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PRIETO FIGUEROA DE BARQUISIMETO

Revista
educare
ISSN 2244-7296

Depósito Legal: ppi201002LA3674

Órgano de divulgación de la
Subdirección de Investigación y
Postgrado

Edición **25**
Aniversario



EScience Press
Research Scientific Publishers



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LA INVESTIGACIÓN COMO EJE TRANSVERSAL EN LOS MÁSTERES DE LA UNIVERSIDAD DE ATLANTIS

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Abstract

Universities play a key role in professional training at the highest level, with a strong commitment to providing research skills, and responding to the need for knowledge transfer to society. The purpose of the article is to discuss the aspects that distinguish the educational proposal on the transversal function of Research in postgraduate master's level programs at Atlantis University. The cross-sectional treatment methodology shows the path of insertion of the research axis throughout the training of the teacher as a binding component between knowledge, practice, and reflection on the research task, alluding to the development of research skills, related to the area of training. In conclusion, the transversality of the research axis, as a component of the curriculum of the master's programs of Atlantis University, allows its organization and coherence; At the same time that it offers the operative mechanisms to incorporate it both diachronically and synchronously, through the transversality of the investigation, all the phases of the development of the investigative process are deepened and consolidated, strengthening the integral formation of the teacher, in addition to academic projection. of research by the school, achieving comprehensive training and the development of academic-professional skills related to their area of training, linked to their context and environment.

Keywords: Research, Transversal Axis, Vocational Training, Curricular transformation

Resumen

Las universidades juegan un papel clave en la formación profesional al más alto nivel, con fuerte compromiso en proporcionar competencias en investigación, respondiendo a la necesidad de transferencia de conocimiento a la sociedad. El artículo tiene el propósito de disertar sobre los aspectos que distinguen la propuesta educativa sobre la función transversal de la Investigación en los programas posgraduales de nivel maestría de la Atlantis University. La metodología de tratamiento transversal muestra el trayecto de inserción del eje investigación a lo largo de la formación del maestrante como un componente vinculante entre el conocimiento, la práctica y la reflexión del quehacer investigativo, aludiendo al desarrollo de competencias de investigación, relacionadas al área de formación. En conclusión la transversalidad del eje investigación, como componente del currículo de los programas de maestrías de Atlantis University, permite su organización y coherencia; al mismo tiempo que ofrece los mecanismos operativos para incorporarlo tanto en forma diacrónica, como sincrónica, a través de la transversalidad de la investigación se profundiza y consolida todas las fases del desarrollo del proceso investigativo, fortaleciendo la formación integral del maestrante, además de proyección académica de la investigación por escuela, logrando la formación integral y el desarrollo de competencias académico-profesionales relacionadas con su área de formación, vinculadas con su contexto y entorno.

Descriptor: Investigación, Eje Transversal, Formación Profesional, transformación Curricular.

Introduction

Research is a fundamental element of the teaching and learning process in any study's area; it provides the foundations and tools necessary for the approach, analysis, expansion, deepening, and generation of knowledge.

Thus, the current trend in university education demands a significant commitment to the training of its students, attending to the binomial research and knowledge transfer to society; in response to the needs of the area, context, and environment. All this through the merge of innovative teaching with the ability to mediate a research process that generates spaces related to academic practices, such as generic courses, seminars, and research workshops, among others of constructive and deepening character.

These actions constitute fundamental instructional strategies in the process of development of research potentialities and skills; they allow the collective construction of the meaning of research; in the integral formation of the master, offering the opportunity to recognize the challenges and capacities to think, reconsider, systematize and project the development of the knowledge acquired in applied research, for the production of processes or services as convenient solutions to the area.

Atlantis University (AU) proposes a methodological regulatory framework adapted to promote the insertion of research as a transversal process at the master level, permeating the training of master students, through effective knowledge exchange, in search of promoting innovation and transformation of the training area of the master students. Therefore, it seeks to project itself as a culture that marks to some extent the academic level of the graduates, knowing that one cannot speak of a university without research. It is the essence of the academy, represented by the research material and deployed by its participants, essentially teachers, tutors, students, and authorities; with this, the importance of socializing and publishing research is recognized, as well as the commitment of the various master programs to motivate and promote the knowledge's production.

Theoretical argument

Scientific research refers to a systematic process to obtain answers to questions that respond to the possibility of generating rigorous knowledge about the diversity of facts, phenomena, and

objects that surround the world. Thanks to scientific research, society has advanced in understanding the world and improving the quality of life. In fact, scientific advances have allowed, among other aspects, the constitution of important universal scientific theories, the cure of diseases, the construction of technological contributions, and the understanding of nature, among others. Therefore, it should not be surprising that research constitutes a fundamental component of professional training in almost all universities in the world.

This is how Scientific Research represents the foundation of being and university work and what distinguishes it from other university institutions, since through this process the knowledge that is disseminated, transmitted, and disseminated through the consequent functions is built, reconstructed or deconstructed. of extension and teaching. Hence, according to Espinoza (2004), Scientific Research as the foundation of the university faculty is, at the same time, the basis of university pedagogy and between them, there is a necessary symbiosis, in the sense that one does not exist (should not exist) without the other.

In this regard, Esteban et al, (2021), point out,

(...) The mission of the university is to generate scientific thought in its students, transform knowledge into wisdom, information into wisdom, and transfer it to society. All this is possible with research. If universities are deprived of developing research, they are reduced to information centers, known as tertiary education, which are the extension of primary and secondary education (p.414).

Likewise, for Piñero & Rivera (2011), the organization and development of research in the university setting is an interesting and complex issue, and being able to understand it will allow us to learn a lot about what research can be as a potential for institutional development in the university. contemporary world. This complexity comes from the fact that Research, together with the Linking and Teaching functions, represents one of the main missionary functions of Higher Education Institutions, being that it means the space for the generation of knowledge through scientific research, both its teachers and students during the training process. For students, training in and for research translates into the development of research skills.

That is why, for Sánchez, Herrera & Sánchez (2020),

(...) the process of training university professionals should necessarily be articulated to the investigative action so that these institutions become the main entities that promote

scientific culture, generators of the scientific production that society requires at each historical moment. In other words, it is assumed that university education trains subjects capable of responding to the requirements that society demands (p.411).

Although there is no better way to learn to investigate than by “researching”, it can be said that researcher training processes can occur in the internal or external context of programs that grant an academic degree. From this perspective, universities are called upon to instrumentalize research in educational processes through the development of scientific competencies, and through the creation of spaces where multiple institutional conditions come together so that the impact of research and the implicit and explicit learning process is significant. and favorable to the responses and needs of the socioeconomic, political, cultural and technological environment.

In line with this approach, Tobón, Rial, Carretero & García (2006) point out that "a university is of quality when it directs everything to train researchers, develops research and trains professionals with investigative skills" (p. 63). Hence, it is unavoidable to incorporate investigative training in professional training, in such a way that graduates not only apply knowledge, skills, and attitudes specific to their career or disciplinary or professional field but also possess skills to address and resolve problematic situations, generating new information or new methodologies under appropriate quality standards.

For this reason, training is the path that leads to the possibility of the development of competencies in and for research. This means that students are taken through different formative and evaluative activities to develop different skills in the curricular path that allow them to understand and configure a scientific research process linked to a disciplinary or interdisciplinary context or problem. This is how we can find the following among the approaches to understanding investigative competence:

a) Investigative competence in the context of USR is understood as that which allows scientific activity to be carried out, in order to contribute to the solution of social problems. This requires preparation to project research with an interdisciplinary vision and with an ethical and socially responsible attitude, which response to the needs of the context (González, 2017, p.6).

b) Investigative competence is a configuration built and developed by researchers in their context and professional practice. It includes the solution of environmental problems where he shows sufficient skills in the art of research, through which he manages to incorporate the new that

will allow reality to be transformed, for this he uses technology; it also communicates and directs the process towards obtaining results of significant economic, scientific, social and/or environmental impact (Gallardo, 2003, p.11).

Achieving the incorporation of these skills requires the creation of conditions that mean the mainstreaming of content, pedagogical processes, and scientific products during the training process. This is especially important when it comes to postgraduate programs, as stated by Restrepo (2003), at this level, it is called research in the strict sense, that is to say: that which is presumed to be aimed at people who will work in the job of a researcher. Meanwhile, for Rojas & Aguirre (2015), postgraduate research training contributes to "the double function of training those who will dedicate themselves to research and those who will work in trades outside the academic field" (p.203).

In this regard, Piñero, Rondón & Piña, 2007) also state the following:

Research, in addition to being conceived as a natural way to approach knowledge, must also be assumed as a transversal axis supported by reflection on reality and praxis. Hence, students must carry out different research activities in the different academic areas of the respective study plan. The task could not result from their domain, due to the lack of appropriate investigative competencies and, consequently, hinder the achievement of the goals that the institution has in terms of training in the research area (p.184).

It is then required that research occupy a strategic and integrated place in the design and curricular planning of postgraduate programs, with which to aim towards the development and strengthening of skills oriented towards the configuration of scientific processes and products, in which they are articulated. the lines of research to the answers and knowledge that the university contributes to the different problems of society. It means, then, that according to Morin (2000), this may be possible to the extent that the tendency to fragment knowledge according to the disciplines is overcome so as not to prevent the establishment of the link between the parts and the whole, giving rise to a mode of " knowledge capable of apprehending objects in their contexts, their complexities and their sets".

Consequently, the curricular transversality of the research, in the words of Caviedes (2002), is about the curricular structuring that must be mediated by collective work and by clear research processes that allow the work of the problematic axes and thematic nuclei to start from the

concurrence of various academic and non-academic knowledge (popular, daily knowledge, the family, the neighborhood) creating an articulating learning space for the approach and search for an interpretation, explanation and an alternative solution.

Within the framework of the Educational Proposal "Research as a Transversal Axis in Atlantis University's master's degrees" we ask ourselves: How to transversally insert into Atlantis University's master's programs the pedagogical processes that lead to the development of scientific research competencies? It starts from the possibility of reconciling the teaching of the contents of the master's degrees with methodical processes of formative research as a transversal concept to the curricula of each area of knowledge. For this, a model is proposed that investigates the production of research from the beginning of the training of the student.

Proposal Description

Research at Atlantis University

The development of research at AU is advocated with a pedagogical approach that seeks to provide the participants of the different master degrees with heuristic competencies related to a set of techniques or methods to solve problems through creativity and divergent thinking. It seeks to achieve ethical attitudes, skills, and abilities that allow the organization of knowledge, the use of strategies and methodological techniques for the definition, development, implementation, and presentation of an applied research project; related to a problem and its respective application in the context of the object of study of the scientific discipline of the Master degree. The problem is considered an option of inquiry ascribed to the university's areas and lines of research.

In that regard, the proposal is presented as an educational model of transversal research insertion; to guide the training that all graduate students should have to exercise their profession critically and creatively. This training has specific skills necessary for research that are not eminently methodological, such as the mastery of written language; it is here where the transversality of the curriculum becomes relevant, given the contribution that other courses should make to the training of professionals with a critical mind and capable of generating solutions for innovations, products, and services associated with their area and reality.

Research as a transversal axis in the formation of the master's student at Atlantis University serves as an articulating instrument between diverse courses related to the area and the development

of the master's degree. Permeating the curriculum of the program with activities, strategies, and courses that can be approached in an interdisciplinary and integral way, constituting lines that run through the entire curriculum of the master's degree and consequently have an ultimate goal.

This model, in addition to the transversal of the research process, combines the competency-based model. The students will be monitored according to their mastery of skills and the learning results they acquired. The competencies to be worked on in this course are:

Generic Competence:

Reflects critically on the scientific, ethical procedure that a novice researcher must perform in the organization of knowledge, search for information, the use of strategies and methodological techniques for the definition, elaboration, execution, and presentation of a research project related to a problematic and its respective application in the context of the object of study of the scientific discipline of the master degree.

Specific Competences:

1. Recognizes in the areas and lines of research of their specialty the questions of a research problem that defines the scientific undertaking of a research project.
2. Locates and organizes the documentary context through the adequate management of bibliographic managers of relevant reference sources: Mendeley, Zootero, EndNote, APA 7, Google academic, and Researchgate, among others.
3. Performs critical reading of documentary sources in the elaboration of the scientific written discourse that supports the communication of applied research processes.
4. Elaborate on the expository written argument where the problematic, intentional, and theoretical context of the scientific questions that guide the protocol of the applied research project is supported.
5. Describes the methodological strategies that support the scientific rigor of the applied research process.
6. Executes ethically the methodological procedures for the applicability, feasibility, scientific and technical projectivity of resolution proposals to the problems posed in the areas and lines of research; in the context of the object of study of the scientific discipline of the master's degree.

7. Expose in a coherent way the scientific rigor evidenced in the steps, findings, and outstanding implications developed during the applied research process.

Transversal Competencies:

- a) Ethical commitment.
- b) Information Search
- c) Multidisciplinary/transdisciplinary teamwork.
- d) Leadership.
- d) Communication
- f) Capacity for analysis and decision-making.
- g) Capacity for organization and planning.
- h) Motivation for quality.
- i) Critical reasoning.
- j) Social and professional responsibility
- k) Use of Technology

Performance Achievements:

The student will undertake the development of an applied research process from its beginning in the master's degree through 3 co-requisite courses; related to the search for information, development of academic papers and research methodology, the latter part of a research question (or several questions) that addresses the solution of a problem contextualized empirically and theoretically in the areas and lines of the object of study of the master degree. The performance pieces of evidence are oriented to:

- a) Recognition of the questions in a research problem and the thematic axes of the same.
- b) Theoretical referential matrix on the knowledge frontiers of the thematic axes using adequately a bibliographic manager and normative.
- c) Writing of the problematic and intentional context of the research question (approach, objectives, and justification of the study).
- d) Drafting of the conceptual theoretical context (previous studies, conceptual relationships, operationalization of variables).

- e) Drafting of the methodological context: (description of the research design, type and modality of research, population and sample, data collection and analysis techniques, validity and reliability techniques).
- f) Writing and adequate presentation of the empirical results (processing and analysis of the information, design of the proposal, feasibility and projectivity of the proposal) and the innovation prototype, technological services, and service model, among others.
- g) Drafting of the conclusions and recommendations of the research carried out.
- h) Organization of the documentary sources used in the research process adequately using a bibliographic manager and regulations.
- i) Presentation of the integrated document with all the investigative steps under the adequacy of the Norms.

Instructional Strategies for the Transversal Insertion of Research

The instructional strategies are oriented to the development of ethical attitudes that allow the students to develop heuristic capacities for the undertaking, development, and execution of the research project applied to the problems in the areas and lines of institutional research within the framework of the object of study of the master degree. Virtual mediation activities will be developed: synchronous or asynchronous in contact and assisted by the facilitator; autonomous learning activities before and after the teaching mediation; and practical learning activities. Namely:

1. Activities in Contact with the Teacher

They consist of a set of individual and group activities to be developed with the direct intervention of the teacher: face-to-face or virtual, synchronous or asynchronous, in search of the development of knowledge, abilities, skills, and values, will be executed through face-to-face classes in the execution of lectures, seminars, guidance for case studies, forums, individualized counseling, presentations, critical interventions in class; among other activities related to group work, permanent interaction with the teacher, including tutorials, individualized counseling, exhibitions, critical interventions on class; among other activities related to group work, permanent interaction with the professor, including tutorials, which are oriented to the development of research for learning and the deployment of collective experiences in projects related to specific

topics of the specialty, such as group case studies, workshops, group interactions, debates, among others. All the activities also promote the implementation of formative research strategies through problematization, learning by discovery (inductive, deductive, and transductive), inquiry research, and participation in research groups, among others.

2. *Autonomous Learning Activities*

These refer to activities the student performs independently, individually, or in groups without contact with the academic staff or academic support personnel. Such activities must be planned or guided by the teacher and developed by the student to enhance their initiative and planning capacity, as well as the critical handling of information sources and contents; problem posing and solving; motivation, and curiosity to learn; knowledge transfer and contextualization; critical reflection and self-evaluation of its work. Hence, during the development of the 3 co-requisite courses, activities such as reading and critical analysis of documentary sources and websites, search for documentary and empirical information, review of research experiences, comparative analysis of cases, research work, preparation of oral presentations, preparation of portfolios, reference infographics, attendance to institutional, local and regional scientific events, among others, are planned.

3. *Practical Learning Activities*

They involve individual or group activities of application of conceptual, procedural, and technical contents, among others, to the practical execution of their research project. Through the promotion of experiences that allow the students to exercise their scientific writing skills, and the ethical implementation of the research phases in the undertaking, progress, and culmination of their research protocol, through the presentation of different documents corresponding to the progress related to the definition of the research question, problematic and theoretical context of the research, methodological context, results and description of the proposal, conclusions, and references, which allow them to delineate their final research project of the master degree.

Lines of Research by Area of Knowledge that Allows Transversal Insertion.

Atlantis University proposes through the research axis, integrated with professionalization, to apply the knowledge to develop projects framed within the lines of research relevant to the profile required for each master's degree. Being defined by the school research skills to be achieved, lines and areas are expressed in Table 1.

Table 1: Description of Atlantis University's Lines of Research

SCHOOL	RESEARCH SKILLS	LINES	ÁREAS
Information and Communication Technology Sciences	<ul style="list-style-type: none"> Implement innovative changes in technology. Research, design, and experimentation in the area. Innovate in the field of Information and Communication Technology; through the design and application of methods, techniques, and theories that support research. Development and use of technologies to innovate and transform systems and services. 	<ul style="list-style-type: none"> Computational Intelligence and Advanced Optimization: Aims to study concepts, models, algorithms, and tools for the development of intelligent systems capable of solving complex and changing problems. 	<ul style="list-style-type: none"> Artificial neural networks, Evolutionary computing, Emerging collective intelligence, Artificial immune systems and fuzzy systems.
		<ul style="list-style-type: none"> Network Technologies and Information Management Description: The main challenge addressed in this line is to have mechanisms, techniques, and strategies to facilitate the transfer, storage, classification, and analysis of data to turn it into a useful asset. 	<ul style="list-style-type: none"> Databases, Data Mining, Distributed Systems, Cloud Computing, Web Technologies and Systems, Service Oriented Architecture, Client/Server Technologies, Computer Networks, Security, Internet Technologies, Software Engineering, Mobile Computing, E-commerce.
		<ul style="list-style-type: none"> Computer Engineering Description: Information sciences and technologies are present in all aspects of everyday life, and their contribution to the development and progress of society is considerable. Due to advances in semiconductor technology, there is a notable increase in the number of electronic and computational devices that are integrated into systems capable of sensing, analyzing, and communicating useful information to the user. 	<ul style="list-style-type: none"> Algorithms in hardware and software capable of solving specific problems in various sectors such as telecommunications, Consumer electronics, Automation, Authentication and IT security
SCHOOL	RESEARCH SKILLS	LINES	ÁREAS
Health Science	<ul style="list-style-type: none"> Knowledge of the social problem affecting public health. Analyze, confront and evaluate the problem. 	<ul style="list-style-type: none"> Analysis of the Health Situation of the Population and Competencies of the Manager: organization of health care, auditing, methodologies of analysis of the health system, health technology, hospital 	<ul style="list-style-type: none"> IT data security Management in Health Organizations

	<ul style="list-style-type: none"> • Diagnosis of the situation. • Investigate current events, and participate in interdisciplinary teams. • Generate knowledge, skills, and abilities that allow the solution to the problem faced. • Innovate in the field of health, through the design and application of methods, techniques, and theories that support research. 	<p>information systems, hospital information systems, health care organization, auditing, health system analysis methodologies, health technology, and hospital information systems.</p> <ul style="list-style-type: none"> • Health Management Analysis and Evaluation: defined Audit, health system analysis methodologies, technology and information systems, supply and procurement, losses, and health architecture. • Information and Communication Technologies Applied to Health Management: Evaluation of technologies applied in health service administration, based on procedures and innovation. • Integral Health Promotion from the Managerial Function: Based on population health promotion, hygiene, and public protection policies. • Quality in the Provision of Health Services: Based on the guidelines of modern management, improvement, and innovation. 	<ul style="list-style-type: none"> • Quality in the provision of health services • Decision-making effectiveness and profitability of health administration • Management (administration) in healthcare • Community health, clinical, and health care management. • Collective health • Health planning and management
SCHOOL	RESEARCH SKILLS	LINES	ÁREAS
<p>Business Management Science</p>	<ul style="list-style-type: none"> • Apply updated technical knowledge in the management area. • Analyze and act in the face of changes in organizations. • High integral training for problem-solving and decision-making. • Mastery of communication science and technology tools. • Ability to inform and present programs, carry out campaigns, and market research. • Ability to conduct research and generate services and products for their area. • Innovate in the field of Business Administration Sciences through the design and application of methods, 	<ul style="list-style-type: none"> • Business Strategy Description: Aims to investigate the impact of strategies on the performance of organizations. It contemplates studies of formulation and implementation of models of managerial and technological innovations, describing and explaining their impact on the organization and society. • Organizational Behavior Description: Its purpose is to investigate from a critical perspective the individual and collective behavior of people within different organizations. • Competitiveness and Productivity Description: Aims at the production dynamics of a company, understood as a protagonist of social welfare in the environment where it develops its activities. 	<ul style="list-style-type: none"> • Organizational Climate • Organizational Culture • Organizational Structure • Marketing • International Business • Human Resources • Information Systems • Supply chains and their relationships • Process innovation • Production improvement methodologies

	<p>techniques, and theories that support research.</p>	<p>Marketing Description: Aims to manage the transfer of ideas, goods, and services to create services and products that satisfy individual and organizational objectives.</p> <p>• Social Management Description: It aims to promote the development of organizations whose work is based on participatory management, considering the reality of society, the environment, and context.</p>	<ul style="list-style-type: none"> • Productivity • Social Responsibility • Eco-efficiency
<p>Education Science</p>	<ul style="list-style-type: none"> • Ability to contribute to decision-making and search for solutions to problems of human and social relevance in childhood. • Ability to articulate community demands with projection in teaching and research. • Ability to integrate methodological perspectives in social research, linked to human development and educability. 	<ul style="list-style-type: none"> • Childhood, Experience and Thought; it makes visible and recognizes childhood as a power in the educational, social and cultural reality; it is considered a place where concerns converge open and interdisciplinary views to think about the relationship with childhood. The fields of knowledge correspond to discourses, practices, and reflections on realities, situations, concerns, problems, and educational and pedagogical questions from the perspective of the constitution of subjectivities and experience; therefore, it considers necessary to establish an approach (childhood, teacher, or context). 	<ul style="list-style-type: none"> • Childhood, teacher, and context • Educational Inequalities • Childhood and Pedagogy • Education focused on Human Diversity • Psychology and Learning • Education, society, and human development
	<ul style="list-style-type: none"> • Implement innovative changes in educational levels and modalities. • Research, design, and experimentation in the area. • Innovate in the field of education through the design and application of methods, techniques, and theories that support the transformation of the teaching and learning process. • Development and use of technologies to innovate and transform educational systems. 	<ul style="list-style-type: none"> • Pedagogical Innovations in Technology and Informatics; The line seeks to address educational problems where innovative instructional proposals can be built through ICT. In this case, the aim is to activate forms of access, activities, challenges or problems, and work dynamics: communication, and interaction with technological devices. 	<ul style="list-style-type: none"> • E-Learning Processes • Distance Education • Curricular Changes • Education adapted to Human Diversity • Teaching focused on learning styles

	<ul style="list-style-type: none"> • Ability to analyze Critical and Creative Pedagogies from the Arts. • Skill in the analysis of the relationship between art, science, technology, and subjectivity for the development of Arts, Digital Media, and New Languages. • Ability to build instructional processes that address the principle of interculturality and the analysis of the symbolic production of social collectives and in interaction with others. 	<ul style="list-style-type: none"> • Art, Aesthetics, and Education: This line contemplates the design and development of transdisciplinary experimental practices in different fields of the arts, as well as their reflection and systematization aimed at positioning the "knowing by doing" of the arts as a legitimate form of knowledge production. In this sense, the projects within this line are research projects in the arts beyond the protocols of positivist research in the social and natural sciences, with emphasis on the transversal dialogue between the practices and languages of art produced and thought in contemporaneity. 	<ul style="list-style-type: none"> • Visual and audiovisual language • Art Education • Music Education • Didactics, curriculum, and evaluation from the arts • Interculturality
	<ul style="list-style-type: none"> • Ability to analyze the relationship between schools, society, and the State. • Skill in the application of relevant theoretical-methodological elements to define the relevance of education. • Ability to deepen the development of research related to the production of different media, resources, and technologies that contribute to the strengthening of teaching and learning processes, from innovation, creation, and creativity in educational spaces. 	<ul style="list-style-type: none"> • Curriculum and Instruction: aims to participate in the debate on the field of educational policies and their implementation, origin, educational reforms, and consequences in the society or context of the teacher. 	<ul style="list-style-type: none"> • Pedagogical approaches • Curricular reforms • Innovation and Curriculum • Government Policies • Education in Diverse Contexts

Source: Own elaboration based on the Curricular Transformation Documents of Atlantis University.

The institutional guidelines refer to the intention of creating knowledge and its application as a central activity of the academic work at the master's level, which is contemplated from the mission when it establishes to train professionals through quality education while promoting the personal and professional development of students. All this through a global teaching and learning process, strengthening the values of social responsibility, where tolerance, acceptance, and respect for multiculturalism, diversity of ideas and beliefs are promoted, which encourages graduates of different masters, to become decision-makers committed to valuable solutions to the problems of the area, environment, and community.

Thus, it should be pointed out that the transversal incorporation of the research axis is based on the functions inherent to the University related to Teaching, Research, and Liaison, to guide the transformation of the university curriculum. Since training is associated with the future vision of the university, which aims to be a model of international quality education, whose graduates are distinguished by their personal and professional achievements. To achieve these aspirations, which explicitly and implicitly, are referred to in the profiles of the different programs at the master's level, whose essence is focused on the formation of critical and creative professionals; capable of applying instrumental knowledge; in the production of solutions in a specific area of knowledge; promoting the development of potential, logical thinking, ability to reflect, analyze, make decisions and solve problems considering the advances in technology and communication.

This insertion and integration of the research activity throughout the master's degree are proposed as a strategy, activity, and co-requisite course, with the purpose of:

- a) Promote individual and cooperative self-learning.
- b) Stimulate research activity immersed in all master's degree programs.
- c) Implement research as a process that identifies opportunities for the creation, invention, and generation of innovation in technology, systems, services, and products.

This transversal treatment seeks to achieve competencies that favor the principle of possibilities manifested in the development, the broad and non-deterministic character of the process: each student, even though he/she has general methodological orientations that guide his/her work, builds his/her research process and outlines the path in the search for knowledge, during the development of the co-requisite courses, whose dynamic of collaborative and socialized work, intends that the students manage to initiate the design of an applied and viable research project, being monitored by institutional tutors until culminating in the last module of the Master's program with the development and execution of the Research Project/Final Project (Capstone).

Therefore, it is expected that the participant during the development of these courses will acquire knowledge, tools, and methodological tactics that will allow him/her to define his/her research within the context of the praxis related to the object of study and its application. The quality specifications that allow the pertinence of the project to be assessed are:

- a) The introduction adequately summarizes the research problem, the research objectives, and other components of the research problem.

- b) The exhaustive theoretical review of the area is summarized and the theory that sustains, justifies, and will guide the analysis of the research is clearly stated.
- c) The methodological review carried out is summarized and the methodological details that will allow the fulfillment of the objectives are clearly stated.
- d) The results obtained in the application of the methodology are presented and the fulfillment of each of the formulated objectives is evidenced.
- e) The analysis of results is contrasted with the theoretical debate and the state of the research problem addressed.
- f) Description of solutions using the appropriate symbology and terminology.
- g) Quantification, ROI, cost, and cost-benefit analysis.
- h) Formulation of product, service, and solution development timelines.
- i) Elaboration of considerations, analysis, diagrams, charts, graphs, schematics, diagrams, plans, or software.
- j) The conclusions gather the most valuable findings of the research and the contribution to the knowledge and application in the thematic area related to the master's degree is evident.
- k) The bibliography cited comes from credible sources in the area.

The structure that Allows the Transversal Insertion of the Research Axis in AU:

Master's students during their training will have the opportunity to take additional modules of zero credits, self-managed and certified, which will provide them with generic competencies related to information search skills, application of academic standards in the development of tasks, techniques for academic research and professional career services, as tools to achieve an optimal learning process, thus reinforcing the understanding and interpretation of the reality of their field of study.

As such, the University conceives research as a process of creation, renovation, critical revision, and application of knowledge and, it is an essential component of the master's training that is materialized in the academic program in two ways:

1. Research Training Courses: For the master's student to cover the required academic competencies, AU offers, simultaneously with the progress of the Master's program, a system of courses at no additional cost, maintaining a logical order for the acquisition of essential basic

knowledge and to be able to develop the specific project. These courses are designed to strengthen the processes of research, writing, methodological methods and techniques, analysis, and systematization of information. They are presented as a transversal component of the master's degree curriculum. This purpose is materialized in 3 academic courses distributed in the first 2 semesters of the program, to approach the research process and its conceptual foundation, in addition to the socialization with the research lines and the thematic areas of the Master's program. The courses are structured as follows and can be visualized in figure 1:

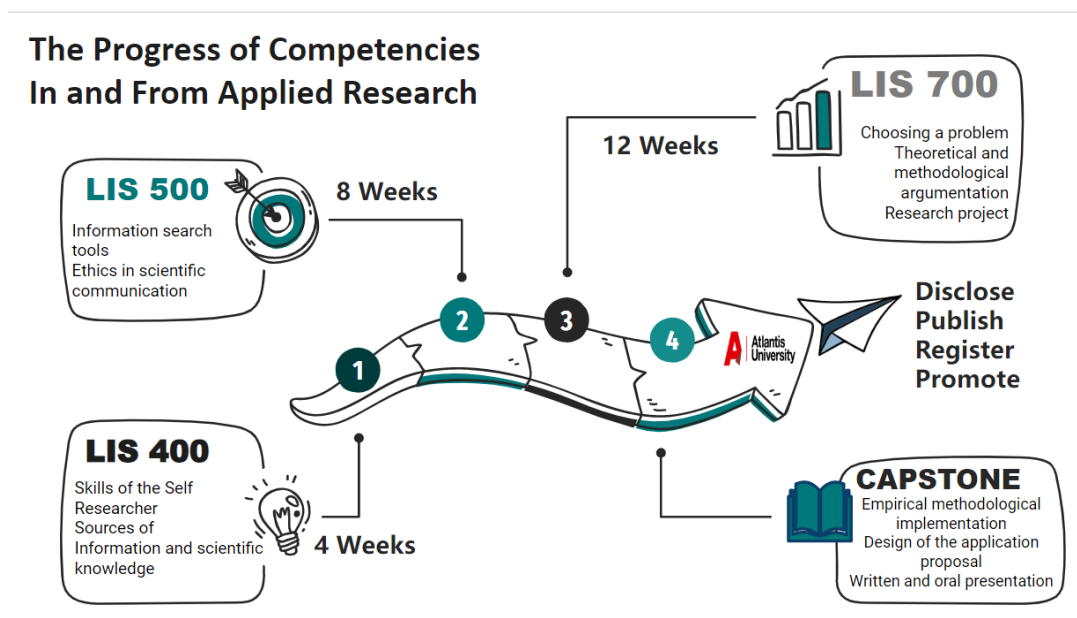


Figure 1: The Progress of Research Competencies in and from the curricular transversality of research.
Source: Own elaboration based on the Curricular Transformation Documents of Atlantis University.

- LIS 400 Information Searching:** During the development of the course, students will be provided with the necessary skills to perform information searches for the development of academic and research work, using search engines, a metasearch engine, and information storage systems.
- LIS 500 Document Style and Writing Standards:** During the development of this course the student is expected to achieve advanced academic, research, and professional writing skills, applying the APA document writing style in various academic documents.
- LIS 700 Research Methodology:** During the development of this course, reference is made to research methods and techniques, and the research lines of the Master's program are

presented. The student must select in which queue to enroll to develop his/her research, covering the following aspects:

- 1.The topic to be investigated, responding to the School's lines of research.
- 2.The objectives are coherent with the topic to be investigated.
- 3.The analysis of the problem is limited in space and time.
- 4.The research problem and its justification evidence the need to carry out the study.
- 5.Recent studies in the field evidence the preliminary theoretical foundation.

The completion of the courses and assignments with more than 80% of the grade, allows the student to receive a certificate. The obtaining of this document concludes the courses of the master's degree and the final research projects configured in the CAPSTONE course are ready to be developed.

2. The Process of Formulation and Development of the Degree Work: The research that is constituted and consolidated in the last two courses of the master's degree, is developed through a systematic and sequential process of three phases:

Phase 1: Research proposal;

Phase 2: Research development;

Phase 3: Presentation of the final research project, generating scenarios where the applied methodology is adapted to the sustained techniques of technological innovation, systems, services, and products, using technology (software) and traditional techniques of interpretation and argumentation.

Strategies for the Insertion and Operability of the Transversal Axis of Research at Atlantis University

In order to guarantee the rigorousness of the strategy of transversal insertion of research in the curriculum of Atlantis University's master's degrees, professors with competencies as specialists in the area, professional expertise, and proven scientific and methodological productivity are available, to provide master's students with the knowledge, skills, and abilities necessary to achieve the proposed indicators.

In addition to these academic and professional requirements, the University will promote the development of formal courses, in which the regulations and basic methodological tools for the

development of research projects are made known, so that they can incorporate them into the dynamics of the development of the course that facilitates, ensuring the transversal treatment of research in the development of academic tasks that respond to the complexity of the program, maintaining continuity throughout the training of the master and not leaving it only for the last 2 courses of the program that are specifically related to the final research project.

To this end, it is suggested to implement instructional strategies per course of the master's program that lead to the transversal achievement of the research axis, such as:

- a) Documentary review for the elaboration of academic writings per course.
- b) Discussion of case studies.
- c) Organization of workshops, and seminars, inviting specialists, and others.
- d) Analysis of readings that support the development of topics supported by research in the area.
- e) Oral presentations of academic papers related to students' research.
- f) Use of different instructional techniques, such as brainstorming, analogy, debates, and plenary sessions, among others.

As strategies for out-of-class implementation, by School or between Schools, we suggest the development of activities, such as:

1. Ensuring that the participants of the master's programs take and pass the 3 co-requisite courses related to the transverse axis of research, achieving the expected generic competencies.
2. Organization of events with the active participation of both teachers and students.
3. Promote by academic terms the research products of the master's degree programs.
4. Generate contests, awarding prizes for the best work done by the School.
5. Promote the publication of the best research projects in internal and external dissemination media.
6. Methodological training courses for tutors and professors in the research area.
7. Stimulate the creation of student societies immersed in research activities of the University.

Modality of Study for Transversal Insertion of Research

The transversal insertion of research in the master's degree is administered under the online study modality, combining generic knowledge related to information search, development of academic writings in compliance with established standards and research methodology, through spaces designed with various resources, tools, and assignments that lead to the achievement of proposed indicators, with individualized attention, mediated by academic tutors and extraordinary development of virtual classrooms focused on learning.

During the development of the co-requisite courses, transformative educational experiences are delivered to allow the application of the teachings through learning strategies that are closely related to research, analysis, reflection, and discussion activities, which generate the basis for the participants to start in the approach of a research problem.

The work modality is carried out in three different moments,

a) *Prior to the Realization of Goals:*

Where the student will carry out a reading of the established materials, and analysis of problematic situations, for the session taking into account the goal established for that purpose, as well as the formats required.

b) *In the Forums:*

A debate or discussion activity will be carried out about the topics in question, its discussion in the discussion forums through the synchronous sessions or in the modality established by the tutor; finally,

c) *Personalized Advising:*

The student will participate in sessions that are established either individually or in groups by both parties, these will be carried out through Blackboard, and the sessions will be scheduled for that purpose in advance, these sessions are not part of the evaluation, but they are important as they can help to resolve doubts that the student may have. There may be individual sessions, with previous agreement with the teacher.

Main Evidence of Performance

Delivery of a written document, via online/platform AU with the following characteristics

- a) Application of APA Standards in the written document
- b) Online development and delivery of the research phases.

Program Evaluation Strategies

The evaluation will be under the direct responsibility of the Program Director and the assigned tutor, who will serve as a guarantor that the established methodological strategies are complied with, and resize the activities depending on the results obtained.

Final Considerations

Universities are essentially knowledge-generating institutions that dedicate a large part of their academic efforts to the development of competencies in and for scientific research at the undergraduate and graduate levels to generate positive impacts on the evolution and advancement of science and technology. Hence the relevance of research at the university level since it confers a key role as a space for the generation and application of knowledge; through processes that are distinguished by their scientific rigor by being systematic, methodical, and objective while seeking to address the generation of knowledge to describe, explain, evaluate or solve the problems of the natural or social environment. Moreover, helping the improvement of the quality and welfare of society and the planet. Therefore, the need for University to outline strategic guidelines for the transversal insertion of the research axis in the framework of the curricular transformation of the different master degrees of Atlantis University.

The transversality of the research axis, as a component of the curriculum of the master's degree programs of Atlantis University, allows its organization and coherence at the same time it offers the operative mechanisms to incorporate it both diachronically and synchronically; through the transversality of the research, it deepens and consolidates all the phases of the development of the research process, strengthening the integral formation of the master student, in addition to the academic projection of the research by the school, achieving the integral formation and the development of academic-professional competences related to their area of formation, linked to their context and environment.

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