




Linkage-research integration in the Medicine degree at the Universidad Regional Autónoma de Los Andes

Integración de la vinculación-investigación en la carrera de Medicina de la Universidad Regional Autónoma de Los Andes

Integração vinculação-pesquisa na graduação em Medicina da Universidad Regional Autónoma de Los Andes

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ABSTRACT

Introduction: the integration of scientific research and linkage is the key for the contribution of universities to the solution of society's problems through the transfer of knowledge and innovation. **Objective:** characterize the integration process between linkage and research in the UNIANDES Medicine degree. **Method:** a predominantly qualitative and descriptive research was carried out with the use of documentary analysis and interviews. Governing documents, guidelines, and policies applied in the Medicine career were reviewed. Interviews were carried out with the coordinators in the program to search for volume of information about these two activities and the specific projections of mainstreaming. **Results:** a weakness was noted in terms of the management of the link with society, absence of a broader vision of comprehensive management where not only linkage with teaching is intertwined in pre-

professional practices but also in integrative projects and the existence of will of institutional directors to create a true university-society link through research. **Conclusions:** a broader vision of the integration between the three key university processes is missing; only the relationship between teaching and connection is evident from pre-professional practices, leaving out the basis and genesis that knowledge-integrating projects should be. In order to perfect this integration, social innovation projects must be proposed where linkage and research come together, guaranteeing the publication of the results of social innovation projects in the internal journals of UNIANDES and in others with regional or global impact.

Keywords: university integration; scientific linkage and research; medical career; UNIANDES

RESUMEN

Introducción: la integración de la investigación científica y la vinculación es clave para la contribución de las universidades a la solución de los problemas de la sociedad mediante la transferencia de conocimientos y la innovación. **Objetivo:** caracterizar el proceso de integración entre vinculación e investigación en la carrera de Medicina de UNIANDES. **Método:** se realizó una investigación predominantemente cualitativa y descriptiva con la utilización del análisis documental y la entrevista. Se revisaron documentos rectores, lineamientos, y políticas, aplicadas en la carrera de Medicina. Se aplicaron entrevistas a los coordinadores en la carrera para buscar volumen informativo acerca de estas dos actividades y las proyecciones concretas de transversalización. **Resultados:** se denotó una debilidad en cuanto a la gestión de la vinculación con la sociedad, ausencia de una visión más amplia de una gestión integral donde no solo se imbrique vinculación con docencia en las prácticas preprofesionales sino en los proyectos integradores y la existencia de la voluntad de los directivos institucionales en gestar desde la investigación una verdadera vinculación universidad-sociedad. **Conclusiones:** falta una visión más amplia de la integración entre los tres procesos claves universitarios, se evidencia solo la relación entre docencia y vinculación a partir de las prácticas preprofesionales, dejando fuera la base y génesis que deben ser los proyectos integradores de saberes. En aras del perfeccionamiento de esta integración se deben proponer proyectos de innovación social donde se unan vinculación e investigación, garantizar la publicación de los resultados de los proyectos de innovación social en las revistas internas de UNIANDES y en otras de impacto regional o mundial.

Palabras clave: integración universitaria; vinculación e investigación científica; carrera de Medicina; UNIANDES

RESUMO

Introdução: a integração e articulação da investigação científica é fundamental para a contribuição das universidades na solução dos problemas da sociedade através da transferência de conhecimento e inovação. **Objetivo:** caracterizar o processo de integração entre vinculação e pesquisa na graduação em Medicina da UNIANDES. **Método:** foi realizada uma pesquisa predominantemente qualitativa e descritiva com utilização de análise documental e entrevistas. Foram revisados documentos normativos, diretrizes e políticas aplicadas à carreira de Medicina. Foram realizadas entrevistas com os coordenadores do programa para buscar volume de informações sobre essas duas atividades e as projeções específicas de mainstreaming. **Resultados:** constatou-se uma fragilidade na gestão do vínculo com a sociedade, ausência de uma visão mais ampla de uma gestão integral onde não só o vínculo com o ensino esteja entrelaçado nas práticas pré-profissionais, mas também nos projetos integradores e na existência de vontade de instituições diretores para criar um verdadeiro vínculo universidade-sociedade através da pesquisa. **Conclusões:** falta uma visão mais ampla da integração entre os três principais processos universitários, apenas a relação entre ensino e conexão é evidente nas práticas pré-profissionais, deixando de fora a base e a gênese que os projetos integradores de conhecimento deveriam ser. Para aperfeiçoar esta integração, devem ser propostos projetos de inovação social onde a articulação e a investigação se unam, garantindo a publicação dos resultados dos projetos de inovação social nas revistas internas da UNIANDES e em outras com impacto regional ou global.

Palavras-chave: integração universitária; articulação científica e pesquisa; carreira médica; UNIANDES

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INTRODUCTION

The contemporary university has become the protagonist and vanguard of the second academic revolution, where it transfers knowledge to society, as part of its fundamental role and social responsibility, from the increase in added value to the knowledge generated within the institutions of higher education and increasingly becomes an interested knowledge for the producers of goods and services.⁽¹⁾ It is described in the timely abandonment of the university confinement towards the achievement of a pecuniary product, so it also speaks of an integration of the linkage-research from the academy, adding a fourth pillar, that of transfer.⁽²⁾

In the practice of university management, there is a marked weakness in the management of the linkage with society towards a concrete proposal of dynamization of enterprises and improvement of the quality of life of the members of society. The university has to become the vanguard of this management and it can only achieve it from its integration with the rest of the key processes, especially with research. A real way to achieve this is through integrative projects, which link teachers, students, subjects, knowledge, minimum contents, learning outcomes and research domains in a transversal manner. It is vital to achieve the symbiosis of formative research in teaching and linkage with society.⁽³⁾

All of which becomes a point of attention in the short and medium term for governments and, specifically, for their higher education systems. Thus, the strategy of direct university-society linkage emerges. Institutions should be created where ethical values are promoted from the academy to the community, where the role of scientific research, both formative and generative, is used to the maximum in order to fulfill the role of the university. There is awareness among university teachers and students of the urgent need to integrate the three substantive processes. However, there is an uncovered recognition of the close interrelationship between research and linkage, which should be taken advantage of more by the directors of the higher education institutions.⁽⁴⁾

In order to achieve this adequate transversalization, it is necessary to design a system of activities involving all the curricular organization structures, where pre-professional practices are intertwined with knowledge, traditions, culture, language, from scientific research to identify the problems of the environment towards the linkage with society, with the academic proposal of a solution for progress.⁽⁵⁾ This will be evidenced in the integrative projects of knowledge, which from teaching involve scientific research and the link with the community, which then translate into real transdisciplinary interventions in the micro-curricula, in the generation of objective curricula from university management, the relevance of the curriculum, correct degree processes, where the forms of this are not reproductive exercises of knowledge, but with forms of research such as the scientific article and the integrative project.⁽⁶⁾



This transversalization is a bridge between academic knowledge and the reinforcement of humanistic competencies. It generates axes that involve the student, the teacher, the contents, competencies with the environment. Scientific research appears as a means to achieve an end: a concrete proposal of linking with society from university teaching and its integral management. It is a binding instrument of contents with methods and strategies. It is an interdisciplinary process, under the principles of connectivity and construction of knowledge. It is necessary to integrate being-knowing-doing and living together. Where the pedagogical constructivism guarantees the socio-cultural dialogue and rescues the thinking and generating capacity of human potentialities to graduate highly competitive professionals permeated with ethical and moral values.⁽⁷⁾

In this order, as Vásquez⁽⁸⁾ refers, Ecuadorian universities also develop, which are called to offer solutions from the link with society in terms of the transmission of values that contribute to the development of communities. Thus, the Ecuadorian Organic Law of Higher Education states that Higher Education Institutions (HEI) will be responsible for making knowledge available to the communities in the area of university influence, which facilitates tolerance, mutual respect for the rights of others, freedoms and equality. In this way, the link with society emerges as a 'key pillar of dynamizing and integrating type. For it, not only benefits within society, but also projects collective initiatives of social humanism and common welfare. Thus, there is a critical recognition of globalization and, therefore, the urgency of generating new models of linkage with the community where both local and national development is promoted, where Ecuadorian culture is protected from the internationalization of the market and where the university-community dialogue is respected.⁽⁹⁾

However, there is inconsistency between what has been proposed (scientific research as the main axis of the transversalization of substantive functions) and scientific-technological development as the final product. There is a distorted baggage of relating the fulfillment of the role of the university with quality evaluation processes. Ecuadorian higher education institutions should focus on research-linkage with society as a duet for a practical and direct development where it is not measured quantitatively by the number of publications, patents, technologies, licenses, but qualitatively as a contribution to the needs of society.⁽¹⁰⁾

At the Universidad Regional Autónoma de los Andes (UNIANDES), formative research is organized through forums, workshops, seminars, round tables and panels, as part of a renewed curricular project, where the idea of seeing scientific research as one more subject in the curriculum, which was taught in the last semesters of the careers, is banished. Now they are taught from the first semester and the contents are dosed in order to receive them from the simplest to the most complex. Likewise, the forms of graduation have changed from those exams of reproductive questions and answers to forms such as the scientific article and the research project.⁽¹¹⁾ This is also true of the Medicine program, where after its redesign, subjects in the area of scientific research are taught from the first semester with Fundamentals of scientific research, passing through Action Research, Biostatistics 1 and 2, Evidence-based Medicine, Exploratory Medicine up to graduation 1 with its profiles and graduation 2 with the final research-type work.⁽¹²⁾

In this way, not only is work done in formative research, but also a movement in favor of the integration of the three key functions is being developed. In this sense, the Ambato Medical School is involved in the most direct transversalization between the research activity and the linkage with society, which is the reason for this research, which aims to characterize the process of integration between linkage and research in the Medical School of UNIANDES.

METHOD

The research followed is qualitative in nature because scientific methods of this order were applied, such as: analysis of documents, which allowed establishing the theoretical basis of the subject and because guiding documents were reviewed, such as guidelines, policies, of these two coordinations in the career of Medicine. An interview was also conducted with the coordinators of the two functions in the career to seek information about these two activities and the concrete projections of transversalization.

The analysis of documents was applied to write the theoretical foundation and in this sense, scientific texts from indexed databases were reviewed, which were books, scientific articles and doctoral theses, from the last three years in order to manage updated information. We excluded papers, graduate and master's degree works or specialties, texts that were written after the indicated time frame and those that did not directly address the transversalization between these two substantive functions. Only those dealing specifically with the integration of linkage and research were consulted.

Likewise, guiding documents for these two activities were reviewed. In the area of liaison, the following were reviewed:

- Academic Regulations.
- Organic Law of Higher Education (LOES).
- Institutional Handbook of Liaison.
- Institutional Regulations of Liaison.
- National Development Program.
- Zonal Agenda 3.
- Land Management Plan of Ambato.
- Strategic Plan for Institutional Development (PEDI), Annual Operational Plan (POA) and mission and vision of the UNIANDES Medical School.

In the area of Research, the following were reviewed:

- Health and Wellness Domain and its lines of research.
- Institutional instructions for research activities.
- Institutional instructions for strengthening research in UNIANDES.
- Instructions for articulation with teaching and linkage.
- Instructions for ethical norms in research.



This review was carried out in order to verify, from the current regulations, the integration process between linkage and research.

An interview was also conducted with the two coordinators of the two functions in the Ambato Medical School, in order to characterize the real and practical integration of these two functions.

RESULTS

After the review of scientific texts specialized in the subject of analysis, it was understood that, in the theoretical order, the social responsibility of universities should be the starting point for an adequate and optimal transfer of knowledge to society, which will contribute to its development. In this achievement of a social commitment, a weakness was noted in the management of the linkage with society towards the increasingly hostile dynamics of the companies producing goods and services.

The theory calls for an interdisciplinary management of transversalization between teaching, research and links with society based on academic integration projects, starting from the university but intervening in the cycle towards the relevance of careers. An interrelation between learning outcomes and research domains is called for. Here, academic knowledge and humanistic competencies must be involved, where teachers, managers, students and contents act as protagonists.

In terms of outreach with society, after reviewing the regulatory governing documents of this activity, it was verified that it is organized from three components, where outreach projects, graduate follow-up and pre-professional internships are worked on. Derived from this and from the LOES and the Regulations of the Academic Regime, the work is based on the National Development Program, specifically the axis destined to health, in relation to the Zonal Agenda 3 (MIES), the Territorial Growth Plan of Ambato, the PEDI and the POA of the Medicine career and all this is linked to the research domains, their lines and are promoted towards priority groups, in this case, the elderly, the disabled, children and pregnant women.

From the Regulations of the Academic Regime, in its article 4, an evident limitation was identified regarding the integration of the three substantive functions, since it is projected towards a non-transversal articulation, where these coincide in some part of its management, but where they do not penetrate in a transversal way. Thus, the relationship of the linkage with teaching is defined only in the activity of pre-professional practices and with research only in the identification of social problems of the environment. It although incorporates the transfer of knowledge from academic domains to a measurable social impact.

In the researcher's opinion, there is a lack of a broader vision of an integral management where not only linkage with teaching is imbibed in the pre-professional practices but also in the integrating projects that are of an academic type that should generate new research and linkage projects and that, even in a cyclical way, generate possibilities of real studies of relevance of the careers, where there is a questioning towards an adequate graduate profile based on the feedback of another of the linkage activities, which is the follow-up of graduates.



They must be related, from the regulations themselves, to an academic integrating project that generates questions in the contents of the subjects, that contributes to linkage and research projects, that is, from the micro curriculum, study plan, mesh to the graduate profile and then from there, in a cyclical manner, return to the pertinence studies.

Then, in Article 4 of the current UNIANDES Regulations on Linkage, it is regulated that linkage must respond to three principles, and in this sense, quality is mentioned and it is said that it serves to measure results; however, linkage should not measure results, but rather generate results that can be measured in the form of social impact. Therefore, the linkage with society cannot be seen as a mechanism of satisfaction but as a tool for solution. And we talk about relevance based on a planning that must be based on academic training and research. This showed that there is an institutional perspective of integration, although it does not materialize in the normative guidelines for the procedure of the linkage activity.

Likewise, in Article 5, within the aims of the linkage, there is not included any related to the proposal of solutions to the social problems of the environment where the university, and in this case the Medical School, has influence. In the rest of the documents, the lines are organized by linkage programs, tasks and activities.

The research activity in the career of Medicine is managed from what is contemplated in the Health and Wellness domain, where it is integrated to other careers of the university. It is conceived from domains to lines of research. It is structured in networks, projects, degree works, scientific articles, congresses and papers and books. Within the reviewed regulations, it was evidenced in the one related to the reference domain that in the fourth guideline the integration of the linkage programs with the domain is indicated and, from there, the lines of research that will achieve the expected social impact of health and disease are defined. This demonstrates the willingness of the institutional directors to create a true university-society linkage from research.

There is an Instruction for the articulation of training activities related to integrative projects, degree projects and research and liaison projects, where it is stated that the concrete management tool for this integration will be the academic domains, where both academic integrative projects and liaison and research projects are involved, up to the degree projects. It is designed as a cycle from teaching to society and from society back to the university. This is considered correct in terms of the much-acclaimed transversalization of the university's substantive functions. It should be understood, as regards the object of study of the present work; that a projection from the specific normative of Linking, which at this moment in the career and as part of the stipulated, is conceived as an end and never as a beginning, would be missing.



The results of the interview with the coordinators of liaison and research in the medical career were as follows:

Question 1: Existence of institutional regulations for the integration of linkage and research

The two interviewees referred that there is a will from the institutional directive in the integration of the two functions and that this is sustained at faculty and career level. All the regulations of the research area contain support elements regarding the integration from the work by academic domains. On the other hand, the normative of linkage is superficially pronounced since it stops more in structuring the activity by tasks and functions without having a legal projection towards integration. This area lacks normative documents that procedurally ensure the transversalization between this process and the research process.

Question 2: Assessment of the practical and objective integration between the two functions

They agreed that, despite the intention, both normative and practical, the integration of linkage is unlikely, since research, from its own normative and management practice, does manage to integrate linkage and teaching, from the perspective of the academic domains, where research tools are used to carry out investigations that contribute to the solution of problems of the university environment, with measurable and objective impacts, which is none other than the linkage itself.

However, the linkage does not manage to feed back, as a beginning, from the research, to identify the real social problems and from the research itself, as an instrument, to bring the solution, then from there, to bring research initiatives back to the university. Today, at the request of local bodies, university-society links are only carried out through projects. Evidently, there is a need to use the tools of research as the beginning, middle and end of a process that should be cyclical, UniversitySociety – SocietyUniversity.

The tasks of graduate follow-up and pre-professional internships are not yet used for this integration with scientific research. Graduate follow-up should be used not only to review curricula and career relevance, but also to identify new lines and topics of research. Pre-professional internships should be used not only to relate to teaching through the practical use of acquired theoretical knowledge, but also to identify social problems.

There should be projects that, from scientific research, have a social impact (linkage). This should be the path to follow.

Question 3: Outcomes of linkage and research of the Medical School, in 2022

As shown in Table 1, the origin of the linkage projects comes from society, due to the interest of the future beneficiaries, the university's initiative is lacking, based on the tools of scientific research, feedback and identification of scientific problems, from which the area of research and teaching can be nourished in the adequate conformation of the graduate profiles, the syllabi, the curricula and even the relevance of the careers. None arises from academic integrative projects and only 2 from research.

Table 1: Linkage results

Amount of Projects	Origin	Total
2	Research	2
3	Regional agenda (MIES)	3
4	Regional or local problems (GADMA)	4
Total		9

As can be seen in Table 2, there is a scientific research network in the career of Medicine, the Suicidology Network, which is nourished by the link with society and scientific research, since this problematic situation was identified in the area of influence of the university and from there the methodology was organized, the research groups were created and are currently in the information gathering stage, where several social sectors and several careers belonging to the domain are involved.

Seven research projects with projectable and measurable impacts on the social order are organized, based on the academic domains, with their lines of research. In these research groups, teachers and students from various areas of the domain participate in order to propose multidisciplinary and integral results.

Table 2: Research results

Aspects	Quantity	Origin	Total
Scientific networks	1	linkage	1
Projects	7	Research groups by academic domains (teaching, research, liaison)	7
	Total		8

Question 4: Appreciation on the academic distribution of research and liaison hours

The two coordinators agreed on the need to distribute hours for the two activities, that teachers should be integral and have hours for liaison, research and management. The preparation and training of teachers in these three activities should be encouraged so that they can contribute to the integral formation of future professionals. That, likewise, the selection process of teachers contributes to an objective selection of professionals who, in addition to meeting the profiles of the subjects they will teach, are professionals with scientific publications, with mastery of scientific research, who belong to scientific research networks, so that they can contribute to research and liaison activities. That this integrality be taken into account in the weightings that are made in the teaching evaluation process and for the teaching scales.

Question 5: Criteria for new proposals to achieve the integration of the two functions

The two interviewees state that the following should be done:

- Scientific networks should be created in each of the academic domains.
- Scientific projects should be carried out, not liaison or research projects.
- That the scientific journals of the university be a source of publication of the results of these projects.
- That the reproductive forms of degrees should disappear and that research and liaison degrees should be encouraged, even with impact measurements.

DISCUSSION

A group of studies carried out in Ecuadorian universities, which have the same social environment and similar academic offerings, were reviewed. Thus, for example, the work of García⁽¹³⁾, from the University of Cuenca, concludes that there is an ineffectiveness in terms of a formal model of integration between linkage and research, especially in the training process and its relationship with professional profiles, due to a total disconnection between these substantive processes and the teaching-learning process. This is an issue with which we share in part because it is true that there is no integral management model to apply in practice and that serves as a true transversalization but not articulation, which is what exists at this time in the Ecuadorian and world environment as well, but it should not be seen as the center of the problem but as a consequence. An integral management must be developed, starting with the regulations of the regulatory entities themselves, their principles, axes, as well as the awareness of the heads of processes at all levels. Emphasis should be placed on the integration of the linkage to research.

The Universidad Técnica Particular de Loja, according to Varguillas, et al.⁽¹⁴⁾, makes interesting proposals regarding the integration of these two substantive processes, from the perspective of curricular integration. It is a very interesting proposal, even thought towards a transversalization of the three key processes. It is organized from a teaching-learning approach where the actors, both teachers and students, build a bridge from the classroom to the environment, implementing cognitive, epistemological and curricular dimensions, based on challenges where the student must get involved with real problems and solve them from the contents of the syllabus, the competencies generated from scientific research and with a social impact. Ideas that can be taken into account in UNIANDES for the plan of activities and tasks to be implemented for the integration of linkage with research, which will have as a starting point the career of Medicine, Ambato matrix.

On the other hand, the Ecuadorian coast, at the Universidad San Gregorio de Portoviejo, with a different context of academic offerings from those previously mentioned, has developed a management model for university-society linkage. In this order, a group of achievements and insufficiencies have been identified. Among the latter are the non-integration of the linkage with the other substantive functions, little participation of the university in the planning of linkage projects, no articulation with the previous stages of the management cycle, little knowledge of the activity, no use of research benefits in the linkage.⁽¹⁵⁾ A group of deficient elements that today affect almost all universities are recognized. However, in the results of the present authors' research, it was recognized that in UNIANDES there is knowledge of the activity, there is a willingness to integrate, only that the procedural part of management for integration and understanding of the university-society cycle and vice versa is lacking.

Interesting is the proposal made by Marín⁽¹⁶⁾, where he defines the link with society, not as a simple intervention in the communities but as a fundamental axis of the training process, allowing interaction in values, competencies, of future professionals, there intertwined with teaching and pre-professional practices. It states that these communities should not be seen as mere beneficiaries or recipients but as protagonists of the university-society management process. They are the initial and final link in the process from the transfer of knowledge and research tools, not only for training but also for application. These are ideas with which we agree in their totality and which constitute the central axis of reasoning proposed in this work, since only conceiving it in cycle will guarantee the true integration between linkage and research within the formative process.

CONCLUSIONS

At the theoretical level, a group of elements have been identified that are very useful for the integration of research and linkage. Thus, there is evidence of a weakness in the linkage activity generated by the hostile dynamics of community scenarios. Therefore, a multidisciplinary management of transversalization is called for, starting from knowledge integration projects. The interaction of academic domains and humanistic competencies is called for.

In Ecuador, a broader vision of the integration between the three key university processes is lacking, since the regulatory bodies, in their regulations, only show the relationship between teaching and linkage from the pre-professional practices, leaving out the basis and genesis that should be the projects integrating knowledge. This will allow an adequate feedback society-university for the improvement of the studies of pertinence of the careers of the academic offer, that then the graduate profiles are elaborated in a better way, and that these are truly adjusted to the needs of the university environment, using as an instrumental axis, the formative research.

In the career of Medicine, Ambato matrix, there are institutional regulations for the integration of the functions of liaison and research. However, it is observed a more finished regulation and adjusted to these needs, in the area of scientific research; there is an adequate understanding of the domain of Health and welfare according to the requirements of health and disease in zone 3. While in the linkage activity, a regulation more focused on member structures, tasks and functions is reviewed, leaving behind the integration projection. In this sense, graduate follow-up and pre-professional practices are not fully integrated to this interconnection, since the former should serve to identify lines of research and the latter to identify health problems in the area of influence.

There is work with results in both areas where they are articulated at some stage of the process, but where each result contributes to each activity independently. Thus, out of 9 linkage projects, only 2 come from scientific research and out of 7 research projects, all of them are intrinsic to this area. This ratifies that they should not be separated but that there should be projects that, from research tools, contribute to results with social impact. This separation of activities can be observed from the distributive themselves and then also teachers with research expertise and university experience are not hired.

In order to improve this integration, social innovation projects should be proposed where linkage and research are united, guarantee the publication of the results of the social innovation projects in UNIANDES internal journals and in other journals of regional or global impact, and encourage ways of graduation that are more related to the research process.

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