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PEDAGOGICAL CONTEXTUALIZATION STRATEGY FOR THE INTEGRATION OF SUBSTANTIVE FUNCTIONS IN HIGHER EDUCATION

ESTRATEGIA DE CONTEXTUALIZACIÓN PEDAGÓGICA PARA LA INTEGRACIÓN DE FUNCIONES SUSTANTIVAS EN EDUCACIÓN SUPERIOR

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Resumen

La integración de las funciones sustantivas universitarias representa un desafío crítico para las instituciones de educación superior contemporáneas. Esta investigación analizó cómo la contextualización pedagógica puede contribuir a la articulación efectiva de docencia, investigación y vinculación social para fortalecer la formación profesional integral. Se aplicó un enfoque mixto convergente que combinó métodos cuantitativos y cualitativos mediante encuestas a estudiantes, entrevistas semiestructuradas a directivos y docentes, observación institucional y análisis documental en la Universidad Estatal del Sur de Manabí. Los instrumentos fueron validados mediante juicio de expertos y presentaron alta confiabilidad. Los resultados revelaron fragmentación funcional sistemática, donde la mayoría de los directivos percibió articulación débil entre las funciones sustantivas, mientras que aproximadamente la mitad de los estudiantes participó en proyectos integradores. Se identificó debilidad en la percepción del valor formativo de las actividades de vinculación y limitada articulación entre docencia e investigación. Sin embargo, se encontró potencial motivacional significativo hacia la investigación formativa entre el estudiantado. La triangulación metodológica permitió diseñar una estrategia de contextualización pedagógica integrada que incluye planificación curricular contextualizada, investigación formativa institucionalizada, vinculación pedagógicamente situada, metodologías activas territorializadas y evaluación integrada del impacto. La contextualización pedagógica emerge como estrategia fundamental para superar la fragmentación funcional y lograr una gestión pedagógica que conecte efectivamente el conocimiento académico con la transformación social del entorno.

Palabras claves: contextualización pedagógica, educación superior, funciones sustantivas universitarias, gestión pedagógica integrada, investigación formativa.

Abstract

The integration of university core functions remains a critical challenge for contemporary higher education institutions. This study analyzed how pedagogical contextualization can contribute to the effective articulation of teaching, research, and community engagement in order to strengthen comprehensive professional training. A convergent mixed-methods approach was employed, combining quantitative and qualitative techniques through such as student surveys, semi-structured interviews with administrators and faculty, institutional observation, and document

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analysis at the Universidad Estatal del Sur de Manabí. The instruments were validated by expert judgment and demonstrated high reliability. The findings revealed systematic functional fragmentation: most administrators perceived a weak articulation among the core functions, while approximately half of the students participated in integrative projects. Moreover, a limited perception of the formative value of community engagement activities and weak connections between teaching and research were also identified. Nevertheless, significant motivational potential toward formative research was found among students. Methodological triangulation enabled the design of an integrated pedagogical contextualization strategy, which includes contextualized curricular planning, institutionalized formative research, pedagogically grounded community engagement, territorially relevant active methodologies, and integrated impact evaluation. Pedagogical contextualization emerges as a key strategy to overcome functional fragmentation and foster pedagogical management that effectively links academic knowledge with the social transformation of the surrounding environment.

Keywords: pedagogical contextualization, higher education, university core functions, integrated pedagogical management, formative research.

1. Introduction

Contemporary higher education faces the ongoing challenge of effectively articulating its core functions—teaching, research, and community engagement—to meet the demands of comprehensive training and ensure social relevance. This integration is not only a normative imperative, established in regulatory frameworks such as Ecuador's Organic Law of Higher Education, but also a pedagogical and social necessity aimed at forming competent and socially committed professionals.

Pedagogical contextualization emerges as a fundamental strategy to achieve such articulation, as it allows educational processes to be grounded in the specific realities of the sociocultural, economic, and

territorial contexts in which they take place. This approach transcends the traditional fragmentation of university functions and promotes integrated pedagogical management that connects academic knowledge with real-world problem-solving.

The Universidad Estatal del Sur de Manabí (UNESUM) represents a paradigmatic case of this challenge. Institutional diagnostics reveal that, although there is a stated commitment to integrating core functions, a significant gap persists between normative intentions and formative practices. Findings indicate that only 50.3% of students have participated in integrative projects, while 65.9% do not perceive a clear articulation between teaching and research. These results highlight the urgent need for contextualization



strategies that strengthen institutional pedagogical management.

The central research problem guiding this study is: How can pedagogical contextualization contribute to the effective integration of university core functions to enhance professional training and social impact in higher education? This question gains special relevance in the Ecuadorian context, where higher education institutions must simultaneously meet academic quality standards and respond to demands for territorial relevance demands.

Integrated pedagogical management is conceptualized here as a coordinating system that transcends traditional educational administration to become a transformative practice linking theory and practice, knowledge and social action. This perspective requires specific contextualization strategies that enable students to develop professional competencies through authentic, situated experiences in their immediate environment.

Formative research stands out emerges as a key component of this integrative strategy, functioning as a

pedagogical tool that connects learning with the generation of relevant knowledge. The diagnostic findings at UNESUM show that 45.1% of students expressed motivation to engage in formative research, suggesting significant potential for implementing situated learning strategies and active methodologies that reinforce functional integration.

The relevance of this study lies in its theoretical and practical contributions to the field of university pedagogical management. Theoretically, it provides a comprehensive conceptualization of pedagogical contextualization as a strategy for functional articulation in higher education. Practically, it proposes a replicable model for institutions aiming to strengthen coherence among their core functions and enhance their educational and social impact.

The general objective of this research is to design a pedagogical contextualization strategy that facilitates the effective integration of university core functions to strengthen comprehensive professional training and social impact in higher education. The

specific objectives are: (a) to analyze the theoretical foundations of pedagogical contextualization and its relationship with the integration of core functions; (b) to diagnose the current state of functional articulation at UNESUM through a mixed-methods approach; (c) to propose targeted strategies for contextualized pedagogical management; and (d) to evaluate the feasibility of implementing the proposed model.

2. Methodology

This research adopts a convergent mixed-methods approach integrating quantitative and qualitative methods to achieve a comprehensive understanding of the studied phenomenon. This methodological design is based on triangulation as a validation and analytical deepening strategy, allowing for the contrast of different information sources and perspectives on the integration of core university functions at UNESUM.

Research Design

The study is structured into three sequential and interconnected methodological phases:

Phase I: Situational Diagnosis

A descriptive-exploratory design was implemented to characterize the current state of integration of core functions at UNESUM. This phase included:

- Documentary review of institutional regulatory frameworks such as the Strategic Institutional Development Plan, Educational Model, Academic Regulations
- Direct non-participant observation in representative academic settings
- Application of quantitative and qualitative instruments to key stakeholders

Phase II: Multidimensional Analysis

Methodological triangulation was applied to validate and deepen the diagnostic findings. Quantitative and qualitative data were analyzed through:

- Descriptive statistics for quantitative variables
- Thematic content analysis for qualitative information



- A triangulation matrix to identify convergences and divergences among sources

Phase III: Model Proposal

Based on the integrated findings, a theoretically and empirically grounded pedagogical contextualization strategy was designed.

Population and Sample

The study population consisted of the academic community at UNESUM, segmented into two main groups:

Students: A proportional stratified probabilistic sampling method was used, considering the five institutional faculties. The final sample included 387 students at a 95% confidence level, and 5% margin of error, proportionally distributed by faculty and academic level.

Academic and administrative personnel: A purposive sampling method was applied, including:

- Deans and academic coordinators (N=8)
- Faculty members involved in research and community engagement (N=15)

- Strategic area heads (N=6)
- Student representatives (N=4)

Data Collection Instruments

- **Structured student survey:** A 25-item instrument organized into five dimensions: participation in integrative projects, perception of community engagement activities, curricular contextualization, teaching-research articulation, and motivation toward formative research. A five-point Likert scale was used (1 = Strongly disagree, 5 = Strongly agree). Content validity was established through expert judgment (Aiken's $V = 0.89$), and reliability reached $\alpha = 0.87$ (Cronbach's Alpha).
- **Semi-structured interviews with administrators and faculty:** A guide of 18 open-ended questions organized into six thematic areas: general articulation of core functions, institutional capacities, academic planning, use of ICT, community engagement, formative research, and regulatory frameworks. Interviews had an

averaged duration of 45 minutes and were recorded with informed consent.

- **Institutional observation guide:** A standardized protocol to record evidence of functional integration in academic spaces, laboratories, outreach projects, and research activities. It was applied in 12 representative settings over a three-month period.
- **Document analysis matrix:** An instrument designed to systematize information from 24 key institutional documents, organized into four categories: regulations, strategic planning, academic management, and institutional evaluation.

Data Analysis Procedure
Data triangulation followed Creswell's convergence model. The process included:

1. **Independent analysis:** Quantitative data were processed using SPSS v.28, applying descriptive and inferential statistics. Qualitative data were analyzed with Atlas.ti

v.9, using axial coding and thematic analysis.

2. **Integrative synthesis:** A triangulation matrix was constructed to compare findings across information sources, identifying patterns of convergence, complementarity, and divergence.
3. **Holistic interpretation:** Integrated results were interpreted in light of the theoretical framework, generating evidence-based conclusions and improvement proposals.

Ethical Considerations

The study adhered to the ethical principles outlined in the Declaration of Helsinki and was approved by UNESUM's Ethics Committee. The following measures were ensured:

- Informed consent from all participants
- Confidentiality and anonymity of data
- The right to voluntary withdrawal without consequences
- Exclusive use of data for academic purposes



3. Results and discussion

The findings of this research reveal a complex landscape regarding the integration of core functions at UNESUM, characterized by significant progress in some areas and alongside structural challenges in others. Methodological triangulation allowed for the identification of consistent patterns that highlight both institutional strengths and key areas for improvement.

Quantitative Diagnosis: Student Perspective

The analysis of the survey applied to 387 students reveals mixed perceptions regarding the articulation of core functions. The most significant results are summarized below:

Participation in Integrative Projects:

50.3% of students reported having participated in projects that integrate teaching, research, and community engagement (27.9% strongly agree + 22.4% agree). However, 52.4% indicated limited or no experience with such initiatives. This polarization suggests that while successful integration experiences exist, they

have not been consistently generalized across programs and academic spaces.

Community Engagement Activities:

The most concerning results relate to the perception of community engagement activities: only 20.9% of students valued them positively. Additionally, 28% expressed strong disagreement regarding their usefulness, suggesting a disconnect between outreach actions and educational processes. This disarticulation reflects a tendency toward assistentialist or insufficiently approaches to social projection.

Curricular Contextualization:

42.5% of students acknowledged that courses connect academic content with the local reality, while 54.6% expressed disagreement or indifference. This gap indicates that territorial contextualization of the curriculum remains insufficient, with a prevalence of traditional models disconnected from the surrounding environment.

Teaching–Research Articulation:

Only 41.2% of students perceived effective articulation between teaching and research, whereas

65.9% did not clearly identify such a connection. This suggests that research is still seen as a parallel activity, not integrated into curricular dynamics or classroom practice.

Motivation Toward Formative Research:

This dimension yielded the most promising results: 45.1% of students expressed motivation to participate in formative research projects (28.3% strongly agree + 16.8% agree), with only 6% strongly disagreeing. The high rate of neutrality (42.1%) points to motivational potential that requires structured systematic channels.

Qualitative Findings: Institutional Perspective

In-depth interviews with administrators and faculty revealed significant convergences that complement and deepen the quantitative results:

Perceived Functional Articulation:

35% of participants perceived real functional articulation, while 65% described it as weak, fragmented, or unsystematized. Interviewees agreed that “articulation exists in institutional discourse but lacks practical implementation.” This gap between intention and reality

confirms the need for concrete, actionable integration strategies.

Institutional Strengths:

There was consensus regarding the existence of a highly qualified academic staff, with postgraduate degrees and strong professional commitment. The Faculties of Health Sciences, Education, and Agricultural Sciences emerged as spaces with greater functional integration and successful interdisciplinary project experiences.

Operational Limitations:

Participants reported challenges in academic planning, especially in aligning schedules and faculty workloads. Budgetary and time constraints were also mentioned as limiting factors for the balanced development of the three core functions.

Technological Potential:

The potential of ICTs to support functional integration was acknowledged, although gaps in connectivity and digital infrastructure were identified, particularly in rural settings.



Results Triangulation: Diagnostic Synthesis

The convergence of data sources led to the identification of three critical trends:

1. Systematic Functional Fragmentation

Although there are institutional efforts to integrate core functions, they remain isolated and not widespread. Evidence shows that functional articulation has not yet been institutionalized as a systematic pedagogical practice.

2. Weak Perception of Formative Value

Research and outreach activities are not consistently recognized by students as formative, pointing to deficiencies in pedagogical design and curricular integration.

3. Latent Motivational Potential

Students show a disposition toward more active and integrative experiences, representing a strategic opportunity to implement the proposed model.

Institutional Observation Analysis

Direct observation across 12 academic settings revealed:

- Successful integration experiences in Agricultural Sciences laboratories
- Community engagement projects with research components in the Faculty of Health Sciences
- Limited articulation between graduation projects and institutional research initiatives
- Emerging use of active methodologies to promote functional integration

Implications for the Proposed Model

The findings support the relevance of a pedagogical contextualization strategy that:

- Institutionalizes functional integration as a systematic curricular practice
- Strengthens the pedagogical design of research and outreach activities



- Harnesses student motivation through active and participatory methodologies
- Capitalizes on the strengths of institutional human capital
- Overcomes operational limitations through strategic, planned pedagogical management

Proposed Model of Pedagogical Contextualization

Based on the findings, a model of integrated and contextualized pedagogical management is proposed, structured around five essential components:

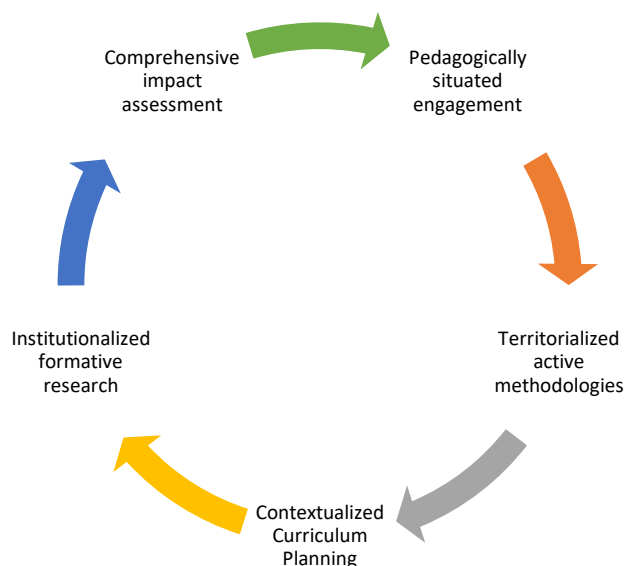
1. **Contextualized Curricular Planning:**
Development of curricula that systematically incorporate action-research projects linked to specific territorial issues.
2. **Institutionalized Formative Research:**
Implementation of formative research as a transversal axis of the curriculum—not as a complementary activity—facilitating the development of research competencies from the early semesters.

3. **Pedagogically Situated Community Engagement:**
Reconceptualization of outreach activities as comprehensive formative processes that combine social action, situated learning, and the generation of relevant knowledge.

4. **Territorially Relevant Active Methodologies:**
Systematic incorporation of problem-based learning focused on local realities, interdisciplinary projects, and context-based professional practices that bridge theory and social practice.

5. **Integrated Impact Assessment:**
Development of monitoring systems that evaluate not only the individual fulfillment of each function, but also their synergistic articulation in professional training and social impact.

Figure 1. Proposed model of the pedagogical contextualization cycle



Discussion

The findings of this research confirm the inherent complexity of integrating the core functions of higher education, revealing that effective articulation goes beyond regulatory declarations and requires profound transformations in institutional pedagogical management. The results obtained at UNESUM are consistent with previous studies that document the persistence of fragmented approaches in Latin American universities.

Convergence with the International Theoretical Framework

The gap identified between institutional intentions and formative

practices aligns with the perspectives of García Abad and González Fernández-Larrea, who reported similar challenges at the Catholic University of Cuenca. The functional fragmentation observed at UNESUM reflects regional patterns in which higher education institutions struggle to operationalize the integration of their core functions, treating them as parallel activities rather than components of an articulated system.

Findings on students' weak perception of the formative value of outreach activities (only 20.9% rated them positively) echo Menéndez's arguments regarding the need to overcome welfare-based approaches in university extension.

This theoretical convergence validates the relevance of contextualization strategies that reconceptualize outreach as an integral pedagogical process.

Pedagogical Contextualization as an Integrative Strategy

The results highlight that pedagogical contextualization emerges as a key factor in overcome the identified functional fragmentation. The fact that 54.6% of students do not perceive a connection between their academic knowledge and the local context underscores the urgent need for strategies that anchor educational processes in authentic and meaningful settings.

This need aligns with the principles of situated learning, which conceptualizes knowledge as socially constructed and context-bound. The motivation among students for formative research (45.1%) represents significant potential to implement methodologies that link learning with the resolution of real-world problems.

Integrated Pedagogical Management: Beyond Educational Administration

The findings concerning limitations in academic planning and resource allocation confirm that functional integration requires a reconceptualization of pedagogical management. The data show that 65% of administrators perceive articulation as weak or fragmented, suggesting the need for management models that go beyond traditional administration and evolve into transformative practices.

According to the findings, integrated pedagogical management must articulate three critical dimensions: contextualized curricular planning, teacher training in active methodologies, and tracking systems that evaluate the synergistic impact of core university functions.

Formative Research as the Articulating Axis

The potential identified in students' motivation toward formative research supports theoretical perspectives on this approach as an integrative pedagogical strategy. The results suggest that formative research could serve as the axis that connects teaching, research, and outreach—provided it is designed as a systematic process rather than an occasional activity.



This perspective is consistent with studies in Colombia documenting the role of formative research as a bridge between university functions. The main challenge lies in institutionalizing this practice as a transversal curricular component, moving it beyond its current status as a supplementary activity.

Identified Limitations and Challenges

The findings reveal structural limitations that go beyond pedagogical management, involving budgetary, technological, and cultural aspects. The identified digital divide, particularly in rural contexts, poses a challenge to the implementation of integrated strategies that utilize ICT as pedagogical tools for integration.

Limitations in teaching workload—preventing balanced development of all three core functions—constitute a structural barrier that requires specific institutional policies. This finding aligns with previous studies highlighting faculty overload as a major obstacle to functional integration in public universities.

Implications for Institutional Policy

The results suggest that effective pedagogical contextualization requires institutional policies that:

1. Reconceptualize curricular planning from an integrative perspective to articulate the three core functions as a coherent system.
2. Strengthen teacher training in active methodologies, situated learning, and formative research.
3. Develop evaluation systems that measure the articulated impact of university functions on professional training.
4. Establish territorial partnerships that support authentic contextualization of educational processes.

Theoretical and Methodological Contributions

This research provides empirical evidence on the effectiveness of methodological triangulation for studying complex phenomena in higher education. The convergence of quantitative and qualitative data enabled the identification of patterns that would not have emerged through

single-method approaches, validating the relevance of mixed-method designs in educational research.

Theoretically, the study contributes to the conceptualization of pedagogical contextualization as a specific strategy for functional integration, distinguishing it from general educational management approaches. This distinction has important implications for the design of university policies and practices aimed at articulating core functions.

Projections and Future Research Lines

The findings open research pathways regarding the practical implementation of integrated pedagogical management models, particularly in public universities facing budgetary constraints. Longitudinal studies are needed to assess the impact of contextualization strategies on educational quality and social relevance indicators.

The study also points to the need for comparative research across different types of universities (public, private, technical) to identify contextual factors that facilitate or

hinder the integration of core academic functions.

4. Conclusions

This research confirms that the effective integration of the university's core functions constitutes a complex challenge that goes beyond normative declarations, requiring profound transformations in institutional pedagogical management. The findings demonstrate that pedagogical contextualization emerges as a key strategy for articulating teaching, research, and community engagement into a coherent system of comprehensive professional training.

The diagnostic conducted at the Universidad Estatal del Sur de Manabí reveals a landscape characterized by systematic functional fragmentation, in which where the three core functions operate as parallel activities rather than as an integrated system. Only 35% of administrators perceive genuine functional articulation, while 50.3% of students report participation in integrative projects, indicating that successful



experiences remain isolated rather than widely generalized.

The weak perception of formative value is a critical finding: only 20.9% of students positively value community engagement activities, and just 41.2% perceive an articulation between teaching and research. This disconnection suggests that research and engagement activities have not been designed within an integral pedagogical perspective, remaining complementary actions rather than structuring curricular components.

However, the study identifies a significant motivational potential: 45.1% of students express interest in participating in formative research, representing a strategic opportunity to implement active and contextualized methodologies. This finding validates the relevance of situated learning strategies that connect academic training with the resolution of real-world problems.

The proposed pedagogical contextualization strategy represents a concrete contribution to the challenge of articulating the university's core functions, moving beyond fragmented approaches by

proposing a pedagogical management model that connects academic knowledge with social transformation. The findings confirm that such articulation is possible when there is institutional will, systematic planning, and collective commitment to comprehensive training and enhancing the social impact of higher education.

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