



Review article

Integration of university substantive processes teaching-research-extension: informed reflections







La integración de los procesos sustantivos universitarios docencia-investigación-extensión: reflexiones fundamentadas

A integração de processos substantivos de ensino-pesquisa-extensão universitários: percepções fundamentadas

Débora Mainegra Fernández¹  0000-0003-0811-0629  deborah.mainegra@upr.edu.cu

Nuvia Liseth Estrada Méndez²  0000-0003-2314-3015  nuvia.estrada@uees.edu.sv

Aydeé Rivera de Parada²  0000-0002-1846-7157  aydee.parada@uees.edu.sv

Ana Iris Peña Ortiz²  0000-0001-7831-1755  investigaciones.ciss@uees.edu.sv

¹ University of Pinar del Río "Hermandos Saíz Montes de Oca". Pinar del Río, Cuba.

² Evangelical University of El Salvador. El Salvador.

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ABSTRACT

The importance of integration between the substantive processes of the university, as a resource for bringing together academia and social practice, is becoming more evident every day due to the benefits it brings, both for the training of competent professionals and for solving problems in the context of interaction of Higher Education institutions. The objective of this article is to reflect on the teaching-research-extension triad in terms of how the relationships between them are addressed in scientific literature, specifically in relation to their integration. To achieve this, the method of scientific

literature review was used, supported by its techniques: source selection, reading and recording, hypothesis formulation, identification of patterns, trends and relationships between the sources of consultation, theoretical verification of hypotheses, conclusions and contribution or enrichment of the theory. The main results show an undeclared tendency to magnify teaching (in person or online), to the detriment of the rest of the substantive processes, as well as the lack of rigor in the application of contextualized research, which encourages the detection of the causes of the problems being studied and the proposal of pertinent solutions. It is concluded that the integration between the teaching-research-extension processes is in the discourse of most of the educational models that are currently applied, but it is not a reality achieved in the daily practice of many Higher Education institutions.

Keywords: higher education; professional training; integration; substantive processes; social connection; macroprocesses.

RESUMEN

La importancia de la integración entre los procesos sustantivos universitarios, como recurso de acercamiento entre la academia y la práctica social, se hace más evidente cada día por los beneficios que reporta, tanto para la formación de profesionales competentes, como para la solución de problemas del contexto de interacción de las instituciones de Educación Superior. El objetivo del presente artículo es reflexionar acerca de la tríada docencia-investigación-extensión en términos de cómo se abordan en la literatura científica las relaciones entre ellas, específicamente relativas a su integración. Para dar cumplimiento al mismo se empleó el método de revisión de literatura científica, apoyado en sus técnicas: selección de fuentes, lectura y registro, formulación de hipótesis, identificación de patrones, tendencias y relaciones entre las fuentes de consulta, verificación teórica de hipótesis, conclusiones y aporte o enriquecimiento de la teoría. Los principales resultados muestran una tendencia no declarada a magnificar la docencia (presencial o en línea), en detrimento del resto de los procesos sustantivos, así como el escaso rigor en la aplicación de la investigación contextualizada, que propicie la detección de las causas de los problemas que se estudian y la propuesta de soluciones pertinentes. Se concluye que la integración entre los procesos docencia-investigación-extensión está en el discurso de la mayoría de los modelos educativos que se aplican

en la actualidad, pero no es una realidad lograda en la práctica cotidiana de muchas instituciones de Educación Superior.

Palabras clave: educación superior; formación de profesionales; integración; procesos sustantivos; vinculación social; macroprocesos.

RESUMO

A importância da integração entre os processos universitários substantivos, como forma de aproximar a academia da prática social, torna-se cada dia mais evidente pelos benefícios que traz, tanto para a formação de profissionais competentes quanto para a solução de problemas no contexto de interação das instituições de Ensino Superior. O objetivo deste artigo é refletir sobre a tríade ensino-pesquisa-extensão em termos de como a literatura científica trata as relações entre eles, especificamente no que diz respeito à sua integração. Para tanto, foi utilizado o método de revisão da literatura científica, apoiado em suas técnicas: seleção de fontes, leitura e registro, formulação de hipóteses, identificação de padrões, tendências e relações entre as fontes consultadas, verificação teórica das hipóteses, conclusões e contribuição ou enriquecimento da teoria. Os principais resultados mostram uma tendência não declarada de engrandecer o ensino (presencial ou on-line), em detrimento do restante dos processos substantivos, bem como a falta de rigor na aplicação da pesquisa contextualizada, que favorece a detecção das causas dos problemas que estão sendo estudados e a proposta de soluções relevantes. Conclui-se que a integração entre os processos de ensino-pesquisa-extensão está no discurso da maioria dos modelos educacionais aplicados atualmente, mas não é uma realidade alcançada na prática cotidiana de muitas instituições de ensino superior.

Palavras-chave: ensino superior; formação profissional; integração; processos substantivos; vínculo social; macroprocessos.

INTRODUCTION

Universities have been bastions in the development of science and critical thinking. Throughout the history of humanity, these institutions have served as the cradle of the most advanced knowledge, and discoveries in all branches of knowledge have been made in them. Over time, they gave priority to the development of science and technology, hand in hand with the emergence of new teaching-learning methods based on the self-management of knowledge, the link with society, as well as creativity and innovation (Rivera & Mainegra, 2023).

Several authors (Álvarez *et al.*, 2021; Rivera & Mainegra, 2023; Juliao, 2023; Hidalgo, 2023) agree that universities must be scientific in themselves; however, there are also those that are merely professional, in the style of the French system that responds more to the productive sector (Jérémy, 2024). Both positions correspond to different educational models, although in both: teaching and research has been the most stable binomial. Later, university extension is incorporated as one of the three main functions.

In Latin America, university extension has its origins in the Córdoba Reform in 1918 in Argentina. Although it was initially conceived as a welfare activity, it has now evolved into a substantive function of universities, referring to the link between Higher Education institutions and social transformation and sustainable development (Álvarez *et al.*, 2021). These conceptual and methodological changes have been driven by various factors; among them: social demands, theoretical-technological advances and public policies. The function of university extension or social projection in Central America is included through laws and regulations that guarantee that university education is relevant and responds to the needs of society, considering social contributions to the community, with a focus on rights and only on welfare (Quintanilla *et al.*, 2020).

Currently, most educational models recognize teaching, research and extension as macroprocesses or substantive university processes (Álvarez *et al.*, 2021), understood approximately as follows:

- Teaching: refers to the teaching and training of students. It includes the planning, execution and evaluation of educational programs. At the university, it coincides with the academic component (Huanca & Portal, 2023).

- Research: refers to the generation of new knowledge through scientific inquiry, whether organized in the form of projects or not. It is a fundamental process for scientific, technological and innovation advancement (Álvarez *et al.*, 2021).
- Extension: also known as engagement with society, it includes activities such as continuing education programs, community services, and social development projects that contribute to solving community or contextual problems (Pinto, 2020; Huanca & Portal, 2023).

These authors perceive them as crucial elements of knowledge management, so they point out that the three substantive functions of the university: teaching, research and extension (social connection), are closely related and shape the scientific and technological development in these institutions. The substantive function of teaching is made up of the instructive action, the development action and the educational action; the substantive function of research is made up of the processes of introduction, innovation and creation of art, science and technology; and the substantive function of extension is responsible for disseminating culture, promoting it and intervening in the problems of society (Huanca and Portal, 2023; Pinto, 2020).

For Juliao (2023), the so-called substantive functions, that is, the teaching-learning processes (teaching), the production of knowledge (research) and the relationship with society (social projection or extension), make up the primary function of the university: the training of professionals.

Hidalgo (2023) considers that the processes of research, teaching and extension involve a connection with the diversity of social actors with whom to establish a particular and situated construction of value. Thinking about its integrality implies understanding that extension activities are part of the classroom teaching-learning processes and constitute an opportunity for the generation of new investigative questions that mobilize thought.

The trends towards a new university have established active and internationalized learning as a fundamental premise, as proposed by Osorio, Acosta and Beltrán (2024), in relation to the university's guiding principles, which are based, according to them, on strengthening the internationalization process in its substantive functions of teaching, research and extension of culture, as well as in contributing to the comprehensive training of students; developing in them the ability to adapt and act effectively in multicultural environments in the global sphere.

In turn, they believe that the university should aspire to be a leader in the internationalization of Higher Education, through the solid training of students who are aware of their social responsibility, as well as the need for their contributions to the development of knowledge, humanities, culture, technology and innovation; that respond to the demands of the productive, social, governmental and educational sectors, contributing to the growth and development of each country (Osorio, Acosta & Beltrán, 2024).

Quintanilla *et al.* (2020) consider that the current challenges are oriented towards legislation that allows giving priority to academic quality over other attributes, in all Higher Education institutions, which shows that teaching is still perceived as fundamental, to the detriment of research and extension.

In the midst of this great debate in favour of active learning and the need for a new university, a tendency has emerged to incorporate social engagement into curricula, calling it the curricularization of extension. This initiative constitutes and promotes a basis of comprehensiveness and equality in the substantive functions of the university and grants extension the same level of importance as research and teaching and, at the same time, recognises its value as a fundamental pillar of the public university (Gómez, 2024).

This trend is not new, as Batista *et al.* (2016) had already referred to its reception in Latin America, when defining the curricularization of university extension for the Cuban context, as the process through which, with the general objective of promoting culture, subjects are designed and implemented in the undergraduate level that incorporate elements of the three substantive university processes. All of this, with the purpose of influencing in a more organic way the fulfillment of the social mandate of Higher Education institutions and the comprehensive training of future professionals.

This integrative vision is not identified with the practice of establishing a subject on university extension in the university curriculum, nor with the establishment of a timetable or credit load to carry out purely extension activities; it rests on a broad, diversified concept, with its consequent application in practice, as a formative, dynamic, integrative and multifaceted process that assumes the preparation and consolidation of Higher Education institutions as cultural organizations and the expansion of reciprocal influence and integration with society through its promotion in the broadest sense (Batista *et al.*, 2016).

Some authors (Andrade *et al.*, 2023; Furci *et al.*, 2023; Mota, 2023) recognize that the educational environment and the needs of students are constantly evolving, something that is currently manifested in the dizzying technological development and deterioration of the human habitat; therefore, universities must be able to adapt to these changes effectively, an issue in which accreditation processes are central. The evaluation of their quality, concretized in them, allows institutions to be agile and adjust their policies in response to external transformations, such as: scientific advances, demographic changes or trends in Higher Education, which will be reflected in the respective educational models.

All of this means that the processes or substantive functions of the university, as known in the triad being analysed (teaching-research-extension), require a new approach that enhances their updating and, above all, their integration, in order to improve training results, adapting them to the complexities that professionals will have to face in today's world.

Achieving integration between them is the key to improving the quality of training of professionals and contributing to social development; hence, university evaluation and accreditation systems focus their attention on this aspiration. Each country has its own regulations to integrate or link the three university functions and each university achieves integration in a different way; what is common is the need to promote continuous improvement to strengthen the training of university professionals and the social contributions of Higher Education institutions in the region.

However, the lack of up-to-date and reliable information on how integration between the three processes that become the main function of any higher education institution that is considered to offer services is taking place in the present world quality in vocational training, Teaching-research-extension, makes every university try to construct empirically a way of putting it into practice.

This is why the authors decided to develop the present study, based on a careful search for the articles included in the study, taking as a selection criterion those that focus on descriptive studies of good practices on the integration of the substantive university processes of teaching-research-extension, with sufficient elements on the methodology followed to facilitate its replication, with a publication date in the last five years (except in cases where essential concepts on the subject are defined), published in journals preferably indexed in Scopus, WOS, Scielo, Redalyc, Latindex and DOAJ, referring to strategies, methodologies, conceptions, systems of actions and other theoretical, empirical or mixed results to achieve the aforementioned integration.

The objective was to present a reflection on the integration relationships between the substantive university processes of teaching-research-extension based on their approach in scientific literature.

DEVELOPMENT

The in-depth bibliographic review of the theoretical postulates that refer to integrative processes of scientific-research thinking, to the solution of social problems from university teaching, in such a way that they generate novel inferences, is of fundamental importance for the achievement of quality Higher Education (Rivera *et al.*, 2023).

On the other hand, the training of professionals requires a comprehensive approach to learning, which encompasses cognitive, procedural and attitudinal aspects, which can only be achieved with an efficient educational process that articulates teaching-research-outreach, as substantive functions of the university. The study on which this article is based draws on a wide range of experiences, which have gradually recognized the importance of integrating these processes so that academic learning can be verified and enriched by research; the results of which are relevant to the solution of social problems.

Traditionally, universities focused their attention on teaching; however, over time it became clear that teaching alone was not enough to train successful professionals, so university research and outreach became essential processes for the social contribution of these institutions (García & González, 2021).

Currently, Higher Education institutions are working on strengthening the aforementioned processes that, when linked together, contribute to the fulfillment of their mission, and deal with the generation, dissemination and application of knowledge, implying a close link between the institution and society, which affects the training of the future graduate of Higher Education. The University, in its role as a transformer of the environment, contributes to society gaining new attributes; an effective way is the promotion of artistic, sports, health culture, as well as science, technology and production, and the above refers to one of the substantive processes of the university: University Extension (Aguilar & Baute, 2020).

By formulating the dimensions and indicators with which a university will be evaluated, a deep characterization is being offered of the duty to be with which the quality standards will be specified,

in the participation of all those involved in the pedagogical and didactic processes, which result in the training of successful professionals committed to the transformation of their country of origin, or of the context in which they interact.

However, despite the fact that numerous studies have been carried out on each of these processes separately, the intrinsic relationship between the academic and research components and the connection with society of a university has not been sufficiently addressed, and, in particular, how to specify a training model that integrates them in an inseparable way. Although this article aims to address this problem, due to its scope, it isn't believed that all the solutions can be offered, but it does constitute an approach from a scientific perspective.

It is undeniable that a thorough study of good practices in this regard is essential, so that a strategy can be found that promotes not only compliance with the model, as a shared responsibility of all those who work in this space, but also making the results obtained transcend, through the communication of science in mainstream journals, which give prestige to the work of Higher Education institutions.

The topic of the integration of the substantive functions of the university has sparked the interest of the scientific community, which aspires to the achievement of educational models that tend to solve social problems through the training of professionals, contributing to the involvement of the best-trained younger generation in the development of their communities and nations. There are many examples that demonstrate the research that has been carried out, of which some associated with the direction of this article are summarized in chronological order.

In the study "Integration, teaching, extension and research", published in the journal *Higher Education and Society*, Sarmiento & Guillén (2016) analyze the urgent need to integrate the aforementioned substantive university processes into the training of professionals. They specifically examine the role of teachers in achieving a true relationship between university, community and social reality, and offer a clear proposal for shared roles as a way to achieve this integration; The authors are in complete agreement.

Canales (2019), referring to the topic in the article "The complex link between research and teaching", published by *Perfiles Educativos*, analyses the tensions and complexities of this relationship in the university context, of which there is often no evidence, as he argues; he thus

attributes the fact that one of these processes predominates over the rest, mostly teaching, to the increase and diversification of Higher Education institutions. This reality is palpable in many Higher Education institutions, an opinion that is shared.

Crespí *et al.* (2022), from another perspective, conclude that problem-based learning can facilitate the integration of teaching and research in academic programs, highlighting the positive impact on the development of practical skills and social competences in students, hence this methodology is assumed as one of the theoretical foundations of the present study.

Other areas of science have not been immune to the problems being addressed; for example, in health, Batista *et al.* (2016) explore the collaboration between universities and communities in public health projects, showing how these initiatives benefit both the social context and the academic training of students.

For his part, Hernández (2024) focuses on environmental education programs that integrate research and extension activities, evidencing the development of greater environmental awareness and practical skills in university students who are connected to the environment. The methodology they offer to integrate teaching-research-extension is recommended.

How universities can promote social innovation through community engagement, highlighting the generation of creative solutions to social problems and the enrichment of academic training, was the subject of a study by Orellano *et al.* (2022). The detailed description of the ways to achieve this can be very useful in future proposals in this regard.

Other authors have tried to find common points in the procedures of Higher Education institutions with respect to such integration, as is the case of Reyna *et al.* (2023) in their article "Keys to thinking about the integration of extension-teaching-research at the National University of Litoral", based on an exploratory study where they analyze the importance of implementing integration processes in university academic practices, recognizing the limitations faced by teaching staff in their relationship with the environment, where a problem is to be addressed and other causes or concomitant problems with the one to be addressed emerge, without there being the resources to deal with them.

As can be seen, this integrative conception is a complex process, which covers many aspects, but which must be addressed whether the majority of curricula in the various courses offered by higher

education institutions and target 4 of the 2030 Agenda, which refers to quality education for all, are being implemented.

Despite this, multiple theories applied to the field of education constitute important references for any study that aims to approach the integration of teaching-research-extension.

The first of these is the theory of meaningful learning, by the American psychologist David Paul Ausubel (1918-2008). This was a considerable contribution to educational psychology, the science of knowledge and the understanding of the importance of scientific education in the development of the individual, through research, since it delves into the need for students to obtain new knowledge through social practice, which will enable them to acquire it in-depth and lastingly (Cushpa, 2024).

He also considered that any teaching process should start from the inquiry into the knowledge already held by students, because for him learning meant that new knowledge connected with previous ones, creating a new meaning. His essential proposal is that the student works in an active and constructive way to assimilate and organize information, because he should not memorize it, but understand it (Cushpa, 2024).

In the case of university students, this translates into the integration of research and extension with teaching, enabling the application of what has been learned to real situations (Azogue and Barrera, 2020). It is, therefore, an indisputable reference for those seeking ways to achieve the link between the knowledge provided by academia and scientific inquiry linked to the social environment of students, so that they actively participate in solving contextual problems.

The second theoretical element that can support this work is the learning theory of Jean Piaget and Lev Vigotsky, which maintains that knowledge is actively constructed through interaction with the environment.

The theoretical positions of Piaget and Vygotsky argue for the fundamental role that context plays in human learning and, in the case of the latter, his historical-cultural conception rounds out the vision about the role of society in the development of the individual, with which the authors agree. This vision is applicable to the analysis of strategic behavior in achieving integration between the substantive university processes, as well as in determining the levels of help required by students to become involved in solving the problems of their social environment (Mota and Villalobos, 2007).

Thirdly, problem-based learning is recommended (Rivera, 2006). This method aims to confront the student with real situations, investigate them and, through the use of critical judgment, learn autonomously and cooperatively; the number of problem situations that can be posed is infinite.

It is, above all, an integrative approach based on activities that encourage reflection, complex thinking, cooperation and decision-making, which revolve around addressing authentic and significant problems, situated in the context of the profession in which the university student is being trained; keeping in mind his or her future as a competent and committed professional. From this point of view, the most relevant uses of the problem-based learning methodology, with its variants and modalities, reside in the possibility of stimulating not only the acquisition of disciplinary knowledge, but also of promoting complex skills (Díaz, 2006).

This has its genesis in the fact that the demands of the labor market have experienced a trend towards the selection of personnel with adaptive flexibility to a broad spectrum of skills that allows them to insert themselves in various scenarios, whose variability may be geographical, linguistic, idiosyncratic, technological, social, religious, or otherwise (Rivera *et al.*, 2024).

Hence, problem-based learning is considered an important foundation when strategically planning the teaching-research-extension integration, because it shows the way where the social link of each of the professions that make up the university curricula can be realized, generating added value to the learning of the specific skills of the specialty; since, in the solution of the problems that they will have to face, both socially and professionally, they will acquire the transversal or generic skills that go through the integral formation of the individual (Rivera, 2006).

On the other hand, no less significant is the new vision that is emerging in Higher Education with respect to university extension. Authors such as Contino and Daneri (2016) believe that this, as a materialization of the university's social function, has recently gained depth and resonance in debates at this level.

Knowledge cannot be built in the enclosure. Although enclosure may be part of its origins, the era has transcended it, so that, within this logic and looking at contemporary processes that mark the pulse of the three substantive functions of the university: teaching-research-extension, it could be said that the latter has progressively developed a creative and creating capacity, bringing with it new challenges to think about the institutional architecture of the university in relational terms; that is, a

place where functions, actors, knowledge and disciplines converge strategically (Contino and Daneri, 2016).

However, it cannot be ensured that all this occurs in a homogeneous and equitable manner in Latin America, because there are multiple divergences even when defining what a quality educational process is in Higher Education.

According to the scientific literature consulted, the following theories are also considered important in the planning of the teaching-research-extension process:

- Curricular integration: this process is achieved through planning and organizing curricular activities that reinforce the objectives of each process (academic programs that include applied research projects and university extension activities) (Lucchese *et al.*, 2024).
- The action-research model: considers that research should be a participatory process in which teachers, students and the community are involved. Research is conducted in real contexts and the results are directly applied to improve teaching practice and university extension (Martínez, 2019).
- Education for development: assumes that the integration of teaching, research and extension should focus on the social and economic development of the community. Universities should design programs that address local and regional problems, promoting the active participation of the community in the educational process (Ruiz, 2019).
- Knowledge transfer: assumes that the effective integration of these processes is achieved through the transfer of knowledge generated in research, teaching and extension. This involves the creation of channels and mechanisms for research findings to be accessible and applicable in the classroom and the community (González, 2021).
- Educational innovation: proposes that the integration of these processes should foster innovation in education. Universities must create an environment that promotes experimentation and the implementation of new educational ideas and approaches (Álvarez, 2015).
- The evaluation of the quality of university education, concretized in the accreditation processes: the regulations for university evaluation and accreditation can constitute a unifying guide for efforts to achieve teaching-research-extension integration, but the studies consulted recognize that there is a "diversity of orientations with respect to the conceptualization of quality and therefore of the indicators that are used" (Carbonell *et al.*, 2021, p. 355).

The exhaustive review carried out allows us to recognize, in general, the following limitations in achieving integration: teaching-research-extension, with greater or lesser presence, depending on the geographic region and the development of Higher Education institutions, but which have an impact on the aforementioned process (Table 1).

Table 1. Limitations in achieving integration teaching-research-extension

Summary of limitations	Description
Magnification of teaching	There is a tendency in Higher Education institutions to prioritize teaching over other substantive processes: research and extension, which limits the comprehensive development of students and reduces the social impact of universities.
Lack of contextualized research	Many higher education institutions do not have sufficient resources or effective strategies to investigate problems in the social environment and generate relevant solutions. Research tends to lack direct connection with social and community reality, which limits its practical impact.
Extension as a secondary function	Although extension is recognized as a substantive process, it has a low priority in practice compared to teaching and research. This is why there is a tendency to include extension in curricula in an attempt to equalize its importance with that of the other two.
Difficulties for effective integration	Current educational models recognize the importance of integration between teaching, research and extension, but it fails to materialize in the daily practice of Higher Education institutions, since they lack concrete strategies to implement it in a sustainable manner.
Recognition of good practices	Methodologies such as problem-based learning and social engagement projects are identified, but in practice they are not sufficiently systematized or replicated in broader contexts.
Influence of external demands	The labor market, technological changes and environmental deterioration force universities to rethink their educational models, using evaluation and accreditation as drivers of integration, but they also face challenges due to the diversity of quality indicators and concepts.

CONCLUSIONS

A tendency is perceived in the consulted bibliography, even unconsciously, to emphasize the academy, teaching and its role in the transfer of knowledge, above the rest of the substantive processes, which seems to indicate a form of manifestation of resistance to change, or at least a distrust in the possibilities of specifying a rigorous methodology in university research of the social context and of introducing the results obtained in the performance of community actors or the specific work environment.

The authors believe that teaching, as a process of teaching-learning knowledge produced through scientific research, represented in the different sciences, and which constitutes the content of the disciplines, must reach the social environment, to satisfy the needs of cultural development and the solution of problems of contextual practice; university extension is responsible for this, but interrelated with the substantive processes that precede it, or that occur simultaneously with it. It is the duty of the educational sciences to find a feasible way for this connection to occur.

Theories of educational sciences, such as: meaningful learning, problem-based learning, curricular integration, the action-research model, education for development, knowledge transfer and educational innovation, all supported by university evaluation and accreditation processes, can serve as a reference for the application of the studied process. The above, together with the vision of the social function of the university, constitute solid foundations arising from science to support the achievement of teaching-research-extension integration, as a guarantee of quality in the training process of professionals who respond to the demands of the new era that is emerging.

REFERENCES

Aguilar Melians, G., & Baute Álvarez, L. M. (2020). La integración de los procesos sustantivos universitarios desde el proceso extensionista: Una mirada a la teoría. *Revista Científica Ciencia y Tecnología*, 20(27). <https://doi.org/10.47189/rcct.v20i27.388>

Álvarez Álvarez, C. (2015). De la innovación educativa a la transformación social: Teoría y práctica. *Intangible Capital*, 11(3), 285-292. <https://www.redalyc.org/pdf/549/54941394001.pdf>

- Álvarez Gómez, G. A., Viteri Moya, J. R., Viteri Intriago, D. A., & Estupiñán Ricardo, J. (2021). Integración de los procesos sustantivos para la mejora de la calidad del aprendizaje. *Conrado*, 17(80), 21-27. http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1990-86442021000300021
- Andrade Girón, D. C., Marín Rodríguez, W. J., Zúñiga Rojas, M., Susanibar Ramirez, E. T., & Calvo Rivera, I. P. (2023). Quality Management System for Higher Education: A Systematic Review. *Data and Metadata*, 2. <https://doi.org/10.56294/dm2023100>
- Azogue Punina, J. G., & Barrera Erreyes, H. M. (2020). La motivación intrínseca en el aprendizaje significativo. *Polo del Conocimiento*, 5(6). <https://doi.org/10.23857/pc.v5i6.1469>
- Batista Mainegra, A.; González Aportela, O., & Ortiz Cárdenas, T. (2016) Curricularización de la extensión universitaria para la promoción de la salud en la Universidad de La Habana. Un acercamiento a su conceptualización y praxis. +E: *Revista de Extensión Universitaria*, 6, 112-119. <https://www.redalyc.org/articulo.oa?id=564172835013>
- Canales Sánchez, A. (2019). El complejo vínculo entre investigación y docencia. *Perfiles educativos*, 41(163), 5-8. https://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S0185-26982019000100005
- Carbonell García, C. E., Gutiérrez Rojas, A. M., Marín Cacho, F. T., & Rodríguez Román, R. (2021). Calidad en la educación superior en América Latina: Revisión sistemática. *Revista Venezolana de Gerencia*, 26(6). <https://doi.org/10.52080/rvgluz.26.e6.21>
- Contino, P., & Daneri, M. (2016). Creación de escenarios convergentes entre docencia, investigación y extensión: La Residencia Integral del Profesorado en Comunicación. +E: *Revista de Extensión Universitaria*, 6, 130-137. <https://www.redalyc.org/pdf/5641/564172835015.pdf>
- Crespí, P., García-Ramos, J., & Queiruga-Dios, M. (2022). Aprendizaje basado en proyectos (ABP) y su impacto en el desarrollo de competencias interpersonales en la educación superior. *Revista de nuevos enfoques en investigación educativa*, 11 (2), 259-276. doi: <https://doi.org/10.7821/naer.2022.7.993>

- Cushpa Guamán, M. R., Silva Guayasamín, L. G., Casco Manzano, C. M., & Caiza Asitimbay, M. A. (2024). Metodologías de enseñanza para el aprendizaje significativo de la fisiología. *Revista Imaginario Social*, 7(1). <https://doi.org/10.59155/is.v7i1.167>
- Díaz Barriga, F. (2006). Aprendizaje basado en problemas. De la teoría a la práctica: Carlos Sola Ayape (Dir. Ed.) México, Trillas, 2005, 221 pp. *Perfiles educativos*, 28(111), 124-127. https://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S0185-26982006000100007
- Furci, V., Gambina, A., Rosales, J., & Alves de Castro, M. V. (2023). Experiencia multidisciplinaria en Educación Ambiental Integral para profesores en ejercicio en la provincia de La Pampa: Una propuesta de articulación entre las Ciencias Sociales y las Ciencias Naturales. *Salud Ciencia y Tecnología*, 2(1), 132. <https://doi.org/10.56294/sctconf2023132>
- García Abad, R. E., & González Fernández-Larrea, M. (2021). La integración de procesos sustantivos en la Universidad Católica de Cuenca: Estado actual y prospectiva. *Universidad y Sociedad*, 13(2), 184-193. http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S2218-36202021000200184
- Gómez, A. S. (2024). Desafíos de la curricularización de la extensión universitaria en el contexto de la transformación educativa: Entrevista colectiva. *Cuadernos de Extensión Universitaria de la UNLPAM*, 8(1), 169-179. <https://dialnet.unirioja.es/servlet/articulo?codigo=9610108>
- González-Geraldo, J. L. (2021). La transferencia de conocimiento en educación Un desafío estratégico. *Revista Complutense de Educación*, 32(1), 153-154. <https://doi.org/10.5209/rced.72780>
- Hernández Ramírez, A. M. (2024). Responsabilidad social en el marco de la sustentabilidad en las Instituciones de Educación Superior. *UVserva*, (17), 196211. <https://doi.org/10.25009/uvs.vi17.2994>
- Hidalgo, A. L. (2023). Apuntes para la construcción de un "nosotros" en la integralidad de las funciones sustantivas universitarias. +E: *Revista de Extensión Universitaria*, 18, 10. <https://dialnet.unirioja.es/download/articulo/9047735.pdf>

Huanca Guanca, J. C., & Portal Gallardo, J. A. (2023). Análisis de contenido cuantitativo sobre gestión del conocimiento en instituciones de educación superior latinoamericanas. *Revista Actualidades Investigativas en Educación*, 23(1), 1-30. DOI.

<https://doi.org/10.15517/aie.v23i1.51513>

Jérémy, R. (2024). Diferencias de capitales entre los estudiantes franceses de fisioterapia en Francia y España ¿Qué dice la sociología bourdieusiana sobre las profesiones? *Revista Sociología del Trabajo*, No 105,113-126

<https://revistas.ucm.es/index.php/STRA/article/view/96699/4564456571407>

Juliao Vargas, C. G. (2023). Reflexiones sobre la Universidad aplicadas a UNIMINUTO. *Revista Perspectivas*, 8(23), 1-19. <https://dialnet.unirioja.es/servlet/articulo?codigo=9155574>

Lucchese, M. S. M., Calneggia, M. I., Di Francesco, A. C., & Novella, M. de L. (2024). Procesos de integración curricular en la Educación Superior y de desarrollo profesional docente.

Trayectorias Universitarias, 10(18). <https://doi.org/10.24215/24690090e161>

Martínez García, R. (2019). Sistemas de evaluación de la investigación: Aproximación al modelo «performativo» británico o modelo basado en resultados. *Revista Tecnología, Ciencia y Educación*, 14, 71-93. <https://doi.org/10.51302/tce.2019.333>

Mota de Cabrera, C., & Villalobos, J. (2007). El aspecto socio-cultural del pensamiento y del lenguaje: Visión Vygotskyana. *Educere*, 11(38), 411-418.

https://ve.scielo.org/scielo.php?pid=S1316-49102007000300005&script=sci_abstract

Mota de Sousa, E. V. (2023). Education in times of pandemic: Impact and challenges in higher education at Centro Maranhense, Brazil. *Salud, Ciencia y Tecnología - Serie de Conferencias*, 2, 81-81. <https://doi.org/10.56294/sctconf202381>

Orellano-Navarrete, V., Tenorio, F., & Abad, A. (2022). Universidad e innovación: Una mirada desde lo social. *Revista de Ciencias Sociales (Ve)*, 28(3), 204-217.

<https://www.redalyc.org/journal/280/28071865014/html/>

Osorio Saldívar, L. A., Acosta Castillo, I., & Beltrán Cruz, Y. E. (2024). Estrategias tecnológicas del aprendizaje activo implementadas en la internacionalización académica en México:

Technological strategies of active learning implemented in academic internationalization in Mexico. *LATAM Revista Latinoamericana de Ciencias Sociales y Humanidades*, 5(1), <https://doi.org/10.56712/latam.v5i1.1804>

Pinto, N. J. (2020). Bosquejo de las funciones sustantivas universitarias y la relacion con su entorno social. *Revista Palenque Universitario*, 01.

Quintanilla Villegas, M., Concepción Moreno de Araujo, A. M., & Hernandez-Rauda, J. R. (2020). Las reformas universitarias en El Salvador, apuntes conclusos y desafíos en el nuevo milenio. *Revista Estrategia y Gestión Universitaria*, Número Especial Reforma de Córdoba. https://www.researchgate.net/publication/347711599_Las_reformas_universitarias_en_El_Salvador_apuntes_conclusos_y_desafios_en_el_nuevo_milenio

Reyna, M. L., Theiler, J. M., & Angeloni, M. E. (2023). Claves para pensar la integración extensión docencia investigación en la Universidad Nacional del Litoral a partir de un estudio exploratorio. *+E: Revista de Extensión Universitaria*, 13(19). <https://doi.org/10.14409/extension.2023.19.Jul-Dic.e0006>

Rivera de Parada, A. (2006). Aprendizaje Basado en Problemas (ABP) Estrategia para dinamizar la cátedra universitaria. *Crea Ciencia*, 4. <https://www.uces.edu.sv/revistaenlinea/index.php/CreaCiencia/article/view/494>

Rivera de Parada, A., & Mainegra Fernández, D. (2023). La formación del pensamiento científico investigativo en la Educación Superior: Estudio teórico-tendencial. *Mendive. Revista de Educación*, 21(2), http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1815-76962023000200021

Rivera de Parada, A., Mainegra Fernández, D., & Pineda Rivas, E. E. (2024). Competencias genéricas de los profesionales universitarios priorizadas por el sector laboral: Estudio referencial. *Cooperativismo y Desarrollo*, 12(1), http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S2310-340X2024000100002

Ruiz Espejo, M. (2019). Educación y Desarrollo Humano. *Revista Complutense de Educación*, 30(2). <https://doi.org/10.5209/RCED.61771>

Sarmiento, M., & Guillén, J. (2016). Integración, docencia, extensión e investigación. *Educación Superior y Sociedad (ESS)*, 17(17).

<https://dialnet.unirioja.es/servlet/articulo?codigo=8843758>

Conflict of interest

Authors declare no conflict of interests.

Authors' contribution

The authors participated in the design and writing of the article, in the search and analysis of the information contained in the consulted bibliography.



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