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Rhizomatic learning in environmental social bonding projects

Aprendizaje rizomático en proyectos de vinculación social ambiental

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ABSTRACT

The aim of the research is to determine the effectiveness of rhizomatic learning in environmental social linkage projects at the University of Guayaquil, in the Guayas province of Ecuador. From the methodological context, we worked from a quantitative approach and a type of explanatory research with a quasi-experimental design with a control and experimental group. The study population consisted of 36 students from the Faculty of Philosophy, Literature and Educational Sciences. As there is bilateral significance for the experimental group X2 of 0.01 in comparison with the control group at 0, there is evidence of statistical change, which implies that the treatment applied was effective in the population sample. The results show a cognitive contribution to the preparation from academic, methodological and rhizomatic learning aspects.

Descriptors: lifelong learning; nonformal education; informal learning; community education. (Source: UNESCO Thesaurus).

RESUMEN

La investigación tiene por objetivo determinar la efectividad del aprendizaje rizomático en proyectos de vinculación social ambiental en la Universidad de Guayaquil, de la provincia Guayas del Ecuador. Desde el contexto metodológico se trabajó desde el enfoque cuantitativo y un tipo de investigación explicativa con diseño cuasi experimental con grupo control y experimental. La población de estudio, se conformó por 36 estudiantes de la Facultad de Filosofía, Letras y Ciencias de la Educación. Al existir significancia bilateral para el grupo experimental X2 de 0,01 en comparación con el grupo control en 0, se evidencia cambio estadístico, lo cual implica que el tratamiento aplicado fue efectivo en la muestra poblacional. Los resultados evidencian un aporte cognitivo para la preparación desde aspectos académicos, metodológicos, del aprendizaje rizomático.

Descriptores: aprendizaje a lo largo de la vida; educación no formal; aprendizaje informal; educación comunitaria. (Fuente: Tesauro UNESCO).

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Research articles section

INTRODUCTION

Rhizomatic learning from the epistemological perspective of Deleuze and Guattari, allows us to propose a curriculum in which we do not start from what is institutionally established in the curricular plan, but which leads the educational actors to develop from their academic interests, the subject to be learned, how it will be learned, with what resources it will be learned, how it will be evaluated, This movement is understood as a break with the objective vision of knowledge, therefore, each actor is configured in a rhizome from where a new knowledge for the construction of knowledge sprouts, germinating from the subjective an intersubjective approach as a cognitive transcendence of empowerment of rational judgement to establish an act of micro politics acting in the action of transforming a reality (Sicerone, 2017).

In compilation to the above; this learning style contributes to the active participation of educational actors (teachers and students), to the configuration of an open, dynamic, flexible curriculum, where other rhizomes (people) can be integrated to complement or contribute to the design and implementation of this. This is difficult to develop in a university academic setting, since there is a formalised curriculum, generally supervised in the fulfilment of its achievements; but when it comes to working on the link with society through community projects, the possibility of applying rhizomatic learning as a pedagogy of empowerment of the people involved opens up.

The issue of university social links in Ecuador "requires the design of a new educational project that takes into account the link with society or university extension as the axis of academic development, in which the substantive functions of research, teaching and extension converge in a dialectic way" (Simbaña-Cabrera, 2018, p. 5). This scenario is an ideal breeding ground for transcending the objective vision of curricular knowledge through rhizomatic learning, as academic actors can be integrated with community actors in a working team where everyone contributes to curriculum design.

Rhizomatic learning could contribute to overcoming the difficulties raised by (Zurita-Flores & Zúñiga-Santillán, 2020), indicating that some institutes of higher education in Ecuador have not been able to effectively combine the implementation of social linkage projects in community areas classified as socially vulnerable, because there has not been the proper university support to motivate groups to effective participation, having to migrate projects to other social environments. Consequently, as this pedagogy is open to work from the subjectivity of the actors involved, there could be an epistemic-methodological turn in the way projects are approached in the communities, as they are the ones who curricularly direct the pedagogical action.

Rhizomatic pedagogy seeks to open up the experience to new spaces for reflection to generate new knowledge based on alternative practices to the usual ones (Weik, 2021), in the case of environmental social linkage projects, these allow training the inhabitants in trades or improving the application of these in consideration with the use of waste in order to have a positive impact on the environment (Cabrera-Blanco et al. 2019). This type of integration "contributes to the formation of a competent, creative professional, committed to the problems of their country and the local and global environment, capable of providing criteria and solutions" (Cedeño-Floril et al. 2017, p. 51).

The preservation of the environment is of utmost importance to generate a state of life for natural and social ecosystems as an integration of a single promoter of an industrialised vision, to one where active reflection is exercised as a purpose to overcome the existing environmental gaps in the province of Guayas (Fernández-Ronquillo et al. 2017). It is important that the economic sector transcends the vision of the environment from economic exploitation to one that focuses on its preservation.

In accordance with the above, at the University of Guayaquil, in the Guayas province of Ecuador, the Faculty of Philosophy, Letters and Educational Sciences; has been generating a pedagogical action project with the intention of promoting rhizomatic learning as a curricular-pedagogical axis in the implementation of environmental social linkage projects, for which it has been promoting cognitive awareness for a change of aptitude that contributes to assume this model, as it allows from a flexible action, involving the university community with the social, but providing the latter,

METHOD

From the methodological context, we worked from a quantitative approach and a type of explanatory research with a quasi-experimental design with a control and experimental group in order to apply a treatment to promote rhizomatic learning in environmental social bonding projects.

The study population consisted of 36 students from the Faculty of Philosophy, Letters and Educational Sciences of the University of Guayaquil, who were involved in environmental social outreach projects.

A training plan in rhizomatic learning was applied to the study population in environmental social linkage projects as a treatment, with the following scheme:

X1= Initial test for control group without treatment application.

X2= Application of the treatment over a period of 8 weeks, at a weekly session of 2 academic hours.

X3= Verification test for the experimental group with application of the treatment.

It should be noted that the control and experimental groups were made up of the same participants (36 students), with a comparative test being applied at both times.

A survey was used as a data collection technique and a test-type questionnaire was used as an instrument, consisting of 23 items with 3 alternative answers, validated in content by the judgement of five experts and the calculation of Cronbach's Alpha coefficient with a result of 0.86, being classified as reliable for application.

The themes that made up the applied treatment were: philosophy underlying rhizomatic learning. Rhizomatic learning as a curricular approach. Social linking projects. Preservation of the environment. Empowerment of knowledge by non-university communities.

The data collected were organised in a database and statistically processed in ANOVA of one factor and Student's t-test, with the aim of finding out the most statistically significant theme in the participants and comparing the mean between the initial test and the test with the support of the SPSS V25 statistical programme.

RESULTS

In consideration of the methodological approaches described above, the results of the research are presented below:

Table 1: ANOVA test for rhizomatic learning issues.

ANOVA

		Suma de cuadrados	gl	Media cuadrática	F	Sig.
filosofía que fundamenta el aprendizaje rizomático	Entre grupos	62,113	2	31,056	1,166	,324
	Dentro de grupos	878,637	33	26,625		
	Total	940,750	35			
Aprendizaje rizomático como enfoque curricular	Entre grupos	,756	2	,378	,789	,463
	Dentro de grupos	15,800	33	,479		
	Total	16,556	35			
Preservación del medio ambiente	Entre grupos	2,856	2	1,428	4,986	,013
	Dentro de grupos	9,450	33	,286		
	Total	12,306	35			
Empoderamiento del conocimiento por las comunidades no universitarias	Entre grupos	,539	2	,269	,801	,457
	Dentro de grupos	11,100	33	,336		
	Total	11,639	35			

Source: Own elaboration, 2021.

The significance level for the ANOVA test was 0.05, with the result that the most relevant topic for the students was the preservation of the environment, with a significance of 0.013 for the generation of projects for university social involvement.

Table 2: Student's t-test of independent means for pre- and post-test.

Prueba para una muestra

Valor de prueba = 5						
	T	gl	Sig. (bilateral)	Diferencia de medias	95% de intervalo de confianza Inferior	Superior
X1	17,63	36	0	1,69444	1,4993	1,8896
X2	43,506	36	0,01	2,88889	2,7541	3,0237

Source: Own elaboration, 2021.

As there is bilateral significance for the experimental group X2 of 0.01 compared to the control group at 0, there is evidence of statistical change, which implies that the treatment applied was effective in the population sample.

Hypothesis testing

H1: The applied treatment was effective for rhizomatic learning in environmental social bonding projects at the University of Guayaquil, in the Guayas province of Ecuador.

H0: The applied treatment was not effective for rhizomatic learning in environmental social bonding projects at the University of Guayaquil, in the Guayas province of Ecuador.

H1 is accepted and H0 is rejected.

Discussion

The results show a cognitive contribution to the preparation from academic and methodological aspects of rhizomatic learning as a contribution to overcoming the gaps reported by (Zurita-Flores & Zúñiga-Santillán, 2020) and (Simbaña-Cabrera, 2018); The formation of work teams with the communities in order to project the transcendence of environmental problems, as well as the scarce or non-existent empowerment of knowledge when the universities carry out social linkage or extension work, as the inhabitants of the communities that participate in these projects tend to give up once the university collective is removed from the place.

The success of social linkage projects lies in the fact that the beneficiary communities can be organised to become independent and empowered in the generation of knowledge to promote social, productive and technological changes, among others, according to the demographic characteristics of the place, taking advantage of their potential to form organisations that work authentically to benefit their members integrally. In this sense, we have the experience raised by (Unander & Sørensen, 2020), which indicates that social actors learn in a complex, non-linear and mediated way, favouring the promotion of a culture where the scientific is experienced in the reality itself, from where the environmental is approached.

In this order, it is important to bear in mind the experience of (Bell & O'Hare, 2020), when narrating the endogenous policies that gave rise to a group of publishers in Argentina, who proceeded to produce books from recycled material, extrapolating this initiative to other Latin American latitudes such as Mexico and Brazil; making it clear that the production of rhizomatic knowledge can contribute to significant changes from the cognitive and social reality of the communities themselves.

It is the curricular reality necessary to experience new possibilities of approaching the university with the most vulnerable sectors to promote substantial changes in its social action, this through a rhizomatic curriculum from where it can be addressed in a flexible and comprehensive way, such realities, being concomitant to changes in academics, because this allows to specify in the student, the pragmatic ethics to empower knowledge as an ally in their professional training (de-Carvalho-Santos, 2019).

It should be noted that the first person to be transformed for the application of rhizomatic learning should be the university students involved in the social linkage project, as it is not a question of training the non-university community in this subject, but rather, that they learn to be leaders independent of the bureaucratic hierarchy, but rather, that this learning should be empowered from the actions of the community actors to generate a progressive change in decision-making to work in the management of social change from a curriculum based on the experience of those involved (Mackness et al. 2016).

It is also important to take into consideration the application of rhizomatic learning with the intention of promoting affective changes in the participants of social linkage projects, as it becomes more likely to assume the necessary changes to articulate an interrelationship based on research with a perspective that makes it possible to build new social scenarios based on the protagonism of those involved (Rodrigues-de-Amorim & Scott, 2018). In the field of business, it is possible to promote improvements in local enterprises, which are vulnerable to failure due to little or no training in marketing, administration and accounting, as in this order, multidisciplinary projects could be generated where students from this area intervene together with those from education, thus, moving towards the empowerment of new research experiences in the university (Izaguirre-Olmedo et. al. 2020).

It is important to note the problem described by (Yaguache-Aguilar et al. 2021), indicating that local entrepreneurs require support in order not to be shipwrecked in the attempt to stand out in the Ecuadorian economic field, being necessary to promote the synergy between the state, academia and society, as value added can be promoted, understood as the necessary knowledge to work effectively in the market, this being an enabling factor from the social linkage projects, applying rhizomatic learning for the empowerment of social actors towards a better social scenario.

Therefore, social linkage projects should cooperate directly with local and regional economic growth where it is applied (Polaino & Romillo, 2017), in this sense, rhizomatic learning should be used to promote in participants a real participation in the generation of a social transformation in terms of promoting efforts to articulate actions favourable to the change of populations towards a better future. It is significant and important to bear in mind that rhizomatic learning produces the self-training of those involved (Kairiené, 2020), as well as enabling a new teaching environment (de-Freitas, 2012).

CONCLUSIONS

As there is bilateral significance for the experimental group X2 of 0.01 in comparison with the control group at 0, there is evidence of statistical change, which implies that the treatment applied was effective in the population sample. The results show a cognitive contribution to the preparation from academic, methodological and rhizomatic learning aspects. The success of the social linkage projects lies in the fact that the beneficiary communities can be organised to become independent and empowered in the generation of knowledge to promote social, productive and technological changes. Therefore, social linkage projects must cooperate directly with local and regional economic growth where it is applied.

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CONFLICT OF INTEREST

There is no conflict of interest with persons or institutions involved in the research.

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