







ORIGINAL

University extension and the development of professional skills: A necessary symbiosis for professional performance

La extensión universitaria y el desarrollo de competencias profesionales: Una simbiosis necesaria para el desempeño profesional

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ABSTRACT

Introduction: the university extension programme was conceived as an educational space that combines teaching, research and community outreach. However, in Ecuador, and particularly at the Technical University of Manabí, its impact on the development of professional teaching skills had not been systematically analysed.

Method: the study took a qualitative approach and aimed to examine how coordinators and teachers involved in outreach processes view the situation. The sample consisted of 19 participants selected according to their experience and roles. A review of documents and semi-structured interviews was conducted. The analysis was performed using Atlas.ti 25, applying axial and open coding. Finally, a bibliometric study was carried out in VOSviewer of publications indexed in Scopus during the previous five years.

Results: three main categories emerged. The first corresponded to the integration of theory and practice, highlighted as a means of strengthening students' confidence and professional skills. The second related to communication and leadership, skills identified as recurring in outreach projects. The third was linked to the need for organisational change, as the lack of planning and institutional support limited the impact of the activities.

Conclusions: the research showed that professional skills, critical analysis and communication are developed through the university extension programme at the Technical University of Manabí. However, there are still limitations due to a lack of resources, strategic planning and institutional continuity. For this reason, it is essential to have stable and clear policies and to integrate them as an essential element of teacher training in order to ensure the programme's viability.

Keywords: University Extension; Professional Skills; Teacher Training; Higher Education.

RESUMEN

Introducción: la extensión universitaria fue concebida como un espacio formativo que articula docencia, investigación y vinculación con el entorno. Sin embargo, en Ecuador y en particular en la Universidad Técnica de Manabí, su impacto en el desarrollo de competencias profesionales docentes no había sido analizado de manera sistemática.

Método: el enfoque del estudio fue cualitativo y el objetivo era examinar la manera en que los coordinadores y los docentes implicados en procesos de vinculación ven la situación. La muestra se conformó por 19 participantes seleccionados de acuerdo a su experiencia y sus roles. Se llevó a cabo una revisión de documentos y entrevistas semiestructuradas. El análisis se realizó con Atlas.ti 25, aplicando la codificación

axial y abierta. Para finalizarlo, se llevó a cabo un estudio bibliométrico en VOSviewer de las publicaciones indexadas en Scopus durante los cinco años previos.

Resultados: emergieron tres categorías principales. La primera correspondió a la integración teoría-práctica, destacada como medio para afianzar la confianza y las capacidades profesionales de los estudiantes. La segunda se relacionó con la comunicación y el liderazgo, competencias señaladas como recurrentes en los proyectos de extensión. La tercera se vinculó a la necesidad de cambios organizacionales, pues la falta de planificación y de apoyo institucional limitó el impacto de las actividades.

Conclusiones: la investigación evidenció que las capacidades profesionales, el análisis crítico y la comunicación, se ven desarrolladas por la extensión universitaria de la Universidad Técnica de Manabí. No obstante, existe aún limitaciones que son derivadas por la escasez de recursos, una planificación estratégica y continuidad institucional. Por tal motivo, para su viabilidad se establece que es imprescindible tener políticas estables y claras e integrarlas como un elemento esencial para la capacitación de los docentes.

Palabras clave: Extensión Universitaria; Competencias Profesionales; Formación Docente; Educación Superior.

INTRODUCTION

University outreach programmes were recognised worldwide as an essential part of academic education. In Europe, programmes integrating research, teaching and outreach were promoted. Finland promoted projects targeting vulnerable sectors, which strengthened analytical and problem-solving skills.⁽¹⁾ In the United Kingdom, service learning became established as a strategy for strengthening professional preparation.⁽²⁾ In the United States, community colleges developed leadership and communication practices in real-world settings.⁽³⁾ Japan and South Korea linked it to technological innovation and external cooperation projects. These models showed that extension is a pillar and not a secondary activity.

In Latin America, universities applied models with their own characteristics. In Argentina, projects were promoted that addressed inequalities and opened up spaces for training practice.⁽⁴⁾ In Brazil, extension was established as a compulsory part of the curriculum.⁽⁵⁾ In Mexico, initiatives were implemented in rural areas that strengthened cultural management and mediation.⁽⁶⁾ In Colombia, programmes were developed in post-conflict settings, which strengthened critical thinking and professional ethics.⁽⁷⁾ These examples confirmed that the extension broadened learning beyond the classroom.

In Ecuador, progress was limited. Universities developed outreach projects, but without continuity or a research base.⁽⁸⁾ The Technical University of Manabí faced an even more complex scenario. Its outreach experiences were welfare-based and poorly evaluated. A theoretical gap persisted, preventing an understanding of the link between outreach and professional skills. In Portoviejo, labour demands grew. Social changes required graduates to have skills that went beyond academic knowledge. However, the university did not have specific methods for integrating outreach into professional training processes. Students would be restricted in increasingly changing work contexts if the situation continued. The absence of studies widened the gap between the university environment and professional practice.

In this context, this research aims to understand the role played by university outreach as an essential component of teacher training and its impact on strengthening professional skills. Based on a review of institutional experiences and an analysis of the perceptions of coordinators and teachers involved in processes of engagement with society, the study seeks to provide evidence to support the effective integration of teaching, research and outreach as key elements of professional development. The objective of the research was to analyse the impact of university outreach on the development of professional skills in teacher training at the Technical University of Manabí.

METHOD

Research approach

A qualitative, descriptive-interpretative study was conducted at the Technical University of Manabí (UTM), located in the city of Portoviejo, Manabí province, Ecuador.

The research was carried out between January and June 2025, within the framework of institutional university extension projects. This design allowed for the analysis of the perceptions, experiences, and practices of teachers and coordinators who participate in processes of engagement with society, with the aim of understanding the impact of these actions on the development of professional teaching skills.⁽⁹⁾

Population and sample

The study population consisted of teachers and coordinators linked to the university extension area of the Technical University of Manabí (UTM), specifically in the fields of innovation, research, and community

outreach.

The sample, which was intentional and non-probabilistic, consisted of 15 participants, including 3 coordinators and 12 teachers who are directly involved in extension projects. The selection was made using selective sampling criteria, considering their experience in outreach and academic management within the institution.⁽¹⁰⁾

Inclusion criteria

- Have more than five years of professional experience in university teaching.
- Actively participate in current university outreach projects or programmes.
- Have documented knowledge of institutional management and planning processes.

Exclusion criteria

- Teachers or coordinators who have not participated in outreach activities in the last two years.
- Administrative or technical staff without academic functions.

Exit criteria

- Voluntary withdrawal during the interview phase.
- Inconsistency in the information provided or lack of availability to complete the validation sessions.

Techniques and instruments

The techniques used were document review and interviews. The review allowed for the collection of information from regulations, institutional reports, and current literature. The interviews were semi-structured, with open-ended questions that encouraged reflection and the description of experiences.⁽¹¹⁾

Data analysis

The analysis was carried out in several phases. First, the interviews were transcribed. Then, they were processed using Atlas.ti software, which enabled coding and the construction of structural networks.⁽¹²⁾ At the same time, VOSviewer was used for a bibliometric analysis of articles indexed in Elsevier's Scopus database, covering a five-year period. Subsequently, the opinions collected were interpreted. Finally, all the information was integrated, generating emerging categories.

Table 1. Questions applied to teachers and coordinators who perform linkage functions at the Technical University of Manabí

No.	Item
1	How would you characterize the existing connection between professional development for students in your academic unit and university extension projects?
2	Based on your experience, which professional competencies do you think students most clearly develop through extension activities?
3	What restrictions or challenges do you see in the application of university extension that prevent it from effectively enhancing professional performance?
4	What adjustments, in your opinion, would extension projects need to make to have a bigger influence on students' professional preparation?
5	What role should university extension at UTM play in developing critical skills for the modern workforce, in your opinion?

The interviews were transcribed in full and subsequently analysed using open and axial coding in Atlas.ti 25. Data triangulation involved researchers, theoretical frameworks and participant testimonies, supported by analytical notes and decision logs.

Ethical considerations

The process was carried out in accordance with the institution's ethical standards. The ethics and validation committee of the Technical University of Manabí approved the research. The principles of coding and confidentiality were implemented. The names and surnames of the informants were not used. Each participant was given a code. For example: C1 is coordinator number one and D3 is teacher number three. The secrecy and security of confidential information was ensured with this strategy.

RESULTS

Qualitative analysis identified a structural network of emerging categories that reflect the perceptions

of coordinators and teachers regarding the role of university extension in the development of professional skills. This representation created using Atlas.ti version 25 software, summarises the conceptual relationships established through the open and axial coding process, highlighting the links between theory, practice and professional training. Figure 1 presents the structural network of emerging professional skills derived from university extension programmes.

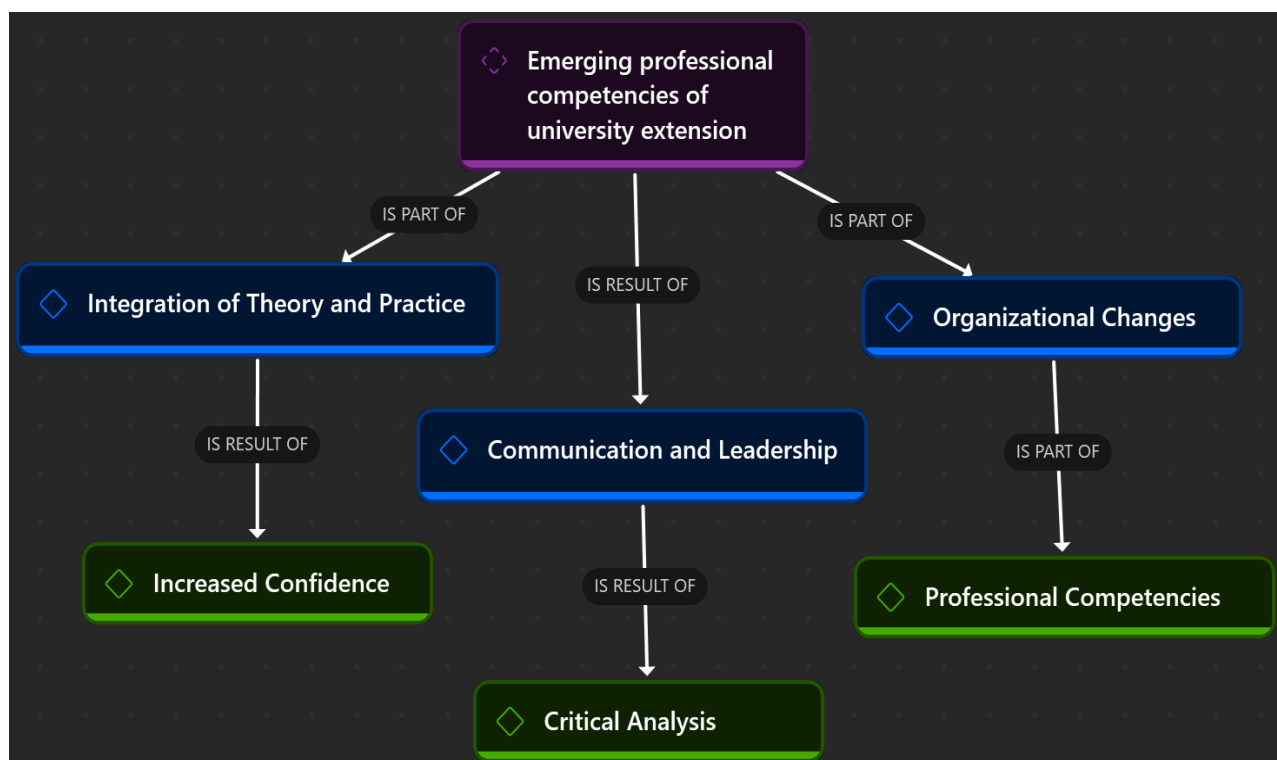


Figure 1. Structural Network of Emerging Professional Competencies of University Extension

This brought together the perceptions of coordinators and teachers regarding the role of university extension in the development of emerging professional skills. As can be seen in the figure, three main lines were identified from the testimonies. The first corresponded to the integration of theory and practice, as noted in statements such as that of D.4, who stated that ‘students were able to link what they learned in the classroom with social reality,’ which translated into greater confidence when performing in real-life scenarios.

The second theme was communication and leadership, evidenced in statements such as that of T.9, who argued that ‘participation in community projects allowed students to take on responsibilities and strengthen their critical thinking skills in the face of problems.’ These accounts reflected that outreach became a learning space that encouraged analysis and reflection on teaching practice.

The third line of thought related to organisational changes, raised by coordinators such as C.2, who indicated that ‘without planning and institutional support, professional skills cannot be consolidated.’ This view highlighted the need to articulate outreach with clear policies and stable processes that guarantee its sustainability. Overall, the interviewees’ comments suggested that university extension was perceived as an effective means of strengthening competencies, provided that structural barriers could be overcome and a real connection with teaching and research could be established.

DISCUSSION

University extension has been recognised as an integrative process that connects teaching and research with society, contributing to the development of professional skills in practical settings.⁽¹³⁾ The results of this study showed that the teachers and coordinators interviewed agreed that the extension strengthened the relationship between theory and practice by allowing students to apply knowledge in diverse social contexts. This finding was in line with the findings of Want et al.⁽¹⁴⁾, who highlighted that the extension programme at Brazilian universities promoted contextualised learning linked to professional practice.

The identification of specific competencies emerged as a central aspect. Participants noted that communication, leadership, social responsibility, and critical analysis were clearly developed in the applied projects. Previous research supported these findings, demonstrating that university extension programmes contribute to the strengthening of interpersonal and socio-professional skills in teacher training students.⁽¹⁵⁾

In this regard, the results confirmed the relevance of outreach as a training strategy and showed that, despite limitations, the projects provided significant experiences in academic and job preparation.

However, interviewees also highlighted limitations related to lack of resources, absence of institutional continuity, and poor curriculum coordination. These observations coincided with those noted by, who points out the fragility of university extension in Latin America when it lacks stable policies and sustained funding.⁽¹⁶⁾ Thus, the findings suggested that the effectiveness of extension at the Technical University of Manabí depended on overcoming structural obstacles similar to those reported in the region.

Likewise, the coordinators emphasised the need to strengthen strategic planning and ensure the integration of extension with teaching and research. International studies maintain that the sustainability of extension projects is achieved when universities consolidate a coherent and long-term institutional framework.⁽¹⁷⁾ The contrast between local impressions and the specialised literature led to the conclusion that, in the absence of defined policies, achievements remain partial and depend more on the individual efforts of teachers than on ongoing institutional commitment.

One aspect that emerged was the need to include digital skills and innovative methods in projects. The testimonies indicated that, to meet the demands of the contemporary labour market, it was essential to use technologies and collaborative dynamics. These findings coincided with Zhang et al.⁽¹⁸⁾ who emphasised the importance of digital literacy and collaborative learning as key elements of teacher training in the 21st century. The convergence between results and literature suggested that outreach at UTM still had a significant gap in terms of the new skills required by the knowledge society.

The results confirmed that university extension at UTM represented a training resource with proven potential, although conditioned by structural limitations. The consolidation of professional skills was evident, but the absence of a solid institutional framework reduced the scope and sustainability of the achievements. These findings coincided with international research that insists on the need to integrate extension as a structural pillar of professional training.⁽¹⁹⁾

This study was not without limitations. The sample was restricted to teachers and coordinators from a single university, which limits the generalisation of the findings. For further research, it would be appropriate to extend the sample to other higher education institutions, incorporate mixed methodologies that combine qualitative and quantitative analyses, and conduct longitudinal studies that reflect how competencies develop over multiple academic periods. These methods would strengthen the empirical foundation and offer a more comprehensive understanding of the role of university extension in the development of professional teaching skills.

CONCLUSIONS

The purpose of this study was to interpret how university extension contributes to strengthening professional competencies in teacher training at the Technical University of Manabí. The findings showed that this academic function was configured as a training resource that allowed knowledge to be applied in real scenarios and promoted skills related to critical analysis, communication, and leadership. However, its scope was limited by a lack of institutional continuity, the absence of strategic planning, and resource constraints. In broader terms, the results indicate that disclosure is not a uniform or spontaneous process but rather depends on specific cultural, pedagogical, and organizational conditions. This vision places the local experience in a regional framework where disclosure is acknowledged as a valuable mechanism but remains insufficient in the absence of clear policies and institutional support.

The presented conclusions do not aim to generalize statistically but rather provide interpretive foundations that guide understanding the role of extension in the teacher's training under specific structural conditions. For universities, this means combining established norms, clear pedagogical standards, and ongoing training programs that ensure their successful integration. This study offers an initial conceptual reference that can be replicated.

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