

# Collaborative work as an inclusive tool in an environmental educational project

*Abstract– The present work aims to link collaborative work with inclusive educational processes, for the acquisition of personal skills through active participation using group interaction that allows diversity; and the statistical results of the KMO test will confirm that it is possible to group factors in activities of an environmental project carried out at a secondary educational level on the selection and reuse of end-of-life tires (NFU) aimed at developing decorative models for school environments, relating the execution of activities in sequential processes promoting the care of the environment. The Chi-square test concludes that it is possible to group the activities of the Environmental Educational Project into factors of the inclusive model.*

Keywords-- *Tires Out of Use , inclusion, collaborative work, processes, diversity*

## I. INTRODUCTION

The education has been the buttress of developing countries, today and as the "boom" of the knowledge society it is necessary that it reaches all members of each social sector, however, for this to be possible, it is necessary that the individual feels included in the various educational settings of which he is a part, taking into account that there is a substantial difference between integration and inclusion. Integration is based on the acceptance and regularization of students with special educational needs in the classroom space, while inclusion promotes recognition of diversity as a fundamental human right [1].

In response to the inclusive individual need, praxis in personalized education is proposed, this means, the participation and effective interaction between the facilitator and the student in a personalized way, that is, giving each student what they require according to their needs individuals obtaining as a result mutual enrichment from the valuation of experiences and customs

Personalized educational attention is a fundamental part of inclusive processes since it is subject to an educational approach whose purpose is learning adjusted to the abilities, needs, and interests of each student.

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When a student feels included in the educational processes, the segregation and the inequity gap disappear, giving way to the spontaneous participation of the student and their respective active promotion within the context of collaborative work; allowing the teacher to combine theory with practice in a convenient way without neglecting the programmatic contents including their easy understanding.

From the cognitive point of view, the human being lives in a constant learning process, whether empirical or scientific, [2], resulting in new knowledge and skills that emotionally strengthen the parties regardless of socio-cultural and economic contexts

It is necessary to note that since socio-cultural interaction is part of human nature, it can be linked to collaborative work as a successful tool that contributes to the promotion of learning in an organized and logical way, guaranteeing better cognitive results. "Collaborative learning considers dialogue, positive interactions and cooperation as essential foundations of its work; however, it is the collaborative involvement of each person, which guarantees the achievement of learning goals, and individual and collective fulfillment"[3].

Considering what was stated in the previous paragraphs and correctly assuming the figure of collaborative work in educational environments, an environmental educational project was developed with a focus on the selection and reuse processes of NFU end-of-life tires applied to the design of decorative models in institutions. intermediate level educational programs that promote inclusive collaborative learning based on social interaction, improvement of the environment and environmental awareness

## II. THE MODEL OF EDUCATIONAL INCLUSION

According to UNESCO, inclusive education is a strategic approach designed to facilitate successful learning for all. It refers to common goals to reduce and overcome all types of exclusion from a perspective of the human right to an

education; enjoying access, participation whose ultimate goal is successful learning with quality education for all. (Unesco, 2017). [4].

This means giving all students the opportunity to participate in the academic activities scheduled within the projects proposed as part of the curriculum at each educational level, according to individual needs and abilities. Involving a different vision in the educational field based on diversity, and whose emphasis is the value and respect for the personal differences of each student.

In this contextual framework, it seeks to promote inclusive educational systems and eliminate obstacles to participation by improving the performance of all students, considering the diversity of their needs, capacities and particularities. Eliminating all forms of discrimination in the field of learning.

To achieve this ambitious objective, countries should consider reducing vulnerability and inequality gaps, as well as guaranteeing inclusion and equity in their education systems, through measures that prevent all forms of exclusion in access and participation in the processes. educational. To achieve this requires considering student diversity as an opportunity to improve and democratize the learning process for all. Unesco, 2017.

The educational inclusion model proposes various forms and the which the solution has been sought to satisfy the needs of our students around the limitations and problems they face when carrying out inclusive exercise in the classroom

In this way, the relevance of specialization and constant search for new learning in teachers stands out according to each case. Likewise, collaborative work can be complemented with the fundamental bases of the inclusion process, since it allows students to interact actively in different activities related to their abilities to join the final work proposed by the teacher.

The purpose is to reinforce the active figure of the student as the main actor in the educational scenario, participating in each step of the learning process, and its basis lies in the development of skills and perception of knowledge from experience.

With regard to the teacher and his attitude towards inclusive processes, it is necessary to take the words of Alfred North Whitehead, who pointed out, "A vocation is the antithesis of a profession", the profession requires applying principles to solve problems.

Therefore, it is essential that educational institutions at all levels incorporate into their curricula, subjects leading to activities that achieve personal development by applying cooperative, playful, creative and inclusive strategies and procedures from the individual and collective attention that they demand in their cognitive, affective, emotional sphere that contribute to the integral development of learners [5].

Its characteristics are detailed below

#### A. Flexibility

The purpose in all cases is that the methodology can be adapted to the needs of the students and take into account that the most important thing is their right to learn

#### B. Diversity

Recognizes, accepts, respects and values each student with their respective differences and qualities, so that attention is paid to their interests, needs and abilities.

#### C. Promotes active participation

It encourages creativity, initiative and critical thinking through collaborative activities in the classroom with the purpose of getting to know each student better and improving the ways of working according to the aptitudes and skills of each student

#### D. Multiple intelligences

Each student can learn through writing, visualization, or listening. Which is related to multiple intelligences (J.Taiba, 2018) [6]

### III. THE CHARACTERISTICS AND ESSENTIAL ELEMENTS OF COLLABORATIVE WORK

Conceiving the conceptualization of collaborative work as the group of activities developed by individuals who carry out a task, contributing ideas based on their knowledge and experiences in order to achieve a common goal [7]. This allows the development of spontaneous dynamic leadership, because generally in every social group the participants are chaired by the individual who stands out for innovation and initiative.

According to Vygotsky, collaborative work activates mental processes in students such as: reasoning, understanding and critical thinking for the construction of knowledge [8] which is related to the constructivist model. Its characteristics will be detailed below

Undoubtedly, collaborative work encourages the achievement of goals in those groups of individuals with a common goal; Social interaction is the means that promotes the creation and development of skills from the exchange of ideas acquired through the experiences of the participants. [9] This conjunction of characters can be grouped as elements, thus achieving the objectives proposed in the learning processes associated with the research methodology [10] For a better understanding, below we detail the five essential elements of collaborative work [11]. See Fig 1

- 1) Stimulates the personal skills of each of the participants, which is known as positive interdependence
- 2) Promotes individual participation applied through human endeavor and group conscience. It allows the sharing of information and therefore the achievement of objectives richer in content.
- 3) Delimits the assignment of tasks and the scope of each of them, with the purpose of evaluating as a group
- 4) Allows the individual to learn more than they would learn on their own, generating interpersonal practices and essential groups

As expressed by the authors cited above, it is a construction process, which corresponds to the essential elements of collaborative work that imply interpersonal practices for the formation of essential groups and group evaluations

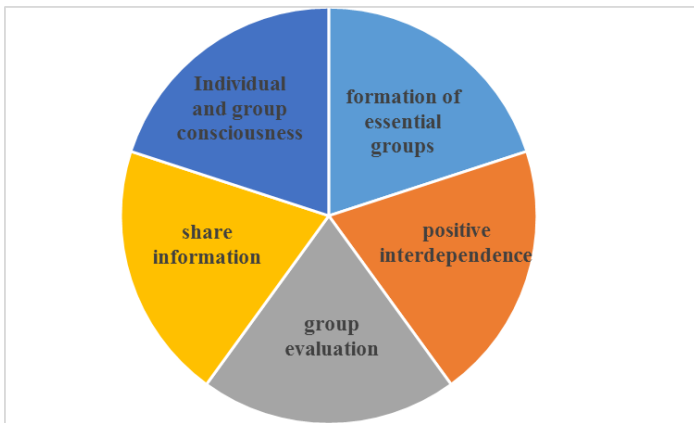


Fig 1 Essential elements of collaborative work.  
Source: Own authors year 2020

In the educational field, the characteristics comprised within these essential elements are detailed below:

- Common goals are set
- Establishment of an equitable reward system.
- Generation of responses distributed among group participants
- Definition of standards
- Coordination of activities
- Informal leadership
- Individual responsibility
- Interaction of participants who share and produce knowledge
- Development of personal and group skills
- Group self-esteem
- There is no role of the manager among participants

Today it is known that teaching experiences major changes in the relationship between teachers and students, which favor the formation of new human structures for learning that develop autonomous critical thinking, more effective collaborations and personal skills reflected within group activities based on inclusive education processes.

On the other hand, understanding inclusion requires constant work from the educational community in restructuring the way it is applied. Which is to say that the solutions are proposed according to the local reality, that is why during this process what is relevant is that each educational community defines and specifies for each case of inclusion, based on variables such as socio-cultural context, history, school culture and determining factors (Echeita, 2008) [12]

It is also essential to refer to the existence of advantages from the collaborative learning strategy and that strengthen the links with the inclusive model. Which are mentioned below:

- Strengthens social interaction due to the new inclusive approaches acquired by teachers.
- Promotes educational inclusion actively
- Promotes efficient teamwork performance.
- Improves the classroom environment at all educational levels due to the inclusive condition.
- Eliminates resistance to change by incorporating the work of student representatives
- Promotes unity and solidarity.

#### IV. INCLUSION AND COLLABORATIVE WORK

Based on the above, raised about the relationship of the inclusive model, which is characterized by flexibility, acceptance of diversity, promotion of the active participation of the learner and focuses on the characteristics of the learners and not only the content to be developed.

For this reason, through active participation, the individual develops the ability to experiment, modify and optimally apply the knowledge acquired, which allows him to rethink his conceptions of knowledge without the need to adhere to a certain pattern that many times does not go according to your needs.

In this regard, it is important not to lose sight of the fact that it will always be easy to invoke the virtues of collaborative work, which is why the need to deepen the conditions and processes that can promote such efficient collaboration is evident, (2011; Ainscow et al, 2012) [13]

Collaborative work plays a major role in academic group activities, which implies that students join forces to achieve a common goal.

In this case, it has been proposed to establish a set of sequential activities for the collection, classification and design of decorative items for educational environments based

on the reuse of NFUs, in order to promote environmental care through reuse activities integrating the inclusive process based on to collaborative work.

### V. IMPORTANCE OF THE REUSE NFU

Globally, out-of-use tires represent an alarming environmental problem, since it is a problem of special solid waste management. This last term applied by the Environmental Legislation of Ecuador to refer to discarded tires.

And the reason responds to the negative effect caused on the environment and human health; Due to its nature as a nonbiodegradable pollutant in soil, air and water, constituting a potential fire source threat. Not to mention the reproduction of infectious vectors [14] [15] The problem of the final disposal of pneumatic tires out of Use (NFU), makes that governments worldwide seek to implement alternatives in conjunction with regulations aimed at reducing the generation of this waste. In the case of Ecuador during the year 2018 an industrial incentive is proposed called the Ecuadorian System of Integral Management of Used Tires (SEGINUS), which had the participation of the Ministry of Environment covering 80% of the market selling tires; charging an eco-value reflected in the user invoices when buying new tires. It is known that in Ecuador 90% of the tire import market corresponds to light vehicles according to Ecuador Report in Figures INEC (2016) [16].

However, it is known that in Ecuador the amount of 2.4 million tires discarded during 2018 was reported and users report that they do not know what to do with this waste because they cannot sell them and only in a few cases are they accepted by merchant houses. [17]. The need to undertake creative solutions not only at the national level but at the local level involving institutional actions is imperative, and for this case it is a project that promotes collaborative learning under an environmental approach at the level of medium-level educational institutions

### VI COMBINING THE INCLUSIVE MODEL WITH COLLABORATIVE WORK IN THE PROCESSES NFU SELECTION AND REUSE

Inclusion promulgates effective education for all, based on the fact that schools must meet the needs of all students, whatever their personal, psychological or social characteristics. (Plancarte, 2017). [18]

The Inclusive Model proposes a range of activities aimed at cooperative work that reinforces the development of social and affective-volitional capacities, through the design, elaboration and implementation of creative, decorative models to be

implemented in educational institutions, using as raw material the NFU

The implementation of decorative models from the use of NFU [14] promotes: horizontal interaction between the teacher and the students who participate, as well as the development of different skills incorporating the value of caring for the environment through a set of collaborative activities.

The inclusive model is articulated by its predominant character of interpersonal relationship aimed at stability, joint performance and performance [19]. See Fig 2

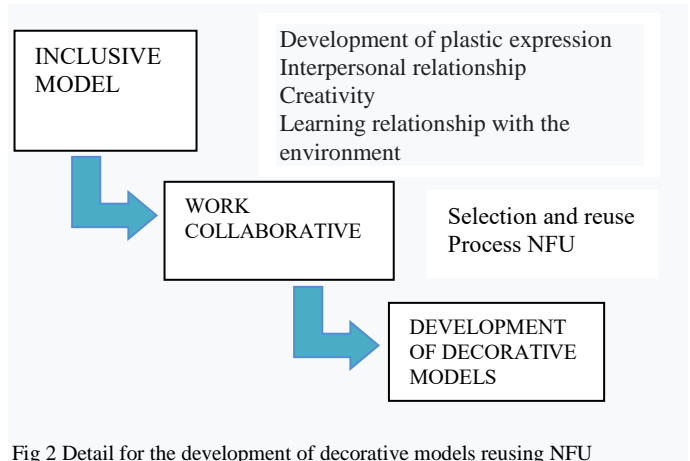


Fig 2 Detail for the development of decorative models reusing NFU  
Source: Own authors year 2020

As can be seen in Figure 2, the conceptual articulating detail applied to the development of decorative models from the use of NFUs, it is important to develop phases as a sequential process for the elaboration of said models, which ultimately involve group activities. See figure 3

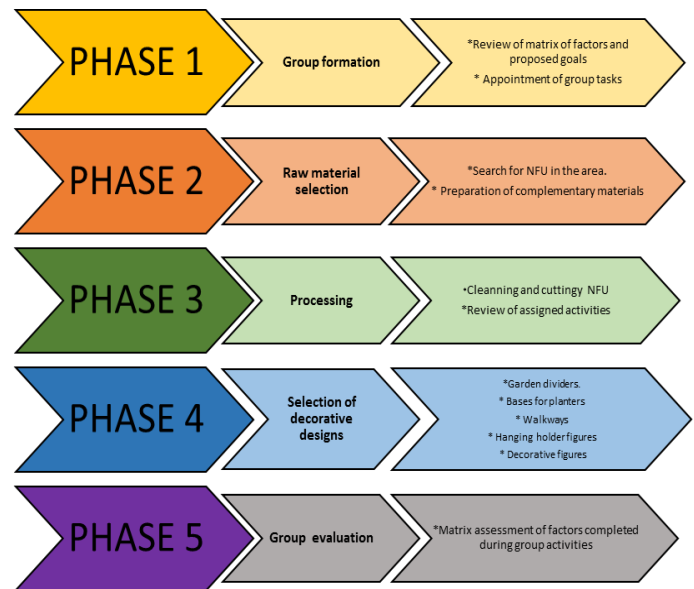


Fig 3  
Phases of the process for development of decorative models reusing NFU

Source: Own authors year 2020

The process consists of five main phases that consist of:  
PHASE 1: Formation of work teams, in which tasks are designated according to the skills perceived in the group participants and tasks are defined based on the proposed goals according to the matrix of factors raised according to the general grouping of characteristic elements of collaborative work related to the inclusive model

PHASE 2: Selection of raw materials, in this phase the discarded NFUs in the environment of the educational units are searched after observing the state in which they are in order to prevent accidents or infections due to the presence of infectious contagious vectors accumulated at their disposal. around

The members of the groups also collaborate if they have some discarded tires in their homes and notify the teachers about these cases to request help in their transfer

Other members of the group are responsible for the preparation of complementary materials such as: paints, brushes, masks, spray paints, thinner, cardboard, saw blades, metal scissors, among others. As well as the preparation and clearance of the place where the used tire will be cleaned with detergent diluted in water.

PHASE 3: Processing: which includes cleaning and cutting the out-of-use tire if necessary, due to the fact that tires with damaged fragments could be found unusable for the design proposals. [twenty]

On the other hand, teachers supervise the progress in activities assigned to each group, as well as the percentage of achievement of goals according to the times set for the environmental educational project

PHASE 4: Selection of Decorative Designs, during this phase, meetings between teacher guides and work groups were considered to submit to a choice the design model to be made, based on the choice: Number of used tires found, Number of used tires intact, number of tire fragments and ease of making cuts due to the presence of the metal core inside the used tire casing.

The decorative designs generally selected based on the conditions [21] mentioned were:

- Dividers in gardens
- Bases for planters
- Roads
- Hanging figures for flowerpots
- Decorative figures

PHASE 5: Group evaluation, which comprises a set of activities that contribute to collaborative work at the end of the project:

- Increase in personal interactions
- Development of personal psychomotor skills
- Developing creativity by comparing decorative design options.
- Assessment of the individual relationship with the environment based on experiences

## VII METHODOLOGY AND USE OF FACTOR MATRIX IN THE DEVELOPMENT OF DECORATIVE MODELS FROM THE REUSE OF NFU

Description of the methodology applied in this work.

The inclusive education model aims to integrate all types of students equally, developing in the student the spirit of cooperation, raises the teaching-learning process based on their skills, and advances in a globalized way [22], and in the case of people with special educational needs and assesses their active participation in all educational processes without discrimination and school segregation. Applying the above as a theoretical framework for the grouping and relationship of the elements of collaborative work

**Preparation of surveys** aimed at group guide teachers at the unified general high school level in three educational units in the city of Guayaquil, Guayas province in Ecuador, including students with unfinished schooling with a total sample of 73 teachers consulted.

The survey questions were based on the grouping factors belonging to the matrix mentioned as part of phase 5, group evaluation, and some of the results will be shown in the following section. It should be noted that 23 people with motor impairment participated in the educational units during the development of the environmental project

**Statistical analysis of data** using the KMO and Bartlett Test, to analyze the feasibility of grouping elements into factors as consulted after the experience of using the matrix [10]. Complementing with the Chi Square test.

Being the null hypothesis (H0) It is not possible to group the activities of the Environmental Tire Reuse Project into four factors associated with the inclusive model: while the hypothesis H1: It is possible to group the activities of the Environmental Tire Reuse Project into four associated factors to the inclusive model.

Factor matrix made up of a column that indicates the activities carried out vs. grouping factors, which were:

- 1) Ability to form groups for observations of the environment affected by NFU
- 2) Formation of groups to collect NFU
- 3) Number of interactions for the development of the NFU cleaning process

- 4) Flexibility of times for the development of group activities.
- 5) Number of grouped students with various abilities
- 6) Assessment of the personal relationship with the environment
- 7) Development of communication skills
- 8) Development of body expressions
- 9) Increased personal interactions with mutual help
- 10) Formation of groups with an emphasis on artistic expression
- 11) Development of creativity and assessment of activity.
- 12) Assessment of the individual relationship with the environment based on shared learning

### VIII. RESULTS AND DISCUSSION

The environmental project of reuse of the NFU with the execution of its process using the matrix of factors was applied in three educational units of the city of Guayaquil including students with unfinished schooling, with a sample of 73 teachers who participated as guides. of the working groups established in each educational unit.

It is worth mentioning that we worked with an average educational level corresponding to the tenth year, who address topics from the five curricular blocks of the Natural Sciences subject relating: the earth, a planet with life, the soil and solid pollutants, recycling and reuse

The survey directed to teachers was carried out after the execution of activities of the process of elaboration of decorative models reusing NFU and therefore, after the use of the matrix of grouping factors whose results reflected the following:

81% of the teachers considered that personal interaction improved with mutual help between participants and was projected in the execution of activities of the PHASE OF: PROCESSING, due to the emphasis with which the groups of students were coordinated, establishing norms for individual interaction with common goals to achieve with the project. One of the goals was the improvement of green spaces and environments of the educational units See Table No. 1 and Fig 4

TABLE I  
RESULTS OF VALUATIONS ON INCREASE OF INDIVIDUAL INTERACTION WITH MUTUAL HELP

¿ Do you think the work group formation phase increased individual interaction with mutual help?

VALORATION	FREQUENCY	RESULT
Strongly agree	59	81%
In agreement	12	17%
Indifferent	1	1%
In disagreement	1	1%
Total disagreement	0	0%
<b>TOTAL</b>	<b>73</b>	<b>100%</b>

Source: Survey of teachers 2019 in educational units. District 09008, Pascauales 2 2017

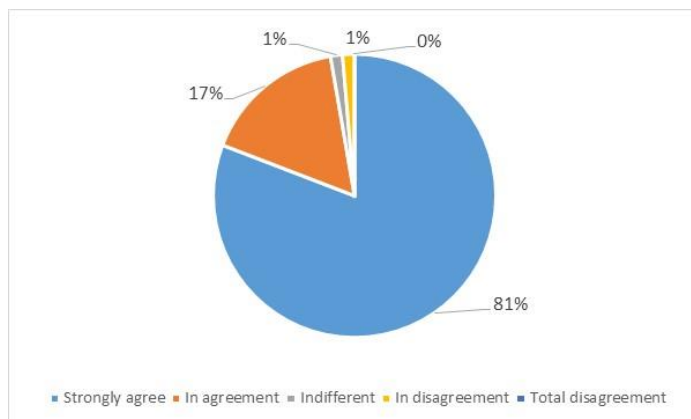


Fig 4 Assessments on increase of individual interaction with mutual help

Source: Survey of teachers 2019 in educational units. District 09008, Pascauales 2 2017

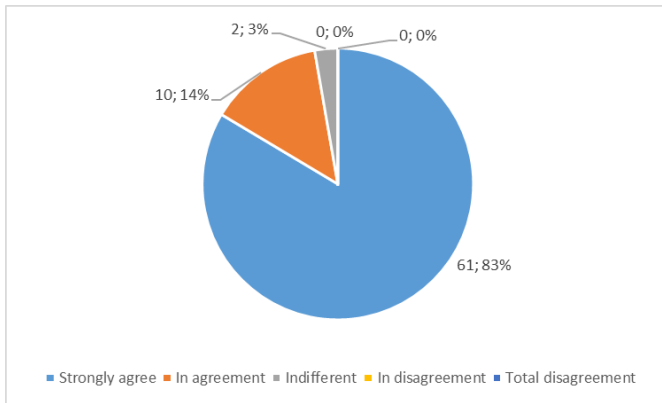
Regarding the DECORATIVE DESIGN PHASE, it was evidenced that 83% of the teachers consulted coincide in the existence of a greater relationship with the factor of conformation of groups destined based on plastic expression; Due to personal interaction exerted by the members of each group who chose to carry out materials preparation activities, which achieved the development of individual skills. See table 2 and Fig 5

TABLE 2  
RESULTS OF ASSESSMENTS ON INCREASE OF CONFORMATION OF GROUP CONFORMATION FOR PLASTIC EXPRESSION

¿ Do you think that the Decorative Designs phase increased the formation of groups that manifested artistic expression?

VALORATION	FREQUENCY	RESULT
Strongly agree	61	83%
In agreement	10	14%
Indifferent	2	3%
In disagreement	0	0%
Total disagreement	0	0%
<b>TOTAL</b>	<b>73</b>	<b>100%</b>

Source: Survey of teachers 2019 in educational units. District 09008, Pascauales 2 2017



**Fig 5 Assessments on increase of conformation of group conformation for plastic expression**

**Source: Survey of teachers 2019 in educational units. District 09008, Pascuales 2 2017**

About the RAW MATERIAL SELECTION phase with its respective activities of search, cleaning, cutting of used tires and review of assigned activities, 89% of the teachers consulted considered that they are linked to the factor of increase of individual interaction; caring for the environment and learning ..

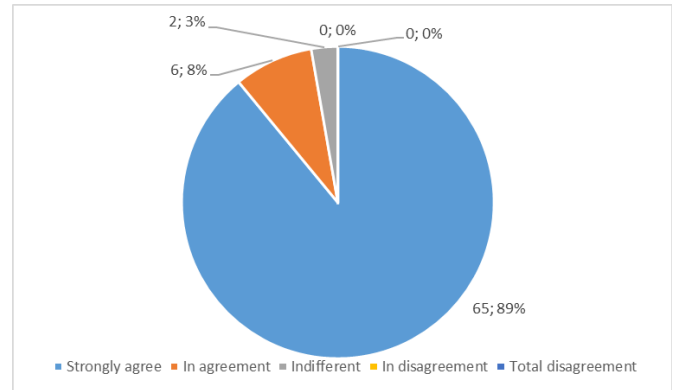
The groups integrated the care of the environment during the learning, as well as the identification of dangerous situations during the cleaning and separation of metal fragments in tires, having as a common goal the interpersonal care of the members of the work team. See Table 3 and Fig 6.

**TABLE 3  
RESULTS OF ASSESSMENTS ON THE COMBINATION OF THE FACTORS CARE OF THE ENVIRONMENT AND LEARNING**

Do you think that the raw material selection phase combines the factors of caring for the environment and learning?

VALORATION	FRECUENCY	RESULT
Strongly agree	65	89%
In agreement	6	8%
Indifferent	2	3%
In disagreement	0	0%
Total disagreement	0	0%
<b>TOTAL</b>	<b>73</b>	<b>100%</b>

**Source: Survey of teachers 2019 in educational units. District 09008, Pascuales 2 2017**



**Fig 6 Assessments on the combination of the factors care of the environment and learning**

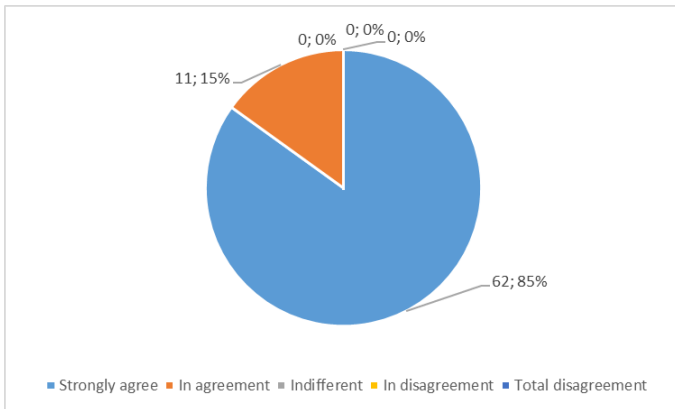
Another important relationship during the DECORATIVE DESIGN SELECTION phase was that 85% of the teachers consulted linked in the designs of bases for flowerpots, construction of pathways and elaboration of figures, a close relationship with the development factors of creativity and flexibility ; which forced the working groups to reshape to consolidate collaborative work. See Table 4 and Fig7.

**TABLE 4  
RESULTS OF ASSESSMENTS ON THE COMBINATION OF THE DEVELOPMENT FACTORS OF CREATIVITY AND FLEXIBILITY IN THE FORMATION OF GROUPS**

Do you believe that the decorative design selection phase using end-of-life tires combines the development factors of creativity and flexibility in group formation?

VALORATION	FRECUENCIA	RESULTADO
Strongly agree	62	85%
In agreement	11	15%
Indifferent	0	0%
In disagreement	0	0%
Total disagreement	0	0%
<b>TOTAL</b>	<b>73</b>	<b>100%</b>

**Source: Survey of teachers 2019 in educational units. District 09008, Pascuales 2 2017**



**Fig 7 Assessments on the combination of development factors of creativity and flexibility in the formation of groups**

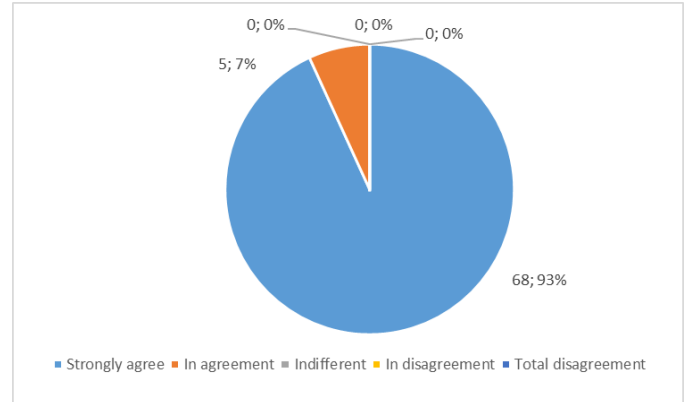
Source: Survey of teachers 2019 in educational units. District 09008, Pascuales 2 2017

Regarding the GROUP EVALUATION phase, 93% of the teachers consulted agreed that we can find that a strong relationship is generated with individual assessment of the environment from the new experiences. See Table 5 and Fig 8.

**TABLE 5**  
RESULTS OF ASSESSMENTS ON THE COMBINATION OF FACTORS OF THE ENVIRONMENT VALUATION BASED ON NEW EXPERIENCES  
¿ Do you think that group evaluation phase combines the factors of the environment valuation based on new experiences?

VALORATION	FRECUENCY	RESULT
Strongly agree	68	93%
In agreement	5	7%
Indifferent	0	0%
In disagreement	0	0%
Total disagreement	0	0%
<b>TOTAL</b>	<b>73</b>	<b>100%</b>

Source: Survey of teachers 2019 in educational units. District 09008, Pascuales 2 2017



**Fig 8 Assessments on the combination of factors of the environment valuation based on new experiences**

Source: Survey of teachers 2019 in educational units. District 09008, Pascuales 2 2017

Finally, applying the KMO and Barlett coefficient test, a value equal to 0.778 was obtained, which, being close to 1, is a good indicator, indicating that a dimensional or factor reduction can be implemented as proposed in the survey aimed at the 73 teachers who worked on the decorative design project reusing end-of-life tires. See Table 6.

The Bartlett test is significant because the value of (P < 0.01) allows rejecting the null hypothesis that the correlation matrix is equal to the identity matrix, so it can be concluded that there is an association between the original variables represented by the elements of the collaborative work and a dimensional reduction based on criteria of the inclusive model is appropriate

**TABLE 6**  
TEST OF KMO Y BARTLETT

Kaiser-Meyer-Olkin measurement of sampling adequacy	0,778
Bartlett's sphericity test	Aprox. 4308,766 gl 1485 Sig. 0

Source: Survey of teachers 2019 in educational units. District 09008, Pascuales 2 2017



Deciding based on the statistical treatment of data, that resulting in the value of p less than 0.01, Ho is rejected. And as a conclusion: It is possible to group the activities of the Environmental Educational Project into factors of the inclusive model, coming from a population

Regarding the statistic of the general chi-square test whose p-value of 0.0078, it can be noted that the p-value is less than the significance level of 0.01 and then the null hypothesis can be rejected See Table 7

TABLE 7  
CHI-SQUARE TEST

	Value	gl	Sig. asintotic (2)
Chi-square test	0,4476 <sup>a</sup>	11	0,0078
Pearson Likelihood ratio	28,416	11	1
Valid cases	72		

Source: Survey of teachers 2019 in educational units. District 09008, Pascuales 2 2017

## IX CONCLUSIONS

The application of the inclusive model is feasible to combine it with the characteristics of collaborative work and turn it into an inclusive tool for improving learning at middle educational levels, focusing on the diversity of individuals that comprise it.

Due to the significant value of ( $P < 0.01$ ), obtained in the Bartlett test, the association of the inclusive model factors between the original variables represented by the elements of the collaborative work of the environmental educational project is plausible, to finally group them into:

- 1) Increased personal interactions with mutual help
- 2) Formation of groups with an emphasis on artistic expression
- 3) Development of creativity and assessment of activity.
- 4) Assessment of the individual relationship with the environment based on shared learning

This allows dimensional reduction based on the criteria of the inclusive model, in order to analyze the acceptance of collaborative work as an inclusive tool.

There is 93% acceptance by the teachers consulted, which corresponds to the group evaluation phase, in which there is a strong relationship between the factors of: assessment of the environment from the new experiences acquired.

Followed by 89% in which teachers state that during the processing phase executing search, cleaning, and reviewing activities assigned; where the groups integrated the care of the environment during learning, as well as the identification of dangerous situations during the cleaning and separation of metal fragments in tires, having as a common goal the interpersonal care of the members of the work team.

Deciding based on the statistical treatment of data, that resulting in the value of p less than 0.01, Ho is rejected. And as a conclusion: It is possible to group the activities of the Environmental Educational Project into factors of the inclusive model, coming from a population

The coordination of actions within each group stands out, which implies greater personal interaction between the members.

The students participating in the Environmental Educational Project used an average of 20 to 25 NFU in the activities implemented by each educational unit of District 0908 Pascuales 2

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## REFERENCES

- [1] Aguinaga S, Rimari M, Velazquez M (2018) Modelo Contextualizado de Inclusión Educativa Revista Educación, vol. 42, núm. 2, 2018 Universidad de Costa Rica DOI: <https://doi.org/10.15517/revedu.v42i2.23885>
- [2] Villarruel M.(2009). El trabajo colaborativo en la práctica educativa, Revista Iberoamericana de Educación. Edit. Organización de Estados Iberoamericanos para la Educación, la Ciencia y la Cultura (OEI)
- [3] Revista de Educación. No. 328. Jhonson, D., Jhonson, R., Holubec, E. (1999). El aprendizaje cooperativo en el aula.
- [4] UNESCO, 2017, Guía para asegurar la inclusión y la equidad en la educación <https://unesdoc.unesco.org/ark:/48223/pf0000259592>
- [5] Rosa Blanco, (2006) La inclusión en educación: una cuestión de justicia y de igualdad Revista Electrónica Sinéctica, núm. 29, agosto-enero, 2006, pp. 19
- [6] Taiba J. ( 2018 ), Blog, Apuntes para una escuela inclusiva <https://escuelainclusiva.cl/>
- [7] Alcalde, I. (2015). El Trabajo Colaborativo en entornos virtuales.
- [8] Monereo, C., Duran, D. (2012). Entramados. Métodos de enseñanza cooperativa y colaborativa
- [9] David Jonhson y Roger Jonhson, (2015), La evaluación del aprendizaje colaborativo. Biblioteca Innovación educativa.

- [10] Fidias G. Arias (2012), El Proyecto de Investigación Introducción a la metodología científica 6ª Edición, Editorial Episteme, C.A. Caracas - República Bolivariana de Venezuela
- [11] Revista Colombiana de Ciencias Sociales | Vol. 2 | No. 2 | julio-diciembre | 2011.
- [12] Echeita, Gerardo (2008), "Inclusión y Exclusión Educativa. Voz y Quebranto." Revista Iberoamericana sobre Calidad, Eficacia y Cambio en Educación, vol.6(2), pp. 9-18.
- [13] Ainscow et al, (2012). Promoviendo la equidad en educación. Revista de Investigación en Educación, nº 11 (3), 2013, pp. 44-56 <http://webs.uvigo.es/reined/>
- [14] El Comercio (2016), Diario , reportaje Llantas un desecho peligroso y reciclable, 5 de Junio 2016. Quito, Ecuador file:///www.comercio.com.ec /Llantas,%20un%20desecho%20peligroso%20y%20reciclab le%20\_%20El%20Comercio.html
- [15] Emmanuel Bertalot, (2017). Una mirada a los neumáticos fuera de uso. Revista SLTCaucho nº19
- [16] INEN, Informe de Instituto Nacional de Estadística y Censo 2015-2016, Ecuador en cifras
- [17] Pelaez G, Velásquez S, Giraldo D (2017). Aplicaciones de caucho reciclado: una revisión de la literatura
- [18] Patricia Plancarte, (2017) Revista Nacional e Internacional de Educación Inclusiva ISSN: 1889-4208.; e-ISSN 1989-4643. Volumen 10, Número 2
- [19] Bernaldo, M. (2012). Psicomotricidad. Guía de evaluación e intervención. Madrid: Pirámide. Recuperado de <https://www.uv.mx/rmipe/files/2017/02/Psicomotricidad-guia-de-evaluacion-e-intervencion.pdf>
- [20] Cardona L & Sánchez L (2011), Aprovechamiento de llantas usadas para la fabricación de pisos decorativos, Universidad de Medellín, 15-19
- [21] Sienkiewicz, M., Kucinska-Lipka, J., Janik, H., & Balas, A. (2012). Progress in used tyres management in the European Union: A review. *Waste Management*, 32, pp. 1742–1751. DOI: 10.1016/j.wasman.2012.05.010
- [22] Tünnermann-Bernheim, C., y Souza De-Chauí, M. (2003). Desafíos de la Universidad en la Sociedad del Conocimiento.