

*Impacts of the University-Society Linking Process:
The Case of the Locality 'El Valle', Ecuador*

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Abstract

The management of university education is based on three fundamental pillars: teaching, research and university-society links. This last process emerged in the mid-19th century because of the research dynamics in developed countries and the need to interact with the environment in a way that was not limited to training, but also promoted the transfer of knowledge and technology to the socio-economic sphere. The aim of this paper is to show the results obtained from the measurement of the impact of the intervention project carried out in the local community of 'El Valle', Ecuador, on the productive associations made up mainly of women who operate under the Popular and Solidarity Economy (EPS) approach. The project was led by professors from the Salesian Polytechnic University (UPS). The techniques employed included the evaluation of deliverable and surveys of the involved members of the GAD (Autonomous Decentralized Government), teachers, community members and students. The results made it possible to evaluate the fulfillment of the proposed objectives in terms of organizational strengthening and women's empowerment, as well as the enrichment of the teaching process through the practical involvement of both teachers and students. In addition, the main difficulties of the process were identified, highlighting the lack of continuity in local policies and strategies for the consolidation of networks between local actors that promote the development of the territory and the need to improve the forms of monitoring and evaluation of projects.

Keywords: Impact Measurement, Linkage Projects, University-Society, Local Actors, Local Development

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Introduction

The link between the university and society has its beginnings in the mid-19th century, when universities began to generate research results and the need to commercialize them arose. This extended their contribution to the process of innovation and development of society, and their scope of action included the processes of education, research and what became known as the third mission of the university: the link with society.

Since then, the methods that have supported this process have gone through various modalities, generally based on Sábato's triangle proposal, developed as the Triple Helix model (Etzkowitz & Leydesdorff, 2000), whose basis is the relationship between government, university and business.

The evolutionary process has followed a path that initially expressed a linear relationship between these agents, in which the university drove science, trying to provoke innovation through the application of research results in production, under the Triple Helix approach. Subsequently, there has been a transition towards a more dynamic relationship between these actors, moving towards the more developed forms of Triple Helix II, III and IV, in which other civil society actors are involved, and Triple Helix V, which incorporates the process of measuring impacts to evaluate the effect of this process on society, from the perspective of changes in social and economic areas (López et al., 2006; González, 2009; Chang, 2010; Aceytuno & Cáceres, 2012; Castillo et al., 2014; Corrales, 2014; CRUE, 2018; Torres, 2019; Cedeño & Rodríguez, 2020; Gutiérrez & González, 2020; Castillo, 2020; Gálvez, 2022; Padilla et al., 2023).

The transition of this process has evolved differently in developed countries than in the countries of the Latin American region, mainly due to the economic differences between the two (CEPAL, 2016; 2022). In the former, the process is characterized by the generation of development and innovation projects basically through research results transfer offices or spin-offs, whose objective is mostly linked to the creation of new companies with a strong technological component, based on the results generated by the research process in universities. In Latin America, on the other hand, this process is more strongly linked to the social sphere and, for the most part, the transfer of knowledge is derived from the training process, through the joint effort of teachers and students to try to put into practice improvements in productive and social processes in the business and local sphere (Bermeo et al., 2022; Da, Luz et al., 2016; López et al., 2006; Londoño et al., 2018; Padilla et al., 2023, Valencia and Becerra, 2023).

The references consulted in relation to the measurement of project impacts show that one of the most complete is the methodology proposed by ECLAC (Economic Commission for Latin America and the Caribbean) for measuring the impacts of projects aimed at eradicating poverty. Although it does not refer to university-based linkage projects, its proposal is of interest for this purpose. Its procedure highlights two strategies, anticipating the effects of the programme and not anticipating these effects, and the assessment of the effectiveness and efficiency of the programme with emphasis on the objectives, indicators and distribution of impacts among beneficiaries (Navarro, 2005).

Díaz and Sain (2007) present a methodology for measuring the impact of projects financed by FONTAGRO, especially in agriculture. Their proposal is interesting in terms of the integration of economic, social, political and environmental dimensions, with emphasis on

the innovation process; it coincides with ECLAC in the relevance of considering the indicators, the amount and the distribution of benefits.

On the other hand, there are other methodologies such as the one proposed by the AEF (Spanish Association of Foundations), which similarly relies on the measurement of objectives/results based on indicators but has a closer approach to the components of the project, specifically those involved (AEF, 2015). A greater attachment of impact measurement model, linked to the methodology of project management with logical framework approach, is supported by the parameters of relevance, efficiency and effectiveness (Rodríguez and Cobas, n.d.); a general methodology for measuring business projects based on various methods (Cámara de Comercio Barranquilla, n.d.); measurement of impacts in the social sphere, which goes beyond the fulfilment of objectives to measure results on a group that has been exposed to an experimental variable; complexity of this analysis given the multiplicity of factors that intervene in the transmission of knowledge to the social sphere (Albornoz et al., 2005; Valdés, n.d.).

In general, these methodologies coincide in that the measurement of the impact of a project is aimed at measuring the transformation of the object of intervention, i.e. assessing the level at which the project contributed to bringing about the expected changes to bring a diagnostic situation to a desired situation in which the problems are attenuated or disappear.

In Ecuador, management policies favour the dynamics of this process explicitly set out in the Organic Law on Higher Education (LOES, 2010). Following this policy, the Salesian Polytechnic University (UPS) each year implements linkage projects oriented to various areas (Higher Education Council, 2022). Among these, a linkage project was implemented involving the 8 productive associations that operate in the town of El Valle located in the canton of Cuenca, province of Azuay.

This project was implemented in two phases: in the first phase, after the diagnosis that resulted in the most relevant problems, a programme of actions was implemented to strengthen the business of these associations, integrating the efforts of 6 careers of the institution, the Decentralized Autonomous Government (GAD) of the parish and the Ministry of Agriculture (MAG), and in the second phase, a proposal for integrated marketing was formulated, through the creation of a direct marketing channel for the production of the 8 associations.

In the bibliography consulted, no references have been found that provide methodological details for measuring the impact of projects of this nature, only the one described by Zamora, et al., (2022), which proposes a management model for linkage projects from the university in Ecuador, which favours this aspect; therefore, the methodology used for the research emphasises in-depth analysis through the use of interviews and surveys of those involved, following the logic of qualitative research to investigate the benefits achieved by the project from different perspectives, evaluating the fulfilment of the objectives based on indicators; therefore, this study aims to answer this question: What are the impacts generated by the intervention project in the community of Valle Ecuador in relation to the proposed objectives from the perspective of the direct beneficiaries and the rest of the actors involved (members of GAD, teachers and students)?

Method

The parish of El Valle is in the southeast of the city of Cuenca, with an area of 4,305.01 hectares and a population of 24,314 inhabitants, 11,489 men and 12,825 women, with a poverty level of 63.4% (INEC, 2010). Productively, the parish mainly grows corn, beans, alfalfa, potatoes, peas and vegetables, complemented by activities such as raising chickens, guinea pigs, pigs and dairy cattle. Its geographical location is shown in Figure 1.

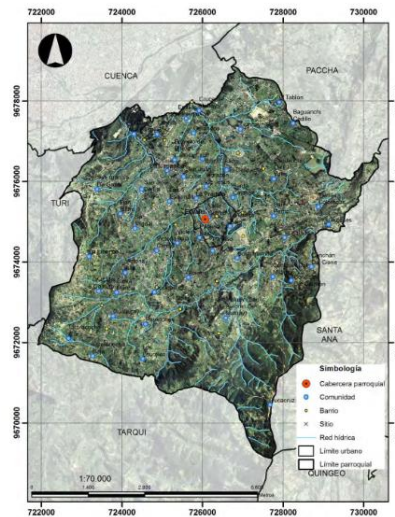


Figure 1: Map of the Parish 'El Valle'

Source: Development and territorial planning plan for the parish of El Valle, 2020

A total of 8 agricultural production associations in the El Valle area were selected for the study. Of these, 5 operate under the EPS approach and are subscribed to the National Secretariat of Planning and Development (SENPLADES). The remaining ones are subject to the MAG; the first link to move to the EPS business form.

The type of research used was qualitative and the methodology is aligned to the case study under the participatory action-research approach, which involves the search for solutions to specific community problems, focusing on processes that guide decision-making with the participation of those involved (Bernal, 2011; Hernández-Sampieri and Mendoza, 2018).

The techniques used were:

- Survey-interview of community members and members of the parish GAD with the purpose of gathering information on the fulfillment of the project objectives, its contribution to the changes operated in the management of the productive associations and the main difficulties that in the course of the time that elapsed since the implementation of the project remain present.
- Documentary review of the project deliverables.
- Focus group with members of the productive associations, to provide feedback on the fulfillment of objectives and to identify new needs.

Career that coordinated the project and the impact assessment: Business Administration.

Participating careers: 6 (Veterinary Medicine, Environmental Engineering, Communication, Biotechnology, Administration and Accounting and Auditing).

Results

Table 1: Summary of Results With Respect to the Overall Project Objective

General Objective	Indicator Target	Level of Impact Achieved in Terms of Transformation of Effects
<p>Contribute to the development of capacities in the beneficiaries for the generation of alternatives that add value to the products created in the different economic-productive associations of which they are part, for the better use of market opportunities at national and international level</p>	<ul style="list-style-type: none"> • At least 85% of those involved in the project representatives of the GAD declare a high level of satisfaction about the execution of the project. • At least 80% of the associations declare improvements in the management of their organizations as an alternative to poverty (end of poverty; gender equality, decent work and economic growth). 	<ul style="list-style-type: none"> • The level of satisfaction of those involved by the GAD is expressed as an average of 60%. • 33.5% say they have obtained better results in the management of the production and marketing of their products. • 77% of the focus group participants rate their level of integration, leadership, production at a level of 3 to 5. 100% consider that if they work together, they can achieve their objectives.

Source: Own elaboration based on primary information

Table 2: Summary of Results With Respect to the Specific Objectives of the Project (Community Members)

Specific Objectives	Indicator Name	Level of Impact Achieved in Terms of Solution of the Specific Problem
Community members		
<ul style="list-style-type: none"> Apply management technologies in correspondence with the particularities of the community that contribute to the development of innovative processes linked to the improvement and/or creation of new ventures. 	<ul style="list-style-type: none"> Sales revenues of the associations' products are at least 1.5% higher than 4 years ago. At least 80% of the associations state that they have succeeded in expanding their markets. At least 80% of the associations have used the attribute 'organic product' as part of their communication message. At least 80% of the production associations report improvements in the management of their production organizations. 	<ul style="list-style-type: none"> A localized increase in sales is achieved, especially in the marketing of guinea pigs, by approximately 1%, but not in agricultural products. Although promotional activities have not been regularized, 100% state that in those that have been carried out, this attribute was used as a component of the brand. Approximately 77% state that their level of management is maintained at an acceptable level.
<ul style="list-style-type: none"> Identify the necessary components for the creation of an umbrella brand to cover the products created in the partnership community. Increase the visibility and impact of the Salesian Polytechnic University at Cuenca in the improvement and social responsibility of its local environment. 	<ul style="list-style-type: none"> The productive yields of these organizations have increased by at least 1% compared to 4 years ago. At least 80% of the associations declare that their levels of integration are higher than 4 years ago. At least 80% of the partners report that they have incorporated management knowledge and skills (Level 3 to 4). At least 80% of the partners use the biodigesters installed by the project At least 50% of the associations have integrated to structure a joint marketing offer. <p>For "Virgen de los Milagros" association's partners:</p> <ul style="list-style-type: none"> At least 80% of the associates have completed the project for the construction of sheds for the improvement of guinea pig breeding. At least 85% of those who implemented the project express that the level of quality is at a rating of between 4 and 5. At least 80% of the partners say that they have been able to better market the results of guinea pig production. 	<ul style="list-style-type: none"> Only one of the organizations that produce, and market guinea pigs shows this increase. 100% of the respondent's state that their level of integration remains low, especially after the pandemic. It is partially fulfilled that 100% declared to have improved their knowledge and skills in sales and market analysis, but not in production management. 100% report partial use of the biodigesters, which indicates that they are not used optimally. It was not possible to integrate the partners to make a joint marketing offer. The representatives of the GAD declare having valued the proposal, but not implementing it because of the pandemic. 100% of them declare the completion of the sheds for guinea pig production, which has led to improvements in the production and commercialization of guinea pigs.

Source: Own elaboration based on primary information

Table 3: Summary of Results With Respect to the Specific Objectives of the Project (Students)

Specific Objectives	Indicator Name	Level of Impact Achieved in Terms of Solution of the Specific Problem
Students		
<ul style="list-style-type: none"> • Contribute to the development of practical skills on the part of students. 	<ul style="list-style-type: none"> • At least 80% of the student's state that the project contributed to the improvement of their learning process (satisfaction index between 4 and 5 points). • At least 80% of the student's state that the project contributed to the implementation of the knowledge acquired on the course. • At least 80% of the student's state that what they have learnt from the project has been useful for their current job performance. 	<ul style="list-style-type: none"> • 57.2% express a high level of satisfaction (values of 4 and 5). 28.6% express a medium level of satisfaction (3). • 100% of the students mark at least one aspect in which the project has contributed to the development of skills. • 57.1% stated that the project was useful in their current job. 28.6% say that it was useful at a medium level (3).

Source: Own elaboration based on primary information

Table 4: Summary of Results With Respect to the Specific Objectives of the Project (Teachers)

Specific Objectives	Indicator Name	Level of Impact Achieved in Terms of Solution of the Specific Problem
Teachers		
<ul style="list-style-type: none"> • Contribute to the improvement of the management of the teaching process with emphasis on the integration of disciplines. 	<ul style="list-style-type: none"> • At least 90% of the teachers consider that their participation in the project was beneficial for the improvement of the teaching-learning process in their subject. • At least 90% of the teachers consider that the project allowed them to develop students' skills in professional practice, teamwork and human values. • At least 90% of the teachers consider that the project allowed them to develop didactic resources. • At least 90% of the teachers consider that the project contributed to increasing students' knowledge/skills. • At least 90% of the teachers consider that the integration of disciplines in the project was achieved. 	<ul style="list-style-type: none"> • 100% of the teachers consider that their participation in the project was beneficial for the improvement of the teaching-learning process in their discipline. • 100% of the teachers consider that the project allowed them to develop skills in the students in professional practice, teamwork and human values. • 100% of the teachers consider that the project allowed for the development of didactic resources. • 100% of the teachers consider that the project contributed to increasing students' knowledge/skills. • 100% of the teachers consider that the integration of disciplines in the project was achieved.

Source: Own elaboration based on primary information

Table 5: Summary Results of Project Deliverables Review. Entregables Vinculados a La Gestión De Las Asociaciones Productivas

<ul style="list-style-type: none"> • Socio-economic diagnosis of the association's members • 7 training programmes • Biodigesters • Sheds for the improvement of guinea pig management • Proposal for an integrated marketing structure for agricultural products produced by the Valley's productive associations. • Profile of the greenhouse project to produce strawberries for the association 'El Despacho'. 	<ul style="list-style-type: none"> • Feedback from association members on poverty perception, levels of integration, leadership and management skills. • At least 80% of the participants develop skills in: Group work, Popular and Solidarity Economy Approach, Management Process, Accounting records, Implementation of biodigesters, disease management and sanitary health conditions. • 20 biodigesters installed. Use of at least 90% of organic waste manure in the production of fertilizers. • Guinea pig production management project delivered. Construction of 20 sheds for the 'Los Milagros' association for breeding guinea pigs. Increase of at least 5% in the quality of this meat in terms of standard weight and animal health. • Delivered project: Integrated structure for the commercialization of agricultural products produced by the productive associations of the valley. Increase in the marketing of products by at least 5%. Reduction of at least 3% of transportation costs. • Delivered profile of the greenhouse project to produce strawberries to the association El Despacho. Assessment of the idea to develop the project in the association. 	<ul style="list-style-type: none"> • The report was delivered, 3 problems were prioritised on which the intervention was carried out by selecting 3 of the participating associations. Their partial use is evident, as a support for decision-making by the GAD. • 90% expressed having developed skills to some extent in relation to production management, sales and market knowledge. • The use of biodigesters does not exceed 50%. • 100% compliance is evident • The project was not implemented • Project was not formulated
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Source: Own elaboration based on primary information

Table 6: Summary Results of Project Deliverables Review. Deliverables Linked to the Teaching Process

<ul style="list-style-type: none"> • Teaching resources • Pre-professional internships • Degree projects 	<ul style="list-style-type: none"> • 3 workshops for strengthening marketing content, production planning and project management • 1 case study • 1 practical exercise on project formulation and evaluation (2) • 30 students carried out their pre-professional internships • 78 students were involved in community internships in the careers involved (Business Administration, Accounting and Auditing, Biotechnology, Veterinary, Environmental Engineering, Communication) in the execution of 9 training modules, directly linked to the internship. • 3 graduation projects 	<ul style="list-style-type: none"> • 100% of the teachers consider that the project allowed the development of didactic resources. • The degree projects were discussed
Concrete actions arising for research projects		
	<ul style="list-style-type: none"> • The project evolved into a research project whose results were published in: • SUSTAINABILITY ‘Popular and Solidarity Economy. Policies and realities in the local context. The case of the agricultural productive associations of El Valle - Ecuador. • CODES Comparative analysis, business modality with a popular and solidarity economy approach, rural productive associations. • The Journal of science and research Limiting factors for the growth of rural community entrepreneurship projects in the southern sector of the canton of Cuenca. • Book. Analysis of the supply of agro-ecological products in the canton of Cuenca using linear regression by the least squares method to reduce the error in production planning. • Book chapter. Solidarity economy enterprises with productive associations in El Valle, Cuenca. 	

Source: Own elaboration based on primary information

Conclusions

The findings of the study are in line with the trend of the type of linkage project existing in the Latin American region, in which the transfer of knowledge to society is privileged as an extension of the teaching process and not as the placing of new research results in the sphere of production, however, the results contributed to making this process visible from the publications generated in journals, books and scientific events, at the same time strengthening the image of the institution from the perspective of its contribution to the social economic environment.

On the other hand, the critical analysis shows that the level of satisfaction achieved with the project is higher in the case of the teachers and students than in the case of the community members, even though they feel satisfied with the intervention from the training point of view, it has not been possible in general to put the acquired knowledge into practice, this was more evident in the case where the project added the delivery of physical infrastructure with the biodigesters and the sheds for the breeding of guinea pigs.

The general objective is partially fulfilled given that from 85% of the level of expectations with respect to the satisfaction of the beneficiaries, approximately 60% is reached, this implies assessing that, although it has contributed to the achievement of SDG (Sustainable Development Goals) such as the end of poverty, gender equality, decent work and economic growth, the effort made is still not enough, however, it constitutes an important basis for continuing to work on the solution of the problems that were selected in this project.

These results are influenced by several factors. Among them are the lack of concrete policies at the territorial level, the variation of strategies according to political interests, the lack of articulation among decision-makers at the local level, which leads to atomization and repetition of actions, unequal empowerment among the members of the associations, among others.

Similarly, the specific objectives linked to the development of skills that strengthen the management processes of these associations are partially fulfilled, but not in the case of the association “Virgen de los Milagros”, dedicated basically to the breeding and commercialisation of guinea pigs, where significant changes are evident, and even though the negative effects of the pandemic are still present, we believe that it is possible to recover them and move forward in this process in a positive way.

The analysis carried out shows the need for improvement with regard to the monitoring of the project, not only on the part of the university but also on the part of the territorial actors, especially the parish GAD, even though their point of view is that the pandemic had a lot to do with the standardisation of the productive results and their commercialisation, the insufficiency in the strategic planning of the locality and the formulation of policies that achieve multi-channel relations constituted an obstacle, in fact other objectives were prioritised and due continuity was not given to those set out in the project.

About the academic dimension, the objectives are considered to have been met, both from the perspective of the students, who express acceptable levels of satisfaction with the implementation of the knowledge and skills developed in classes, and from the teachers' perspective, who were able to develop teaching resources and enrich the contents of the programmes.

Two of the most relevant achievements of this project can be highlighted as follows:

1. Integration of several careers in the implementation of the project.
2. Linking with the research process.

The limitations of the study are associated with the sample size of the population to assess the impacts generated by the project, for future evaluations it will be necessary to expand it, to compare more opinions and points of view. Over time, the leaders of the associations and even the actors who participated in the project change and this has an unfavourable influence on the measurement of impacts.

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