and fauna, the land becomes erodible, among other long-term consequences, proving that the development generated in the area is not sustainable, with negative consequences for future generations (Vargas, 2019).

The analysis through the study shows that environmental degradation has an anthropic origin; however, it is observed that the usual treatment given to it in the media and in the conversations of the daily life of the inhabitants and authorities, is as natural disasters (Cacho, 2014).

It can be stated that most of the population tends to perceive climate change as a distant problem, so citizens are not aware of the problem only because they cannot identify and establish the relationships that exist between their way of life and climate change. This vision is the one that must be modified to achieve a citizenry aware that their actions have an impact on the level of greenhouse gas emissions, water, air and soil degradation, as is happening in Carpish (UNEP, 2005).

According to the study, the mitigation of the problem generated by humans would require the intensive implementation of an intensive environmental education as a state policy, with an aggressive information campaign, both in a sustained manner, since the results obtained for each of the dimensions indicate that the level of explanation exerted by the dimensions of the independent variable on the variability of the ecological conscience are high (Urgilés, 2013).

The proposed implementation of the Environmental Education was between January to March 2020, obviating the complementary actions due to the pandemic. However, the project and contacts start in November 2019, formulating the objective: to determine the relationship that exists between the Healthy Patrimony and the ecological conscience in students of the Educational Institution No 32068 Santa Rosa de Mayobamba.

The results obtained showed that there was a high and positive correlation, and as a consequence, the degree of group dependence was 80.78%, between the healthy Patrimony dimension and the ecological conscience of the teachers and other educational actors of the Educational Institution under study.

The Healthy patrimony dimension refers to the natural patrimony. In the study, the healthy thing would be to consider the Carpish forest virgin, then the first depredation of enormous proportions took place with the passage of the central highway and the construction of the Carpish tunnel; the highways are very important elements of the development and it is a human product. The notorious consequence is that the lands bordering the highway from Acomayo to Cayumba, approximately, have become highly erodible. In this sense, the logging of the Carpish forest will have much more complex consequences than the simple erosion of land, which is why, in the study through environmental education to the educational actors of the Santa Rosa de Mayobamba Educational Institution, the research intends to

improve their knowledge of the environment and that they, in turn, will do the same Ecological Conscience and that they make the multiplier effect to the entire population, including the predators in order to positively modify their environmental behavior (Maslucán, & Gonzáles, 2017).

Nowadays there is knowledge about the existence of environmental problems, and it is also known that human participation is the one that generates them. This motivates the convening of annual summits in different countries in favor of the environment and the implementation of environmental education, in each of them. scientists present mathematical models that predict environmental catastrophes in the range of one hundred to five hundred years. The former always evade signing the agreements, and the latter have environmental ministries that give legal form to the depredation of the natural patrimony by the developed countries, that is, they are sellers of raw materials; and according to the proposal in the present research, such change can come from the application of Environmental Education as a State Policy in a sustained manner and for this to happen, it has to be from including in the summaries of all the subjects the continuous environmentalist intention and not transversal (Cárdenas, 2014).

In reality, it is perceived that most people are in favor of caring for the planet, at least theoretically; however, when this care contradicts their behavior or personal interests, they are no longer willing, for example, to make personal efforts to reduce the emission of greenhouse gases, restrict the use of their vehicles, moderate the use of air conditioning, pay a higher price for an appliance that consumes less energy, lead austere lifestyles, take the trouble to separate waste at source for later recycling, pay more taxes, in the case of businessmen to implement programs to reduce greenhouse gases, or invest in less polluting technologies, because this reduces the profit margin (Carrasco, 2011); pay more taxes, in case they are entrepreneurs for the implementation of programs to reduce greenhouse gases, or invest in less polluting technologies, because this reduces the profit margin (Carrasco, 2011).

The study shows the development of favorable attitudes towards the mitigation of the greenhouse effect and environmental

degradation, trying to instill a positive environmental behavior environmentally with the application of Environmental Education, in the educational actors of the Santa Rosa de Mayobamba Educational Institution, which is not very costly to implement, only the will and decision to implement it in practice, so that they by multiplier effect reach all the villagers near the Carpish rainforest (Reyes, 2016).

Environmental Education encounters greater difficulty when the necessary behaviors of environmental care enter into contradiction with personal values, as these are much more difficult to modify than attitudes, because the basis of attitudes are values. For climate change and environmental degradation, the values that guide pro-environmental behaviors enter contradiction with socially prevailing values, such as: the enjoyment of the comfort of modern life is more important than the care of the planet; man has the right to dominate nature; man is more important than the rest of the species; man is beyond the laws of nature; they have the right to use all the natural resources there are, etc. All of this is rooted in many generations and one could almost say that it is an evolutionary issue.

Populations are always linked to the existence of a set of beliefs, attitudes and values related to pro-environmental behavior, which is opposed to another set of attitudes and values, currently prevailing from the dominant social paradigm; and, while people identify with one or the other paradigm, there is some kind of confrontation between environmental preservation and other values. Here economic interests and the values associated with consumerist lifestyles prevail, as is the case in the Carpish rainforest (Mozobancyk, 2007).

When the population suffers the conflict between its behavior with its values is where environmental policies and environmental management programs are required to play a leading role; these are intended to direct collective action, emphasizing not on individual responsibilities but on the social transformations necessary to generate the appropriate contexts that can give rise to environmentally respectful behaviors (Albarracín, 2017).

The next objective formulated was to determine the relationship that exists between environmental policy and ecological awareness in students and other educational actors of the Educational Institution N° 32068 Santa Rosa de Mayobamba, and the results showed that there was a very high and positive correlation, so that the degree of group dependence was 91.00%, between environmental policy and ecological awareness.

At least in theory, the environmental policy foresees a strategic process of development of the country, with very defined bases for the conservation of the environment, favoring the sustainable use of the natural resources and the environment that sustains it through a set of principles and formal intentions, which is not being fulfilled with the use of the natural resources of the Carpish rainforest. The result of the research is so evident that the environmental policy dimension explains the variability of the ecological awareness of educational actors of the Santa Rosa de Mayobamba Educational Institution, in a high percentage. In this sense, only nine percent of the variability of ecological awareness is explained by other factors (Left et al., 2002).

Environmental education as a State policy in the national education curriculum should not be contemplated as a cross-cutting theme, but should be continuous and permanent, oriented towards the acquisition of knowledge, the development of habits, skills, abilities and attitudes, and the formation of values, harmonizing or making compatible the relationships between the educational actors and between them and the rest of society and nature, all of which allows the orientation of economic, social and cultural processes to be directed towards sustainable development.

Environmental education allows educational actors to consolidate their sense of belonging and reaffirm their identity as citizens with respect to the geographic space where they develop, this favors the formation in values and the practice of the same, allowing them to modify behaviors and the creation of respect for the natural and socio-cultural environment, all summarized in an environmental behavior favorable to the natural resources of Carpish (Hernández, 2017).

Environmental education as a process allows recognizing values and clarifying concepts with the aim of promoting and forming attitudes and skills necessary to understand and appreciate the vital interaction between man, his culture and his biophysical environment. Environmental education also allows humans to make decisions and develop a code of behavior regarding issues related to the quality of the environment (Sánchez-Sánchez & Pontes, 2010).

In the Santa Rosa de Mayobamba Educational Institution, with the application of Environmental Education to teachers and other educational actors, what has been sought are changes in the personal attitudes of each one of them, improving the negative behaviors they have towards nature. In addition, they should understand that it is a basic element to achieve sustainable development, which implies being aware of the relationship with the environment and the impact that an inadequate decision has on the environment (Navarro & Ramirez, 2006).

The results analyzed indicate that the ecological awareness and the environmental impact of the teachers and other educational actors of the Santa Rosa de Mayobamba Educational Institution is explained by the environmental education. In this sense, what is intended is that they promote the understanding of sustainable development by trying to reduce or cancel the environmental impacts with the indiscriminate use of natural resources. The few predatory settlers and the others must understand the laws of nature to learn to respect life and the environment, ceasing to be simple users of nature to become managers of natural resources in a sustainable manner (O'Connor, 1994).

The application of environmental education should be continuous and permanent; that is, the environmental intention should be given with each subject and in each course, with the theoretical following structure: subject, theoretical practical application, practical operational application, impacts that occur during the practical operational application and specific mitigation alternatives, only in this way guarantee the consolidation environmental behavior friendly to nature in teachers and other educational actors of the Santa Rosa de Mayobamba Educational Institution.

Nothing seems to be more difficult than to change the ways of behavior of a society when the prevailing style of development is deeply rooted, so it would be necessary through environmental education to propose a revaluation of behavioral changes, of attitude of

the way of life, which translates into reviewing the values, symbols and ideologies of existence, and this will give new patterns of lifestyles, in the units of analysis and by multiplier effect to the other inhabitants of Carpish (Miniguano, 2014).

Environmental education relates teachers and other educational actors of the Santa Rosa de Mayobamba Educational Institution with the people of Carpish in general with their environment, seeking a change of attitude, an awareness of the importance of conserving the flora and fauna for the future and that allows them to improve their quality of life, through a favorable change of behavior towards the care of the environment, promoting the participation of all in the solution of environmental problems that arise (Navarro, 2006).

The study shows that environmental prevention is based on the model of values, norms and beliefs held about the environment; as such, it is from this model that the concern and decision making about the environment is analyzed with the firm belief about the consequences that environmental deterioration can produce for oneself, especially future generations, in addition to the biosphere (Aguilar et al., 2006).

Conclusions

It was determined that there is a high and positive correlation, so that the degree of group dependence is 83.61%, between quality of life an Ecological Conscience of the teachers and other educational actors of the Educational Institution N° 32068 Santa Rosa de Mayobamba, 2020.

It was determined that there is a very high and positive correlation, so that the degree of group dependence is 90.62%, between natural resources and Ecological Conscience of the teachers and other educational actors of the Educational Institution N° 32068 Santa Rosa de Mayobamba, 2020.

It was determined that there is a high and positive correlation, so that the degree of group dependence is 80.78%, between Healthy Patrimony and Ecological Conscience of the teachers and other educational actors of the Educational Institution N° 32068 Santa Rosa de Mayobamba, 2020.

It was determined that there is a very high and positive correlation, so that the degree of group dependence is 91.00%, between Environmental Policy and Ecological Conscience of the teachers and other educational actors of the Educational Institution N° 32068 Santa Rosa de Mayobamba, 2020.

Bibliographic references

- [1] Acebal, M. del C. (2010). Environmental awareness and teacher training. Doctoral thesis. University of Málaga. Retrieved from:
 - http://libros.metabiblioteca.org:8080/jspui/bitstream/001/323/8/978-84-9747-606-5.pdf
- [2] Aguilar, Ma. del C., García, M. A., Monteoliva, A., & Salinas, J. M. (2006). The model of value, norms and beliefs towards the environment in the prediction of ecological behavior. Environment and Human Behavior Journal, 7(2), 21 44.
- [3] Albarracín, S. J. (2017). Conceptions and practices of environmental education from the institutional management: A case study in the preschool level of official schools in the locality Antonio Nariño, Bogotá D.C. Retrieved from: https://repository.usta.edu.co/bitstream/handle/11634/4077/Albarrac%C3%ADnsandra2017.pdf?sequence=1&isAllowed=y
- [4] Cacho, C. (2014). Study of the attitudinal profile towards the environment of the population bordering the trans-Pyrenean transport routes and Basque Country TransP4 Project. Retrieved from: https://academica-e.unavarra.es/bitstream/handle/2454/1539 1/629255.pdf?sequence=1&isAllowed=y
- [5] Cárdenas, J. D. (2014). Análisis de la incidencia de las organizaciones juveniles ambientales de la ciudad de quito, en la construcción de políticas públicas. Ecuador. Retrieved from: https://dspace.ups.edu.ec/bitstream/12345 6789/7586/1/UPS-CT004496.pdf
- [6] Carrasco, C. (2011). The care economy: current approach and pending challenges. Revista de Economía Crítica, No. 11, p: 208-276. ISSN: 2013-5254.
- [7] Fasanando, A. (2015). The construction of the Puerto Esperanza- Iñapari highway and the law on the right to prior consultation of

- the indigenous peoples of the province of Purús. Retrieved from: <a href="http://scholar.googleusercontent.com/scholar?q=cache:m4nuNpy0TwkJ:scholar.google.com/+ecol%C3%B3gic+awareness+is%C3%A1+in+direct+relation+to+the+integrity+of+natural+resources,+therefore+it+is+necessary+to+do+a+job+of+raising+awareness+to+the+general+population+about+the+negativity+of+indiscriminate+depredation+of+natural+resources....hl=en&assdt=0,5
- [8] Garduño, S. & Juárez, N. I. (2015). Quality of life from nonviolence and degrowth as a basis for environmental education. Retrieved from:

 http://scholar.googleusercontent.com/scholar?q=cache:C_5Pm3K_aRgJ:scholar.google.com/+it+was+imperative+to+know+the+degree+of+explanation%C3%B3n+that+the+quality+of+life,+as+a+dimensi%C3%B3n+of+environmental+education,+on+the+variability+of+ecol%C3%B3gical+awareness&hl=en&as_sdt=0.5
- [9] Hernández, L. A. (2017). Educational guidance to students of Biology-Geography career for environmental education, from the potentialities of the school microenvironment. University of Holguin. Retrieved from: https://repositorio.uho.edu.cu/jspui/bitstre am/uho/4227/1/tes,pdf
- [10] Left, E., Argueta, A., Boege, E., & Porto, C. W. (2002). Beyond Sustainable Development: Building an Environmental Rationality for Sustainability: A View from Latin America. Left, E. Ezcurra, E. Pisanty, I. (Com.), La transición hacia el desarrollosustentable: perspectivas de América Latina y el Caribe, 477 576.
- [11] Losada, M. D. (2005). Environmental Education in the curriculum of compulsory secondary education. Doctoral Thesis. La Coruña. España.
- [12] Machaca, M. M. (2013). Environmental education program to improve the ecological awareness of parents of PRONOEI Parroquial San Agustín de la H. U. P. Bellavista, district of Nuevo Chimbote _ 2012. Retrieved from: http://repositorio.uns.edu.pe/bitstream/handle/UNS/3267/47132.pdf?sequence=1&is Allowed=y
- [13] Maslucán, M. A. & Gonzáles, F. A. (2017). Geometric and asphalt design of the

- Yurimaguas Munichis road, length 19.00 km, Yurimaguas district, Alto Amazonas province Loreto region. Tarapoto. Recuperado de: http://repositorio.unsm.edu.pe/bitstream/handle/11458/2747/CIVIL%20-%20Mar%C3%ADa%20Ang%C3%A9lica%20Masluc%C3%A1n%20Marchand%20&%20Franco%20Antonio%20Gonz%C3%A1les%20Tuesta.pdf?sequence=1
- [14] Mendoza, C. A. S. (2012). Environmental education, sustainable development and awareness. Facultad de Ciencias Contable, Económicas y Administrativa, 11.

 Retrieved from:

 https://www.researchgate.net/profile/Martha

 Ortiz3/publication/277587957 Model

 o de desarrollo y derechos humanos con perspectiva de genero/links/556dd493

 08aec2268308bc21/Modelo-de-desarrollo-y-derechos-humanos-con-perspectiva-degenero.pdf#page=11
- [15] Miniguano, A. (2014). Values as a transversal axis of education; analysis of the values of the Gospel and "Buen Vivir". Workshop proposal for teachers of the "Julio María Matovelle" Educational Unit, for the 2013-2014 school year. Retrieved from:

 http://repositorio.puce.edu.ec/bitstream/handle/22000/7065/3.D05.001786.pdf?sequence=4&isAllowed=y
- [16] Mónico, I. E. & Alas, S. E. (2000). Deforestation of the forest resource in the face of logging permits for urban development, granted by Servicio Forestal y de Fauna del M. A. G. Universidad del El Salvador. Retrieved from: http://www.csj.gob.sv/BVirtual.nsf/0/1e4a ae94838f76ef062575cf005c7e96?OpenDo cument
- [17] Moreno, E. (2007). Initial training in environmental education of secondary school teachers in formative period. Doctoral thesis. Valencia. España.
- [18] Mozobancyk, S. (2007). Changes in climate and human behavior. University of Buenos Aires. Retrieved from: https://core.ac.uk/download/pdf/148073745.pdf
- [19] Navarro, R. E., & Ramírez, Ma. del S. J. (2006). Constructing the meaning of environmental care: a case study in secondary education. REICE Revista Electrónica Iberoamericana sobre Calidad,

- Eficacia y Cambio en Educación, Vol. 4, No. 1. Retrieved from: https://www.redalyc.org/pdf/551/5514010 6.pdf
- [20] O'Connor, M. (1994). The marketing of nature: On the misfortunes of capitalist nature. Political Ecology, (7), 15 34.
- [21] Paragua, M., Paragua, M. G., & Paragua, C. A. (2021). Relación entre la Yupana y el aprendizaje de la multiplicación de números enteros. *Revista Meta: Avaliação*, *13*(38), 81-100. http://dx.doi.org/10.22347/2175-2753v13i38.2956
- [22] Paragua, M. (2012). Scientific research applied to environmental education with statistical analysis. Geographic Society of Lima. Peru. ISBN: 9789972602733
- [23] Paragua, Melecio. (2014). *Investigación Científica*. Editorial Académica Española. ISBN: 9783659022883.
- [24] UNEP. (2005). Climate change. Global environmental citizenship project. ISBN: 968-7913-38-X. Mexico City.
- [25] Reyes, M. M. (2016). Reliability analysis of the effectiveness of an educational material in the field of environmental education. University of Huelva. Retrieved from:
 - http://scholar.googleusercontent.com/scholar?q=cache:dSq13KwZLr0J:scholar.google.com/+In+the+study+there+is+evidence+of+the+development+of+favorable+attitudes+to+mitigation+of+the+greenhouse+effect+and+environmental+degradation,+trying+to+inculcate+environmentally+positive+behavior+with+the+application+of+environmental+education&.hl=en&as_sdt=0.5
- [26] Rodríguez, E. A. P. (2013). Consciousness, awareness and environmental education: concepts and relationships. Temas Journal: Department of Humanities Universidad Santo Tomás Bucaramanga. (7), 231-244. Retrieved from: https://scholar.googleusercontent.com/sch olar?q=cache:cJi-NL4yBbEJ:scholar.google.com/+The+wa y+in+which+educational+actors+and+peo ple+in+general+perceive+the+environmen t,+the+attitudes+the+attitudes+they+devel op+towards+%C3%A9l+and+the+social+ values+they+hold+are+at+the+basis+of+e cological+awareness+and+which+drive+t he+environmental+behaviours+and+the+e

- nvironmental+behaviours+of+them+that+t hey+are+in+the+increase+in+the+environ ment...hl=en&as sdt=0,5
- [27] Sánchez-Sánchez, F. J., & Pontes, A. (2010). The understanding of ecology concepts and their implications for environmental education. Retrieved from: http://ojs.uca.es/index.php/tavira/article/viewFile/45/44
- [28] Urgilés, L. E. (2013). Communication for development as a prevention strategy to reduce environmental pollution of the Ambato River. Ecuador. Recuperado de: https://repositorio.uta.edu.ec/bitstream/12 3456789/5721/1/CS-335-2013-Urgil%C3%A9s%20Lorena.pdf
- [29] Vargas, C. A. (2019). Analysis of the level of understanding in the millennial generation in the face of climate change. Guayaquil. Ecuador. Retrieved from: http://200.31.31.137:8080/bitstream/ucasagrande/2201/1/Tesis2408VARa.pdf
- [30] Vega-Marcote, P. (2004). *Environmental education in initial teacher training*. Analysis of a didactic model for the development of competence for action in favor of the environment. Doctoral Thesis. La Coruña. La Coruña. Spain.