

# Online Tourism Education and Territorial Development in Latin America: A Case Study from Colombia

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## Abstract

**Purpose:** This study examines the impact of online higher education on territorial tourism development, focusing on the Tourism & Hotel Business Administration, Digital University Institution from Antioquia (IU Digital), Colombia's pioneering fully virtual public institution since 2018. It investigates the program's alignment with national and departmental tourism development plans, its role in professional training, and its measurable impact on local contexts.

**Design/methodology/approach:** Employing a qualitative case study methodology, the research triangulates data from semi-structured interviews with institutional and government stakeholders, a graduate follow-up survey (n=29), and document analysis of policy frameworks and academic outputs. Additionally, the study incorporates analysis of visual materials and database metrics to assess the program's digital presence and engagement.

**Findings:** The findings reveal that online higher education fosters territorial inclusion and provides relevant training for tourism professionals, particularly in underserved regions. However, there is a limited articulation between higher education curricula and tourism public policies at the national and international levels. Graduates have made tangible contributions to regional tourism development initiatives, especially in sustainability-focused territories. Visual and database analyses indicate a growing digital engagement and outreach of the program, highlighting areas for further enhancement.

**Originality/Significance:** This study offers empirical evidence from Latin America on the role of digital higher education in regional tourism development. It provides actionable recommendations for improving curricular relevance, graduate engagement, and policy integration. The case presents a scalable model for connecting online education with sustainable territorial development in tourism, contributing to the academic discourse on educational pertinence and digital engagement strategies.

**Keywords:** Online higher education; Tourism education; Territory; Colombia; Tourism

## INTRODUCTION

Particularly in areas where access to conventional higher education is restricted, online hospitality and tourism education (HTE) has become a vital tool for professional training. Online HTE improves employability and helps sectoral growth by providing well-organized routes for academic and vocational skill development (Chandra, Ranjan, and Chowdhary 2022). The inclusion of Information and Communication Technologies (ICT) in e-learning environments has increased accessibility, flexibility, and involvement in hospitality and tourism programs, allowing students in remote or underdeveloped areas to obtain the necessary skills that promote regional development (Amin et al. 2022). Including new technologies like artificial intelligence (AI), virtual reality (VR), and big data analytics into hospitality courses has become vital in the post-COVID-19 era. These technologies drive innovation and help with territorial issues, including crisis management and sustainable development. Present courses stress a mix of hard skills, such as technological knowledge, safety procedures, and marketing tactics, and soft skills like leadership, wellness, and critical thinking, all of which are necessary for improving regional competitiveness (Xu et al. 2022). Big data analytics is changing tourism education and practice by offering fresh insights on destination and income management. This move toward data-driven competencies

gives students the tools to help local tourism plans by providing actionable information that gives territorial locations a competitive edge (Lyu et al. 2022). Furthermore, online education promotes digital literacy and self-directed learning, qualities employers in the tourism sector increasingly value. Internet-integrated tourism education teaches students in industry applications and operational digital tools, which are essential for modern workforce readiness (Williams and McKercher 2002). Online HTEs' use of simulation tools, role-plays, and computer-based learning helps to close the gap between theoretical knowledge and practical tourism challenges by improving students' problem-solving and service delivery skills (Chandra, Ranjan, and Chowdhary 2022).

Though higher education has greatly helped to professionalize tourism, there is still a poor link between tourism education programs and more general tourism development policies. Education has not followed with strategic coherence, even with extensive changes in tourism policy (Cytowanie Handszuh 2023). Academic studies that methodically examine how online tourism programs fit national or international goals show a clear lack. Current studies emphasize curriculum material or graduate competencies more than policy alignment (Mínguez, Martínez-Hernández, and Yubero 2021). With most programs still old or fragmented, a study covering five Latin American nations, including Colombia, found little institutional effort to evaluate or revamp tourism programs depending on public policy goals (González Forero and Villegas Cortés 2023). While Colombian tourism curricula exhibit some thematic convergence with worldwide research trends, such as sustainability, (Burbano-Fernandez et al. 2024) a clear disparity exists between research topics and practical curriculum design. This calls into question the preparedness of graduates to handle national development goals.

Projects such as Colegios Amigos del Turismo (CAT) in Colombia encourage efforts to include tourism education in public education. These initiatives, therefore, lack systematic assessment and national integration with higher education curricula or long-term territorial development plans (Bassols i Gardella 2020). Though not yet unified into globally accepted models, particularly in digital or online formats, internationally, frameworks such as the UNWTO's Sustainable Tourism Pedagogy (STP) provide values and skills for curriculum development (Mínguez, Martínez-Hernández, and Yubero 2021). Most nations, including Colombia, lack a formalized plan linking higher education to territorial development, as seen in the lack of institutionalized cooperation between universities and tourism planning agencies (Tomasi, Paviotti, and Cavicchi 2020). Though their possibilities, higher education institutions are usually not engaged in forming or coordinating with national peacebuilding and rural revitalization initiatives, even when tourism development is framed within those contexts, as in post-conflict Colombia (Burbano-Fernandez et al. 2024). Promoted in areas like Bali and Indonesia for ecotourism growth, the "triple helix" model—university-government-community cooperation—remains underutilized or unstructured in Latin American educational systems (Wisnumurti et al. 2020). Evaluating the effect of higher education programs—especially in tourism—increasingly depends on systematically tracking graduate results in Colombia, conforming to national guidelines, including Decree 1330 of 2019 and the Ministry of Education's quality assurance policies (Fontalvo, Delahoz-Dominguez, and De la Hoz 2022). Learning outcomes and assessment tools must be related to actual performance to guarantee institutional responsibility and social relevance. Reflecting the relevance and efficacy of educational programs in the labour market, studies highlight that graduates are not only academic outcomes but also essential links between universities and territorial dynamics (Gómez-Molina et al. 2019). When assessing graduate impact, methods suggested (Castrillón and Giraldo 2017) support a multidimensional, interdisciplinary approach that includes qualitative and documentary triangulation beyond surveys. Under this framework, the IU Digital, a pioneering online public university founded in 2018, two years before the COVID-19 epidemic, was developed to democratize access to higher education and foster regional development via completely virtual programs (IU Digital of Antioquia 2018). The Faculty of Tourism & Hotel Business Administration has actively interacted with local stakeholders and used creative teaching techniques over its seven years of existence. This paper finds obvious alumni contributions to local tourism development, such as participation in sustainable tourism projects in the Urabá area, through interviews with the program's dean and Antioquia public sector officials and a graduate survey. These results show IU Digital's territorial dedication and underline the need to enhance graduate follow-up mechanisms as instruments for ongoing development, regional involvement, and policy alignment.

## **LITERATURE REVIEW**

### **Online Higher Education in Tourism**

The digital transformation of higher education has greatly changed how tourism and hospitality professionals are trained worldwide. As a reaction to technological developments and socio-economic concerns, especially during and

after the COVID-19 epidemic, online education, especially in MOOCs, blended learning, and fully virtual programs, has gained traction (Lin and Cantoni 2018). (Smith 2021) Underlines that the epidemic revealed important deficiencies in faculty readiness for digital pedagogy, urgently urging hospitality teachers to reskill and use creative teaching methods for generations Z and Alpha. Though popular worldwide, Massive Open Online Courses (MOOCs) are still underused in tourism education, particularly in the Global South. According to (Lin and Cantoni 2018), even among early institutions, use of MOOCs in tourism and hospitality has been conservative, with little risk-taking and creativity in teaching design. The effectiveness of such digital modalities depends greatly on curriculum relevance; research on technology graduates, for example, reveals a close link between graduates' view of the relevance of their curriculum and their later employability, so stressing the vital need for online tourism programs worldwide to always match content with industry needs (Albina and Sumagaysay 2020). Particularly via experiential and gamified learning models. (Zaitseva et al. 2016) Underlines the need for educational systems to move toward more flexible, virtual learning environments that meet the actual demands of the tourism sector.

Structural inequalities and insufficient studies on the efficacy of online tourism education add to the difficulty in Latin America. Despite the growing economic importance of tourism, (González Forero and Villegas Cortés 2023) discovered that few studies evaluate how well higher education programs fit industry needs across countries including Colombia, Argentina, and Mexico. Even earlier national-level projects in Colombia investigated the possibility of virtual learning; for example, a groundbreaking 100% virtual course at Externado University from Colombia emphasized the perceived value of practical digital skills among students even then by teaching technological tools relevant to tourism (web design, video/image editing, concept mapping) using a constructivist pedagogical approach (Moya Sánchez 2011). More recently, projects like the IU Digital have started to close the gap in thorough online degree offerings. Founded in 2018, the university was meant to be a 100% online institution to democratize access to higher education and promote regional development, employing digital learning. Its undergraduate degree in Tourism & Hotel Business Administration shows the increasing importance of virtual education in preparing professionals for decentralized, territorially anchored tourism development. As this study shows, such initiatives are very important in arming future professionals with digital fluency and community-oriented skills that fit the changing dynamics of the tourism industry.

### **Alignment between Education and Public Policy**

A constant problem mentioned worldwide, especially in Latin America, is the gap between higher education curricula in tourism and current public policies meant for territorial and tourism development. International organizations like UNESCO advocate for frameworks like Education for Sustainable Development (ESD) to steer educational material toward more general societal goals. However, incorporation into university programs, particularly in tourism, remains uneven. Studies indicate that although government changes and the growing economic significance of tourism drive educational institutions to run with antiquated or piecemeal curricula lacking strategic coherence with national or regional development plans. (Cavalcanti-Bandos et al. 2021) draws attention to this disparity by showing that, even when Latin American HEIs address sustainability—a shared policy goal—concrete actions to integrate these ideas deeply into business and tourism pro.5 the mismatch. Critical environmental education ideas from Latin America, according to (Florencio da Silva et al. 2023), question prevailing development models usually promoted by policy and support education based on territorial identity, social innovation, and environmental justice—issues possibly in conflict with strictly economic-oriented tourism policies. Though they sometimes find it challenging to convert this promise into systematic impact on regional transitions or policy execution, universities are seen as important factors that could close this gap by producing context-specific knowledge and encouraging cooperation. Research such as (Peñaloza-Farfán and Paucar-Caceres 2018) on the University of Ibagué indicate that although regional universities may explicitly pledge to territorial development in their mission, defining and executing efficient strategies that really fit both local needs and more general sustainable development goals calls for great institutional effort and clarity. Corruption, limited resources, or poor institutional capacity itself can all impede HEIs' ability to drive sustainable development by including policy alignment into their activities.

The situation in Colombia mirrors these more general Latin American issues. Studies by (Burbano-Fernandez et al. 2024) reveal that although Colombian tourism courses reflect thematic similarities with worldwide research—e.g., sustainability, management—a pragmatic disconnect exists, which calls into question the readiness of graduates to help national development goals specified in policy. (Rojas-Bernal, Cárdenas-Mora, and Mora-Forero 2020) Supports

this by noting a strong administrative and business management emphasis in Colombian tourism programs, which may overshadow the multidisciplinary approach required to address complicated territorial development concerns usually targeted by public policy. Though mostly at the school level, lacking obvious integration with higher education policies or long-term territorial planning, initiatives such as the Ministry of Tourism's "Tourism Friendly School" (CAT) program reflect a top-down effort to install tourism culture through education. Moreover, the study by (Vargas Leira and Lizcano Prada 2023) draws attention to the dearth of high-level, specialized training, such as Master's degrees, in sustainable tourism management in areas like Magdalena, therefore hindering the growth of human capital able to carry out or influence regional sustainable tourism policies. Although universities like the University of Ibagué demonstrate the possibility for advancing just transitions via programs involving regional stakeholders, and foresight studies indicate routes for policy creation in conflict-affected areas like Guaviare, a systematic, institutionalized mechanism linking higher education curricula directly with the formulation and execution of national and departmental tourism development plans remains mostly lacking in Colombia.

### **From Online Classrooms to Local Impact: Tourism Graduates in Regional Tourism Development**

Particularly for those using digital media to access different areas, the shift from online learning environments to actual contributions in local tourism industries is a significant challenge for the efficacy and relevance of higher education programs, including flexible strategies like microlearning modified during the last epidemic, online education provides possible routes for people in underprivileged or distant areas to gain tourism-specific skills (Ramírez and Cansino 2023). Realizing this potential, however, depends on graduates' ability to negotiate difficult local realities, use acquired knowledge properly, and significantly support regional tourism growth, usually in settings with great socio-economic challenges or post-conflict transitions (Ramírez and Cansino 2023).

Evidence indicates that graduates interact with local development in many ways, especially via entrepreneurship and community-based projects, if it were included in the courses (Castagnola Rossini et al. 2021). Social entrepreneurship stands out as a significant vehicle for influence since it enables graduates to start businesses fulfilling social goals like peacebuilding and sustainability in post-conflict Colombian areas, as well as economic ones (González Cortés and Husain-Talero 2020). Success in these projects sometimes relies on building strong local networks and negotiating government systems, therefore stressing the need of social capital in community-based tourism (CBT) projects where graduates could participate or lead (Mora, Yamova, and Murtuzalieva 2019) (Rocca and Zielinski 2022). By creating 'relational' learning environments and linking students to entrepreneurial ecosystems, universities can help to increase their ability to start creative and sustainable tourism projects upon graduation (Valdés et al. 2018).

The influence of graduates is inextricably linked to the traits of the area they work in. Graduates in post-conflict rural areas like Minca or Sumapaz could help to redefine local narratives and economies via CBT by using tourism as a weapon for reconciliation and development (Mora, Yamova, and Murtuzalieva 2019) (Rocca and Zielinski 2022). Graduates often find major obstacles regardless of the setting: infrastructure shortages (bad roads, untrustworthy public services), high degrees of informality in the tourism industry, and safety issues that may hinder their capacity to convert education into enduring local influence (Giraldo et al. 2023) (González Cortés and Husain-Talero 2020).

Moreover, graduates' local efficacy is related to the fit between their training and the real needs of the regional tourism sector. Although Colombian programs address worldwide issues, including sustainability, questions remain regarding whether the curriculum equips graduates with the practical, multidisciplinary tools required for complicated territorial development tasks instead of more conventional administrative duties (Burbano-Fernandez et al. 2024). This echoes with more general results throughout Latin America, indicating a continuous disparity between the material of hospitality and tourism education and changing business demands, restricting graduates' immediate influence (Alfonso et al. 2021; González Forero and Villegas Cortés 2023). Dealing with the difficulties of restarting tourism post-pandemic also calls for graduates armed with skills in digital transformation, health protocols, and crisis management (Christou and Fotiadis 2022). Bridging the gap between the online classroom and local impact finally calls for relevant curricula and supportive ecosystems, efficient graduate tracking by institutions, and strategies to address structural obstacles inside the territories themselves.

Although regional and worldwide literature offers insightful analysis of the link between education, public policy, and local tourism growth, especially in Latin America, there is a clear lack of empirical research on the results of entirely



online tourism programs in newly founded public institutions. To democratize access and enhance territorial capacities via digital education, the IU Digital, founded in 2018, is a ground-breaking model in Colombia's higher education scene (IU Digital of Antioquia 2018). Data on long-term graduate impact is still limited and under development, given its relatively recent foundation and that its first cohort of graduates has only recently entered the workforce. Still, the university and its professors have worked steadily to record their activities, interact with local stakeholders, and add to academic output employing first case studies, community involvement, and policy discussion. By providing an integrated perspective of the institution's alignment with public development goals and the territorial results of its educational model, this paper aims to help close this early-stage research gap. The following study questions are suggested to help this study:

RQ1. How does the online Tourism & Hotel Business Administration Program at the IU Digital fit with public tourism development plans at national and departmental levels?

RQ2. What is the quantifiable effect of the graduates of the program on local and regional tourism development projects in Antioquia and beyond?

## **METHOD**

Appropriate for investigating the contextualized influence of a single institution's academic program on territorial tourism development, this paper uses a qualitative case study approach ("Robert K. Yin: Case Study Research (Volume 5, 159 Pages)" 1986). The emphasis is on a limited system: the IU Digital, a completely virtual public university founded in 2018 in Colombia. Data sources were three main components: Data sources included three main components: (1) a graduate follow-up survey (n=29 respondents out of 76 graduates) conducted by the program coordination team, exploring employment, skill application, and perceived contributions; (2) semi-structured interviews with the program's academic dean and a regional government tourism representative, focusing on program design, policy alignment, and graduate outcomes; and (3) institutional and legal documents (e.g., Law 30 from 1992, Decree 1330 de 2019, Sectoral Tourism Plan 2022–2026 and program curricula) examined for alignment between educational content and policy priorities.

Within the qualitative case study framework, data analysis used a mixed-methods technique. Using Python with the Pandas library for cleaning, numerical recoding, and aggregation, closed survey question quantitative data was processed. Using Matplotlib and Seaborn libraries inside a Jupyter Notebook environment, descriptive statistics—frequencies and averages—were produced and visualized to show trends in demographics, employment, and perceived impact by means of bar charts, pie charts, area plots, and a radar chart comparing key outcome dimensions. Inductive thematic analysis (Braun and Clarke 2006) of qualitative data from open-ended survey questions and interview transcripts revealed recurring themes connected to graduate experiences, skill requirements, and contributions. A directed influence network mapping relationships between program outcomes and graduate contributions was built and visualized using the NetworkX library. Data triangulation (Creswell and Poth 2025) was used to methodically cross-reference results from the survey, interviews, and document analysis, thereby improving credibility. Ethical guidelines included data anonymization and informed consent. We recognize program nascency and sample size-related constraints.

## **Data Collection**

Three separate sites provided primary data to allow viewpoint triangulation. First, the Dean of the Tourism & Hotel Business Administration program was interviewed using a semi-structured format. The curricular vision of the program plans for graduate follow-up and impact assessment, pedagogical approaches particular to the online modality, and the institution's larger priorities about regional involvement and development were all investigated in this interview. Second, a semi-structured interview was conducted with a representative from the Colombian national government in charge of tourism development policy and planning for the Antioquia area. This interview addressed the perceived alignment-or lack thereof-between higher education outcomes, especially from online programs, and the goals stated in national and departmental tourism development plans, as well as policies integration mechanisms. Third, the program's academic coordination team administered a graduate survey from which data were drawn. Aiming at the 76 people who had graduated from the program as of early 2025, this survey garnered a response rate of 38% (n=29). Designed to assess graduates' self-perceived influence on the local tourism sector, the survey instrument covered professional insertion routes, involvement in territorial projects, and use of acquired skills.

Triangulation—systematically comparing the results from the institutional viewpoint (Dean interview), the governmental viewpoint (Policy Representative interview), and the alumni perspective (graduate survey) (Creswell and Poth 2025)—was a fundamental component of the analysis. This triangulation aimed to enhance the validity of the results and provide a more comprehensive, multifaceted understanding of the program's influence and function within the territorial setting.

Throughout the study, ethical issues were handled. Before data gathering, all interviewees provided informed consent, thereby ensuring they were aware of the study's goal and how their data would be utilized. All participants maintained anonymity and confidentiality; interview data were anonymized, and survey data were combined to avoid identifying individual respondents. Among the constraints of this study are the relatively small number of survey respondents ( $n=29$ ), which limits the generalizability of results on graduate impact. The recent founding of IU Digital and its tourism program also means the study captures an early-stage viewpoint on territorial influence; longitudinal research will be required to monitor changing effects over time. Notwithstanding these constraints, the research offers vital baseline insights on the dynamics of a pioneering online public higher education project in Colombia.

### **Data Analysis and Limitations**

Numerical recoding of categorical responses—e.g., Yes/No, Likert-scale descriptors like 'Much' or 'Enough' allowed aggregation and comparison analysis. For variables including graduates' employment status, contract type, location, salary ranges, and responses to questions about program relevance and participation in developmental activities, frequencies, percentages, and averages were computed. Among the key questions examined were Q24 ("Do you think the competencies gained in the AETH program are useful for your professional development?"), Q25 ("To what degree has the program given you the required tools to confront present labour market challenges?"), Q26 ("Do you believe your training in the AETH program has enabled you to contribute to the social, academic, scientific, or cultural development of your community?"), Q27 ("Have you participated in tourism projects or initiatives with a positive impact on your environment?"), and Q29 ("Have you shared your knowledge or experiences in the tourism sector with others through teaching, mentoring, or volunteering?").

Among the visualizations produced were bar charts, pie charts, area plots to show distributional trends, and a radar chart summarizing perceived impact across five dimensions (preparation, community impact, tourism projects, additional training, postgraduate studies) and a directed influence network built using NetworkX to map relationships between key program outcomes and graduate contributions. Inductive thematic analysis (Braun and Clarke 2006) was used to examine qualitative data from open-ended survey questions—specifically those addressing how graduates contribute (follow-up to Q26), project participation details (follow-up to Q27), academic contributions Q28 ("Have you published articles, conducted research, or participated in academic events related to tourism?"), knowledge sharing (follow-up to Q29), areas of postgraduate study Q31 ("Have you pursued postgraduate studies?"), desired skill enhancements Q32 ("What skills or competencies do you think should be strengthened in the program?"), and preferred alumni activities Q33 ("What type of activities or events would you like the program to organize for graduates?"). This involved identifying, coding, and categorizing recurring themes in the text responses. Transcripts from semi-structured interviews with the program dean and government representative were likewise examined using thematic coding to highlight important viewpoints on curriculum, policy alignment, and graduate outcomes. Triangulation (Creswell and Poth 2025), or the methodical comparison of survey, interview, and document analysis results, was a fundamental element aimed at improving validity and building a multifaceted understanding of the program's impact.

This study recognizes certain constraints inherent in the data sources and research design. First, the graduate survey is based on a sample size of 29, which represents 38% of the total graduate population at the time of the study. Although offering insightful analysis, this reduces the statistical generalizability of the results to the whole cohort of the IU Digital tourism graduates. Secondly, there is a possibility of self-selection bias, as respondents may differ systematically from non-respondents, possibly reflecting those who are more involved or satisfied with the program. Thirdly, the study uses a cross-sectional design to capture a snapshot of graduate outcomes and perceptions at a particular time; it does not permit tracking longitudinal career progression or changing effects. Ultimately, individual memory, interpretation, or social desirability bias could affect self-reports on which the survey data are founded. The interpretation of results considers these constraints; triangulation with interview data and document analysis then contextualizes the results to improve validity.

## FINDINGS AND DISCUSSION

### Training for Territorial Relevance: Online Tourism Education in Context

Online higher education is increasingly recognized as a pivotal instrument for advancing tourism professionalization, particularly by expanding access to training in geographically dispersed or underserved regions (Amin et al. 2022; Chandra, Ranjan, and Chowdhary 2022). The case of the IU Digital, established in 2018 as Colombia’s pioneering fully online public university, exemplifies this potential. Its Tourism & Hotel Business Administration (AETH) program was explicitly created with the dual mission of democratizing education and fostering territorial development through digital learning, leveraging technology to reach territories previously lacking specialized tourism training (Dean Betancur, Interview). This aligns with the view expressed by the government representative that virtual modalities “facilitate much access” and address a need for professionalization in a sector where many practitioners enter through practical experience rather than formal education (Leider Toro, Interview). The ‘Closer education through digitality’ model adopted by the IU Digital further aims to mitigate the potential isolation of online learning by emphasizing human connection, inclusion, and territorial presence (Dean Betancur, Interview), addressing concerns about the limitations of purely virtual engagement (Leider Toro, Interview) (Correa 2023). Survey data confirms the program reaches various departments (Q8), although primarily an urban population (96.6%, Q9), suggesting that while access is broadened, reaching deep into rural zones remains a challenge, possibly linked to connectivity.

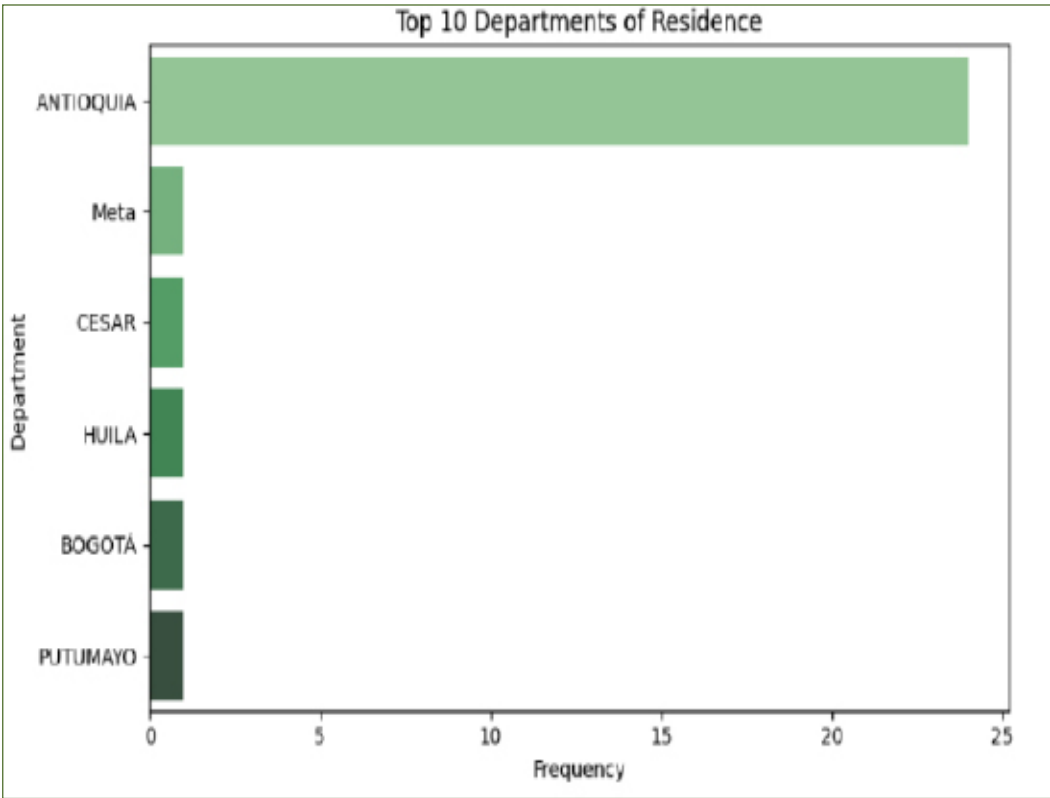


Figure 1. Source: Own creation.

Evidence from the initial graduate cohort (n=29) indicates successful professional integration, with a high employment rate (75.9%, Q14) and graduates securing positions with competitive salary levels (Q21), suggesting the program provides valuable labour market credentials. Crucially, graduates perceive their online training as highly relevant; 96.6% found the competencies acquired useful for their professional development (Q24), and nearly all felt the program provided “Much” (51.7%) or “Enough” (48.3%) tools to face labour market challenges (Q25). The strong correlation found between perceived preparation (Q25) and the usefulness of skills (Q24) ( $r=0.74$ , Heatmap Analysis) further reinforces this sense of effective professionalization. This positive self-assessment contrasts with broader concerns raised in Latin American contexts about potential gaps between hospitality and tourism curricula and industry needs (González Forero and Villegas Cortés 2023).

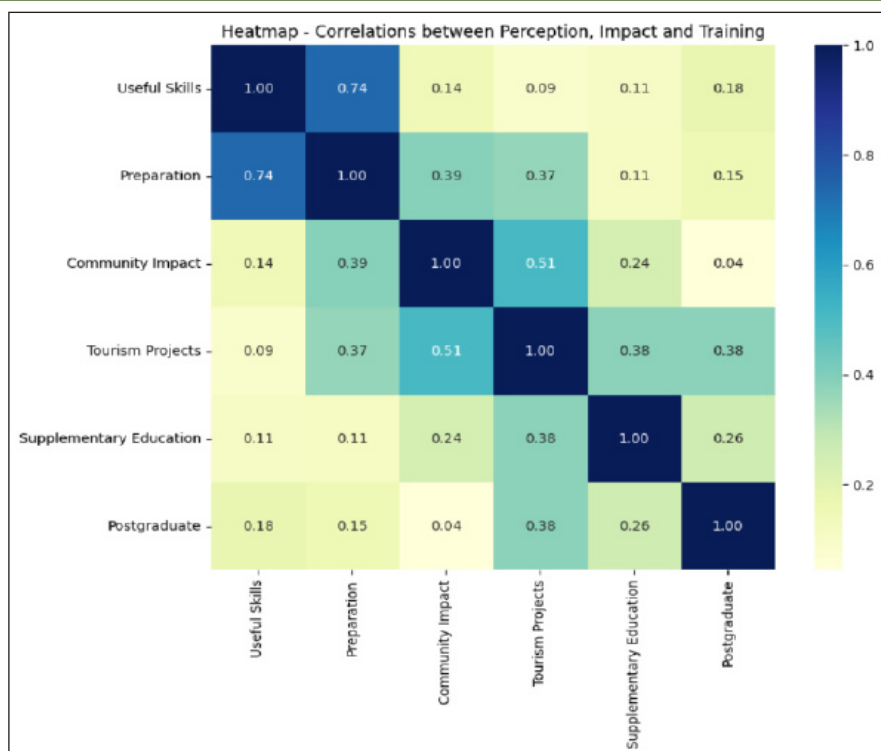


Figure 2. Source: Own creation.

The IU Digital program, focused on administration, entrepreneurship, and sustainability (Dean Betancur, Interview), seems to instill a sense of capacity for territorial relevance, as 41.4% believe their training enabled community contributions (Q26), 34.5% participated in local tourism projects (Q27), and 44.8% shared knowledge locally (Q29). The ongoing curriculum renewal, incorporating global trends, data analytics, and technical English, further aims to bolster this professional and territorial relevance (Dean Betancur, Interview) (Pelegrín Entenza et al. 2024).

However, challenges remain in ensuring online education fully equips professionals for the diverse demands of territorial tourism development. The government representative highlighted a potential mismatch between university degree expectations and operational realities (Leider Toro, Interview). Graduates themselves identified areas for strengthening, emphasizing the need for more training related to practical “projects,” “tools,” “hotel” operations, “English,” and “sustainability” (Q32 Word Cloud Analysis). This feedback aligns with the sector perspective favoring practical, commercial competencies (Leider Toro, Interview) and reflects tensions noted elsewhere between academic foci and industry requirements for contextualized territorial action (Burbano-Fernandez et al., 2024; Zaitseva et al., 2016).



Figure 3. Word Cloud Analysis. Source: Own creation.



The critical need for bilingualism, identified by all stakeholders (Dean Betancur, Interview; Leider Toro, Interview; Q32 Word Cloud), remains a significant hurdle for enhancing graduates' capacity for territorial integration in an international market. Despite these challenges, the IU Digital case demonstrates that a well-structured online program with a supportive pedagogical model can significantly contribute to tourism professionalization, enhancing access and delivering competencies perceived by graduates as valuable for both their careers and contributing, at least aspirational, to territorial development.

### **Alignment between the Curriculum and Tourism Development Plans**

Policy research in Colombia is especially focused on the relationship between higher education curriculum and national or territorial development goals, especially in the tourism industry. Law 30 from 1992 shapes the regulatory scene mostly by establishing the basic idea of university autonomy, therefore giving Higher Education Institutions (HEIs) great freedom to "create, organize, and develop their academic programs" and specify their formative activities (Función Pública 2025). This autonomy operates under a state-managed Quality Assurance System, supervised by the Ministry of National Education (MEN), which is meant to guarantee educational standards. Central to this system is the requirement for programs to obtain and renew a Qualified Registry, governed mostly by Decree 1330 from 2019, which updates parts of the Unified Regulatory Decree of the Education Sector (MinCIT 2025a). This decree creates an inherent conflict between institutional self-governance and state-led quality control intended at societal relevance and efficient labor market results by introducing particular "conditions of quality" including the idea of "relevance" (Saavedra-Caballero and Van Belleghem 2022).

Programs under Decree 1330 are required to show relevance to "social, cultural, environmental, economic, and scientific development in relation to the needs of the country and the region," hence justifying their existence (MinCIT 2025a). This calls for HEIs to study labor market needs, the state of the profession, and regional and national needs, connecting these to graduate profiles, curriculum material, and learning outcomes. The focus is on building both generic and particular skills in line with industry needs (Padilla-Delgado and Ríos-Obando 2024). The IU Digital graduates seem to strongly align between the skills gained and their perceived readiness for the labor market, as shown by a high correlation ( $r=0.74$ ) between these two elements in the survey analysis (Heatmap Analysis, Q24 & Q25). Though this creates a legal need for alignment and implies perceived relevance, the regulatory system depends on institutional self-assessment. The decree requires showing relevance but falls short of mandating certain curricular material directly from public development plans or creating binding responsibilities for HEIs to follow objectives stated in national strategies, such as the Plan Sectorial de Turismo. Therefore, the efficacy of this alignment tool is mainly determined by the rigor of institutional studies, the interpretative framework used, and the degree to which relevance is actively enforced, allowing significant variation in actual alignment.

Looking at the tourism industry, particularly, shows a greater complexity. Substantial human capital shortages—including skill gaps, mismatches between training and job needs, and weak articulation between educational opportunities and industry needs—are highlighted by the Sectoral Tourism Plan 2022-2026 (MinCIT 2025b). This mirrors more general regional issues where, especially for young people, tourism employment sometimes entails unstable circumstances despite the sector's economic promise (Dolcet, Porto, and Zarrilli 2024). Often imagining cooperation with organizations like the National Training Service (SENA), the Sectoral Tourism Plan suggests focused initiatives, including national training programs and bilingualism policies. Likewise, Law 2068 from 2020 emphasizes sector sustainability and competitiveness, handling human talent mostly via particular qualification criteria for tourist guides, connecting certification to technological-level degrees or routes inside the National System for Professional Qualifications (SNC). Like Antioquia's Sustainable Tourism Public Policy, departmental policies reflect these issues and set strategic axes for competitiveness, human talent development, and sustainability to foster specialized skills and improved labor conditions (Asamblea Departamental de Antioquia 2023; Garcia and Porto 2022). Meanwhile, these sector-specific needs and projects are not automatically included in the overall HE quality assurance system. Mandatory for vocational training, the SNC and its National Qualifications Framework (MNC), meant to close the gap between education and labor, only serve as a reference for HEIs regarding curriculum design, therefore honoring university autonomy. A major player in technical and vocational training for tourism, SENA collaborates with higher education institutions (HEIs), but its primary influence extends beyond conventional university professional programs. The impact of educational training on forming support for particular tourism policies or knowledge of externalities remains a complicated element affecting

public acceptance of development strategies (Tovar, Boto-García, and Baños Pino 2024).

Rather than required structural integration, alignment seems sought more through indirect regulatory pressure (the ‘relevance’ requirement), focused interventions (Law 2068, Sectoral development plan, SNC), and voluntary institutional efforts (Padilla-Delgado and and Ríos-Obando 2024). Among the key gaps still present are the lack of clear, binding links between university curricula and sectoral plans, fragmented institutional coordination (Asamblea Departamental de Antioquia 2023), and the emphasis on university autonomy (Law 30). The ongoing presence of noted skills gaps (MinCIT 2025a), reflected by graduates’ demands for improved competencies in fields including “English,” “sustainability,” “hotel software,” and practical “projects” (Graduate Survey, Q32 Word Cloud Analysis), points to deficiencies in applying ‘relevance’ criteria or the restricted reach of certain training programs. In the end, the system tends toward a fragmented strategy in which alignment is mostly dependent on institutional initiative instead of a unified policy guaranteeing HE programs regularly satisfy the changing human capital demands for territorial tourism growth.

### Perceived Impact of Graduates on the Local Tourism Sector

The external validation is pending, given the early stage of the institution, but examining graduates’ perceived impact provides insightful analysis of their sense of agency, professional identity, and the degree to which they feel their online education supports contributions to local tourism development (Correa 2023; Donald, Baruch, and Ashleigh 2016). This self-evaluation demonstrates how graduates perceive the relevance of their training and its application in their local settings.

The survey results show some significant perceived involvement. While 34.5% claimed direct involvement in meaningful local tourism projects (Q27), 41.4% said their training qualified them to contribute to community development (Q26). Moreover, 44.8% stated that they would share their tourism knowledge through informal means, such as teaching or volunteering (Q29), indicating knowledge transfer outside of formal employment. These numbers suggest a group of graduates who feel empowered to take community-oriented action. The program’s focus on entrepreneurship and community well-being (Dean Betancur, Interview) suggests that this effect would most likely be felt in activities such as local planning or sustainable tourism projects. The 24.1% who identify themselves as ‘Self-Employed’ further strengthens the possible entrepreneurial influence (Figure 4).

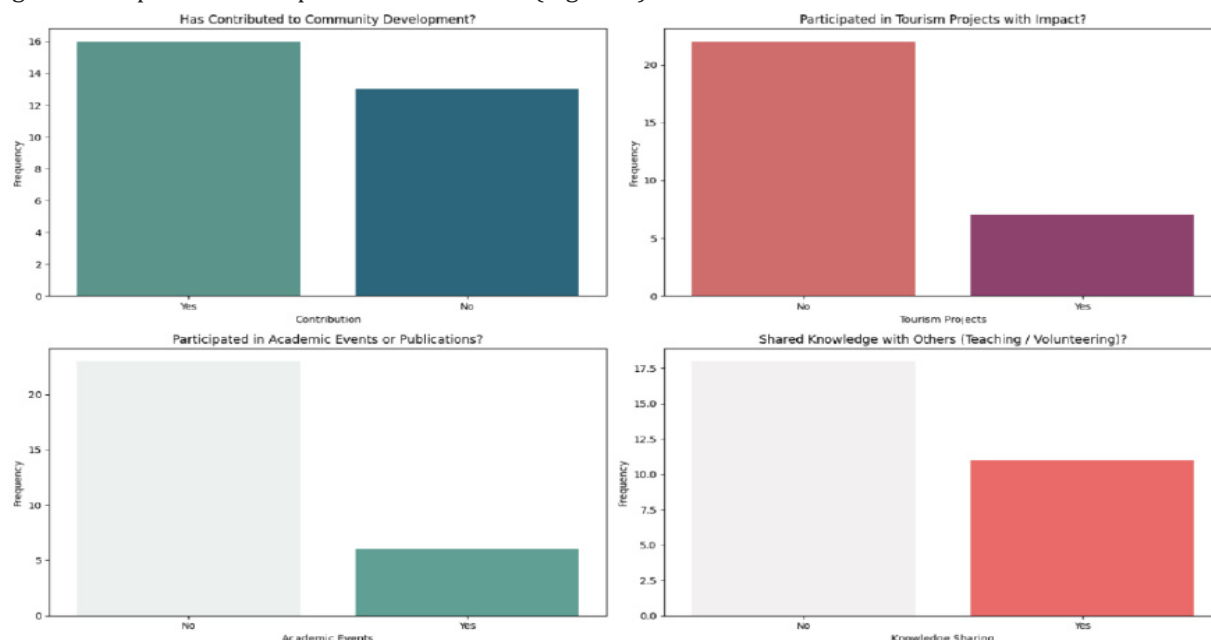


Figure 4. Source: Own creation.

Examining the links between perceived preparation and influence reveals more nuanced insights. Graduates who feel well-prepared (Q25) are strongly correlated with those who find their skills useful (Q24) ( $r=0.74$ , Heatmap Analysis). Perceived preparation also reveals moderate positive correlations with involvement in tourism projects (Q27,  $r = 0.37$ ) and contributing to community impact (Q26,  $r = 0.39$ ), suggesting that feeling sufficiently trained enhances actual involvement. This relationship is supported by the close correlation ( $r=0.51$ , Heatmap Analysis) between community

impact and tourism project involvement. The influence network visualization emphasizes “Preparation” (Q25) and “Community Impact” (Q26) as central nodes linking skill development to social contribution.

The radar chart study reveals relatively lower average scores for actual participation in community impact projects and tourism activities despite great levels of perceived preparation, however. Given the urban concentration of respondents, this implies a possible disparity between perceived capacity and actual action, maybe caused by external obstacles such lack of opportunities or network disconnections. Especially, there were little links between impact factors (Q26, Q27) and more formal education (Q30, Q31), suggesting that graduates feel practical application and first training are more important for impact than later academic goals (Figure 5).



The results imply that, overall, despite the program’s early stage and the shortcomings of self-reported data, the IU Digital’s graduates see their education as a means for favourable contributions to the local tourism industry. Though its larger visibility and reach need more growth and validation, this perceived impact shown through professional roles, knowledge sharing, and community project participation indicates an emerging professional agency in line with the institution’s territorial development objectives.

## RECOMMENDATIONS

### To IU Digital: Curriculum Innovation and Stakeholder Engagement

The institution should optimize its ‘Closer education through digitality’ model by actively enhancing networking and practical exposure through structured virtual opportunities, mitigating cited limitations (Leider Toro, Interview) (Correa 2023; González Forero and Villegas Cortés 2023), while continuing to foster human connection via tutor support (Dean Betancur, Interview). Graduate tracking requires more robust systems; beyond the impact of surveys, their effectiveness must be systematically documented and showcased, supported by active alumni networks. Furthermore, proactive stakeholder engagement necessitates systematic government liaison (Leider Toro, Interview) (Asamblea Departamental de Antioquia 2023), expanded industry partnerships (Dean Betancur, Interview), and increased institutional visibility at relevant events.

### To policymakers: Integrating Academic Programs into Regional Plans

Policymakers should enhance education-policy alignment via effective collaboration platforms between HEIs, government, and industry, ensure rigorous ‘relevance’ evaluation for specific sectoral/territorial needs within Qualified Registry (Decree 1330) (Saavedra-Caballero and Van Belleghem 2022), and improve HE-vocational linkage through the National Qualifications Framework (Padilla-Delgado and Ríos-Obando 2024). With coordinated national strategies for

skills gaps like bilingualism (MinCIT 2025b) (Garcia and Porto 2022) and policies encouraging quality employment over precarious labour conditions (Dolcet, Porto, and Zarrilli 2024), systematically address human capital deficits. Importantly, understand and assist public online HE's strategic role in increasing territorial access and development by means of focused financing for aligned initiatives.

### **To graduates**

Graduates should embrace lifelong learning, actively enhancing practical skills like bilingualism and commercial competencies, as survey analysis reveals strong graduate demand for more applied training, project experience, English proficiency, and job guidance, despite feeling generally well-prepared (Word cloud analysis; Heatmap  $r=0.74$  Skills/Preparation). Recognizing that additional training demonstrably boosts impact (Influence network Analysis), they should leverage their entrepreneurial potential by seeking mentorship and resources (e.g., the IU Digital's planned 'Business Consultancy Centre') to bridge the observed gap between perceived readiness and limited formal participation in tourism projects (only 7/29 reported) and thus boost local economies. Proactive professional networking is crucial to overcome inherent online education limitations and potential disconnects from territorial networks. Finally, embodying the role of territorial agents—as the program intends and reflecting the moderate community contribution already reported (16/29)—graduates should consciously apply skills locally, capitalizing on the link between preparation and community impact (Influence network Analysis; Heatmap  $r=0.39$ ), participate in initiatives, and share knowledge informally (reported by 11/29) to maximize their regional contribution.

### **To Other Institutions: Lessons for Replication**

Key adaptable elements include implementing innovative pedagogies, such as 'Closer education through digitality,' that prioritize human interaction and support to mitigate virtual learning limitations (Dean Betancur, Interview). This approach also involves maintaining curriculum relevance through continuous review informed by policy, industry, and stakeholder feedback (Pelegrín Entenza et al. 2024). Additionally, embedding an explicit territorial development mission is crucial. Remarkably, proactive external engagement with government, industry, and community actors from the outset is essential for ensuring program relevance, visibility, and graduate employability (Dean Betancur, Interview; Leider Toro, Interview), as strong partnerships are vital for translating online education into local impact (Alvarado-Vanegas et al., 2024).

## **CONCLUSION**

Online higher education, via models like IU Digital's AETH program, effectively expands access to relevant tourism training in Colombia, professionalizing the sector. Graduates feel well-prepared and perceive themselves contributing locally through jobs and knowledge sharing. However, significant challenges persist; structural alignment between curricula and public tourism policies remains weak, deep rural outreach is limited, and practical skills gaps, particularly English proficiency, need addressing. While IU Digital presents a valuable model for connecting online education with territorial development, realizing its full potential requires enhanced policy integration, curriculum refinement focused on practical application and bilingualism, and improved graduate tracking.

### **Theoretical Implications**

This study presents rare empirical evidence from Latin America: online public higher education has an impact on territorial tourism. It reveals education-policy gaps (autonomy vs. state), aids graduate impact assessment (agency, methods), and offers digital pedagogy insights for territorial inclusion, boosting socio-spatial theory.

### **Practical Implications**

HEIs: improve online pedagogy (practicality, skills/bilingualism), track graduates, engage stakeholders. Policymakers: Foster HEI-Gov-Industry collaboration, ensure QA relevance, address skills gaps, and support public online higher education institutions. Graduates: lifelong learning (skills/English), network, and act as territorial agents.

## **LIMITATIONS AND FUTURE RESEARCH**

Limitations like small/early sample, bias, cross-sectional design, and self-reports affect this nascent institution study. Future research demands longitudinal, larger/diverse samples; studies on rural reach, policy alignment; and external impact validation—key field advancements.



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