

The Environmental Pragmatism focused on the reuse of the NFU in the PEI-TINI

El Pragmatismo Ambiental enfocado al reuso de los NFU en los PEI- TINI

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Abstract– *This paper focuses on the application of the pragmatic philosophical current in order to provide solutions that allow the reuse of the NFU tires out of use integrated to the PEI Institutional Educational Project called Land of Children and Adolescents TINI; as a curricular requirement in the middle level educational units in Ecuador. That in the end will contribute to the reduction of the carbon footprint by avoiding the indiscriminate burning of the NFU and the improvement of the environment.*

According to the Tire Reuse Program of the Ministry of Industries and Productivity Ecuador, during 2014 it is estimated that 300 thousand tires are destined to dumps or other sites and from the execution of the environmental pragmatic activities of the TINI would recover approximately 2% whose destination it serves in the ornament of the educational units subject of the investigation;

Environmental pragmatism is combining with the model of significant learning for the formation of multipliers achieving significant changes in the habit of reusing waste through the design of didactic tools for the replication of knowledge, promotion of collaborative work and encouragement for creativity of the participants; reaching environmental awareness.

Keywords- *PEI- TINI , Environmental Pragmatism. didactic tools, knowledge replication, matrix of reuse alternatives NFU, collaborative work, creative stimulation*

I. INTRODUCTION

There is currently a worldwide concern for Sustainable Development involving models of Integrative behavior that reduce the generation of solid waste and seek its best alternative use in order to avoid actions associated with NFU such as; abandonment, burning and / or inadequate final destinations in landfills, streams and rivers.

The generation of tires out of use -NFU- has become one of the environmental problems due to the growth of the vehicle fleet of the Province of Guayas in Ecuador. According to the INEC (National Institute of Statistics and Census) in 2015,

1'925,368 vehicles were registered, which corresponds to 57% more than what was registered in 2010, the report of Ecuador in Figures 9 of December 2016. such that the increase of NFU is considerable and the search of alternatives of its use has become imperious in the middle; without causing environmental damage by eliminating waste volumes and / or emissions.

In view of the foregoing, it is proposed to analyze a Matrix of Alternatives of Reuse of the NFU, which consists of analyzing the different forms of ornamental creativity, according to the size and application of the rubber that makes up the NFU. This allows institutional educational projects such as TINI to be established, involving changes in curricular activities that involve collaborative work, relieving significant learning whose ultimate goal is the Use of NFUs,

II. THE APPLICATION OF THE PHILOSOPHICAL CURRENT OF ENVIRONMENTAL PRAGMATISM AS A BASE FOR COLLABORATIVE AND CREATIVE WORK

The creators of the pragmatic philosophical current were: John Dewey, American psychologist and pedagogue, cataloged as a man of action who unified thought with action, analogously theory with practice; also dedicated to the defense of the equality of women.

Likewise William James, recognizes Charles Pierce as the founder of Pragmatism and promulgates pragmatism as a method of solving conceptual confusions; relating the meaning of the concepts with the practical consequences.

Another of the exponents of the pragmatic current is Friedrich Nietzsche who postulates naturalist and voluntarist concepts as cited below in a reference text:

(Nye, B. 2012) From his naturalistic and voluntarist concept of the human being, teaches: the truth is not a theoretical value, but only an expression to designate the utility, that function of the trial that preserves life and serves the will to power.

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This thesis raises the incorporation of the knowledge of the reuse of solid waste, on the other hand, it is worth mentioning the contributions of Morin, in his educational theory, about the transversal axes such as: ecological elements, environmental care, health care that reach the reduction of risks and dangers to the health of residents who are exposed to polluting waste; elements that are immersed throughout the present investigation as important effects that justify the development of the present topic.

Likewise, Environmental Pragmatism in principle elaborates self-evaluations about the relationship between the natural world and anthropogenic activities, and for the present case the inclusion of complementary curricular activities in educational units of average level that infer the value of our species, channeling value actions towards the natural world that is beyond what the human being can understand.

Romero R. (2016), calls rationalism (of ratio, reason) to the epistemological position that he sees in thought; this is, in reason, the main source of human knowledge. According to her, a knowledge really only merits this denomination when it is necessary from the logical point of view and its validity is universal. Judgments based on thought, those coming from reason, have logical necessity and universal validity; the others do not.

For what has been explained in the previous paragraphs, the stream of rationalism frames during the whole analysis of the selection of practical alternatives of the Reuse of the NFU such as: road, planters, decorative figures, patio seats, gym floors, swings and area dividers green.

Martínez Cardana (2014), argues that the individual or man is a complex being therefore everything he sets out to do is a product of his condition. Holism (relatively modern approach) takes into account the true dimension of man; Therefore, when it comes to knowledge management, an integrating model is needed that the authors of this research identify as a holistic model [1][2] .

It shows the living being from a multidimensional perspective that includes awareness of the care of the environment that is affected by the increase of hazardous solid waste such as the NFU without giving clear value-added options within the local productive chain; This being a holistic approach that allows the living being to build knowledge using significant experiences [2][3] in the act of living and human development; transforming with knowledge the ways of meaningful learning in favor of environmental care and the use of waste in a general context that can be strategically incorporated into the local reality of educational units through creative endeavors.

Finally, we speak of a whole that arrives at the holistic and reflexive scientificity that, in the case of NFUs, implies achieving Sustainability, which becomes a subject pertinent to the holistic because it is a current problem that involves the reflection of society as part of the solution and those who finally choose the technological alternatives through their business practices, which sometimes may not be efficient, or optimal and even little objective within the framework of sustainability reflecting on the variables that affect the cuts and the replicable social-economic benefits that contribute to social development. It is about the Reflective search of the truth about the energy consumption related to the carbon footprint when transforming an Out of Use Tire and its incidence in the global warming of the earth

The biocentric model is based on solutions of respect and care for the environment and its components, indistinctly of the actions that intervene towards the human being as part of nature, that is, that combines the ethical-environmental immersed in the biocentric model that fits the activities and skills that reduce environmental impacts significantly.

The intrinsic value can be found in the sensitive capacity (sensocentrism), in the mere fact of being alive (biocentrism), or by being part of nature and playing an essential function in it for the support of the whole ecosystem (ecocentrism) (Salazar Ortiz VH 2012).

For the creators of the pragmatic current, absolutism does not fit as a determinant factor to the intrinsic value, so they do not endorse it as authentic. Likewise, for pragmatists, the primordial function of thought is to promote actions that encourage compliance with the environment in specific scenarios whose purpose will be to advocate the why of anthropogenic actions in specific contexts. According to pragmatist experts, truth emerges from man and practice.

The main objective of environmental pragmatists is to achieve important permutations in individuals and environmental policies at the global level[5][7], based on the fact that every natural being has intrinsic value, for which reason moral consideration must be granted; likewise there is talk of a necessary change of the anthropocentric vision by the biocentric one, that is to say, that in the moral consideration all the species of the biosphere must be considered indistinctly of the human interests[9][8].

III. THE RELATIONSHIP OF COLLABORATIVE WORK, SIGNIFICANT LEARNING AND CREATIVITY

The purpose of collaborative work is to share knowledge and ideas to build common knowledge with the sole interest of promoting improvement in results in any type of situation so that they can be used in a generalized manner.

The teacher seeks meaningful learning within the strategic context of curricular content for subsequent interpretation-practice whose characteristics are more activity, effectiveness, and collaboration from the information obtained from the medium; fostering the skills and abilities of students, as well as criticality. [5][9] Achieving the optimization in the comparative capacity, and classification criteria from a reflective point of view.

Les Foltos, former director of a public school in Seattle and director of Peer-Ed, an initiative that seeks to promote collaborative work among teachers through various strategies, ensures in Edutopia that, to encourage the development and professional learning of teachers, they have to start by recognizing that collaborative work is a fundamental instrument, which can undoubtedly be developed. To achieve this, says Foltos, teachers can focus in principle on five key aspects: Trust, student learning, manageability, support and privacy. (Camila Londoño, March 2018)

Taking into account these five main points, we can note that collaborative work fosters creativity through practice, and each participant issues new ideas that together result in new products and concepts applicable to current curricular requirements; The improvement of educational standards was reached as the final goal.

With all of the above, it can be affirmed that there is a strong link between the pragmatic current, creativity and collaborative work; influencing determinant learning significantly. Fig. 1

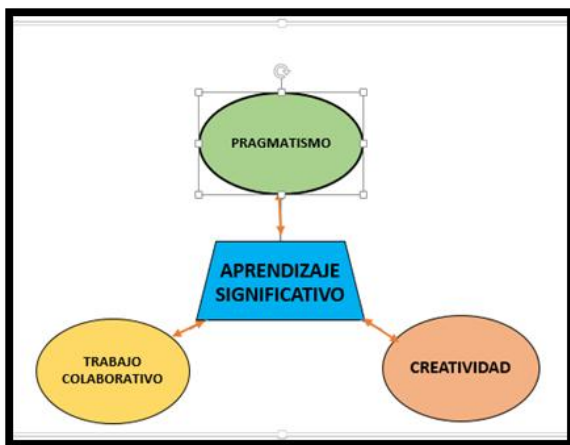


Figure 1. Scheme of conceptual relationship binding to Significant Learning

IV. METHODOLOGY OF THE PEI TINI AND ALTERNATIVES OF REUSE OF THE NFU

The Integral Educational Project PEI -TINI is an environmental methodology of Peruvian origin that means Land of girls, children and young people for the Good Living and that has been assumed in many countries like Chile, Canada, Ecuador, among others, proposing and organizing activities whose content favor the promotion of love of nature and care of the environment.

It seeks to promote environmental awareness and within this context the Ministry of Education of Ecuador resolved the implementation of the PEI-TINI Comprehensive Educational Project by ministerial agreement Nro.MINEDUC-MINEDUC-ME-2017-00094-A, whose UNIQUE Article. states: Replace the name of the Environmental Education Program "The House of All", constant in the ninth and thirteenth recitals of the Ministerial Agreement No. MINEDUC-MINEDUC-2017-00082-A, dated September 21, 2017, by the of the Environmental Education Program "Tierra de Todos".

In such a way that from the year 2017, all the educational units articulate in their academic curriculum the innovative project and that to date its implementation has reflected success in the different Ecuadorian educational units; relating in an intrinsic way the experience and practicality of the students through their active participation in environmental care[4].

The PEI TINI project stimulates in the student the value of biocentrism under the holistic approach of knowledge construction during the significant experience of the management and use of solid waste generated by the coverage of anthropogenic needs; making the act of living and the contributions to human development more meaningful; restructuring the knowledge acquired in favor of caring for the environment and adapting other alternatives to local reality [4].

Joaquín Leguía, author of the TINI methodology (Land of Girls, Children and Youth), presented the strategic concept, which seeks to link children and young people with the cultivation of food and at the same time encourage them to research as well as love for nature through greater contact with this. However, this strategic concept has been mongrelized according to the national reality in each country that has decided to adopt it, without losing the purpose of caring for nature.

The TINI methodology consists of:

1. Delivery to a group of children and young people from an area in the educational unit whose dimensions may vary
2. Planning of tasks that consists of the children working in the care and ornament of the area under their care.
3. The activities implemented are carried out according to the needs of the area where the educational unit is located. The identified needs may correspond: type of production of the

sector, planting of flowers and short-cycle cultivation, likewise implies the use of environmental resources and in this case the waste is presented whose concept is transformed into waste.

4. Under the direction of the teacher or facilitator, the programmed activities and ornaments to be made from materials found in the environment are carried out. For the case described in this paper, refers to the collection of tires out of use (NFU) which are cut, filled and / or decorated taking new forms, functions and figures. See Fig 2

5. The results of the PEI TINI emphasize in the students the importance of the nature and the existing biodiversity as part of the environment, creating a bond of protection towards the environment and all its forms of life.

V. RESULTS AND DISCUSSION

In Table I, the results are shown from the Matrix of alternatives made during the execution of activities proposed during the execution of PEI TINI in the educational units belonging to the District

The matrix of alternatives developed for the Reuse of the NFU was applied in a sample of 20 educational units of middle level in the students of eighth, ninth and tenth grade corresponding to higher basic education, who are developing the Integral Educational Project TINI within of the curricular block of the subject of Natural Sciences

Additionally, a survey was applied whose results reflected the following:

The 89% of the teachers consider that it is feasible to incorporate the Out-of-Use Pneumatics (NFU) in activities that improve the learning process. See Table I. The participating students incorporated knowledge of care of the environment and the intrinsic values of Biocentrism when looking for alternatives to Reuse of the NFU, accompanied by activities aligned to the reduction of special solid waste such as the NFU present in neighboring sites ò in communities close to educational units.

The students participating in the PEI TINI used an average of 20 to 25 NFU in the activities implemented by each educational unit of District 0908 Pascuales 2.

Do you think that during the execution of the TINI Project the NFU could be incorporated into activities that significant learning?

TABLE I

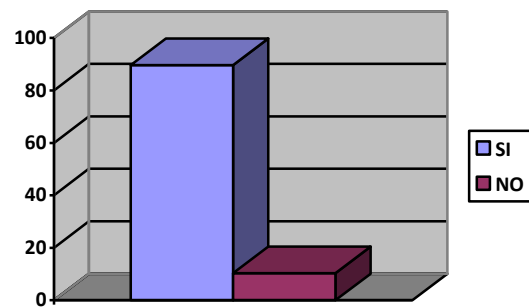
EXECUTION OF TINI WITH ACTIVITIES TO SIGNIFICANT LEARNING VALUATION RESULTS ON PROMOTION OF LEARNING ASIGNIFICANT BY USE OF NFU IN THE TINI

ALTERNATIVES	FRECUENCY	RESULTS
YES	610	89.70%
NO	70	10.30%
TOTAL	680	100.00%

Source: 20 educational units. District 09008 Pascuales 2 2017

GRAPH I

RESULTS ON USE OF NFU IN TINI PROJECT IN SIGNIFICANT PROCESS



Source: Field surveys 20 schools District 09008 Pascuales 2 2017

The previous results match the assertion of the relationship between the practicality of the IEP activities and the stimulation of creativity in the participating students. See Table II and Graph II

Do you think that during the execution of the TINI Project the cognitive structure is improved through the selection practices, collection of NFU and elaboration of creative decorative designs as reuse alternatives?

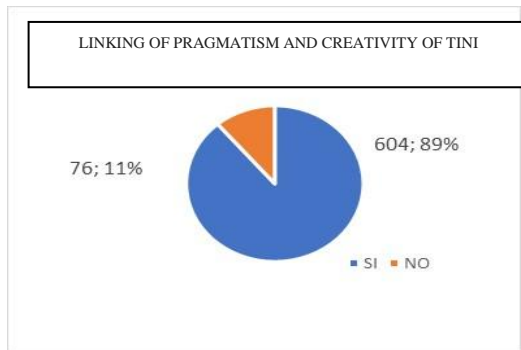
TABLE II

RESULTS OF VALUATION OF THE LINKAGE OF PRAGMATISM AND CREATIVITY IN PEI TINI ACTIVITIES

ALTERNATIVES	FRECUENCY	RESULTS
YES	604	89%
NO	76	11%
TOTAL	680	100.00%

Source: 20 educational units. District 09008 Pascuales 2 2017

GRAPH II
RESULTS ON THE LINKAGE OF PRAGMATISM AND CREATIVITY IN PEI TINI ACTIVITIES



Source: 20 educational units. District 09008 Pascuales 2 2017

Another question to highlight in this survey is about the options posed by the students participating in the activity selection matrix and the results were associated by the teachers according to the collaborative work achieved during the school period.

Table III and graph III showed that the alternatives for preparing seats for courtyards, separators of green areas and making pots represented the best options for promoting collaborative work among students. In particular, 34% of the sample consulted coincides that the design of seats for courtyards imply greater collaborative work.

Which of the alternatives proposed in the reuse selection matrix of the NFU and activities of the TINI Project fostered collaborative work?

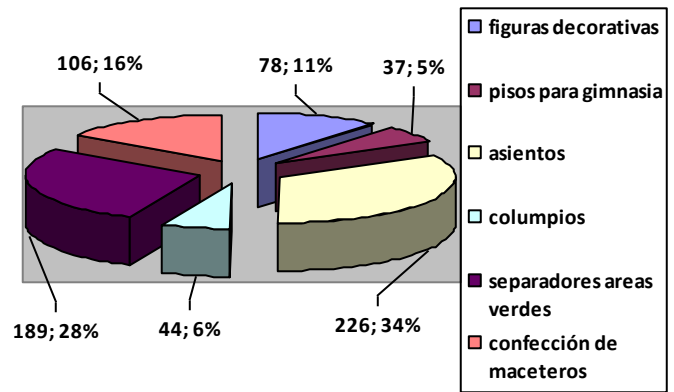
TABLE III

RESULTS ON SELECTION OF ALTERNATIVES OF REUSE OF NFU AND COLLABORATIVE WORK

ALTERNATIVES	FRECUENCY	RESULTS
Maceteros Confection	106	16%
Elaboration of figures	78	11%
Floor for gymnastics	37	5%
Seats for green areas	226	34 %
Swings	44	8%
Separators of green areas	189	28%
TOTAL	680	100.00%

Source: 20 educational units. District 09008 Pascuales 2 2017

GRAPH III
RESULTS ON ALTERNATIVES OF USE OF THE NFU IN TINI PROJECT DURING THE SIGNIFICANT PROCESS



Below are several photographs taken in the different educational units that implemented the PEI-TINI with their students from the eighth to tenth grade. Note factors that are relevant to creativity such as: Selection of shapes and sizes according to the available spaces, combination of colors and design functionality. Factors that were induced to develop during the programmed activities. See Figure I

FIGURE I



ALTERNATIVES OF THE REUSE OF THE NFU IN THE EDUCATIONAL UNITS ACCORDING TO THE MATRIX. FIGURES WITH PLANTERS (A) SEATS (B) SEPARATORS (C) SWINGS (D)

VI. CONCLUSION

The PEI Integrational Educational Project for children and young people for Buen Vivir TINI contributes to the strengthening of meaningful learning based on the pillars of pragmatism, creativity and collaborative work.

The selection matrix of alternatives for the Reuse of the Out of Use NFU Tires found in communities surrounding the educational units evidences during its structuring the conceptual adjustment of the reuse according to the local need of the communities of the sector of Pascuales 2 affected by the presence of special solid waste such as the tires out of use, which generate: landscape disorders,

proliferation of infectious vectors, waste accumulation in vacant areas. During the elaboration of the selection matrix, the teachers identified predominant factors such as: Selection of shapes and sizes according to the available spaces, combination of colors and functionality of the designs to reuse the NFU.

The PEI TINI managed to reuse an average of 530 NFU in the activities implemented by 20 educational units during an annual school period, favoring the appropriate management of this waste in the sector, as well as the development of practical activities that are significant for the participating students, promoting the collaborative work between groups of students destined to: collection, design, cutting and decorating of NFU assisted by teachers and parents.

The survey shows that 34% of teachers consulted agree that the design of seats for playgrounds showed greater collaborative work, followed by 28% that considered the activity of creating green space separators.

It is recommended for subsequent stages of the project to establish a model of integral solid waste management for the communities of Pascuales 2 and to emphasize the separation and use of other waste such as organic waste.

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