

Research Reports

Social appropriation of knowledge as a key driver in shaping life pathways for rural youth in Colombia

Apropiación social del conocimiento como metodología para el diseño de trayectorias de vida en jóvenes rurales de Colombia

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Abstract

This study explored the aspirations and challenges faced by rural Colombian youth in shaping their life projects upon completing secondary education. Conducted in the ZOMAC municipality (Zones Most Affected by Armed Conflict) of Rionegro, Santander, the research employed participatory action research and social appropriation of knowledge (SAK) methodologies. These approaches facilitated collaboration with 120 students to design pathways for their future. The findings highlight higher education as a prominent aspiration, yet significant barriers persist, including inadequate vocational guidance, economic constraints, and limited access to information on admission and financial aid opportunities. Family support and the municipality's proximity to the regional capital emerge as critical enabling factors. The study underscores the need for structured interventions to enhance university access and retention, alongside fostering entrepreneurship skills and socio-emotional development. To design the six resulting pathways, data triangulation and thematic analysis were employed. It is concluded that the participatory approach of ASC connects these pathways with the expectations, needs and opportunities of the environment.

Keywords: social inclusion; higher education; social appropriation of knowledge.

Resumen

Este estudio analiza las aspiraciones y desafíos de jóvenes rurales con relación a su proyecto de vida luego de finalizar la etapa escolar. Se trabajó con la comunidad de Rionegro, Santander, considerado municipio ZOMAC (Zonas más Afectadas por el Conflicto Armado) por el gobierno. El proyecto empleó enfoques de investigación-acción participativa y apropiación social del conocimiento -ASC- para interactuar con 120 estudiantes y diseñar trayectorias para su futuro. La educación superior es vista como objetivo deseable, aunque existen barreras significativas como escasa orientación vocacional, limitaciones económicas y falta de información sobre oportunidades de acceso y financiación. Las familias emergen como apoyo importante, al igual que la relativa cercanía con la ciudad capital del departamento. Los hallazgos sugieren la importancia de un acompañamiento estructurado que facilite el ingreso y permanencia en la universidad, así como en emprendimiento y competencias socioemocionales. Para el diseño de las seis trayectorias resultantes, se utilizó la triangulación de datos y el análisis temático, concluyendo que el enfoque participativo de la ASC permite conectarlas con las expectativas, necesidades y oportunidades presentes en el entorno.

Palabras clave: inclusión social; educación superior; apropiación social del conocimiento.

INTRODUCTION

Youth has emerged as a key topic of academic, social, and public policy interest, “[...] acquiring diverse meanings depending on the sociohistorical context” (Rincón Coronado et al., 2023). According to these authors, labor and academic conditions for young people have been deteriorating globally, with youth being three times more likely to experience unemployment than adults (Rincón Coronado et al., 2023). The concept of “NEETs” (youth not in employment,

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education, or training) gained relevance following a 1999 report by the United Kingdom government, which assessed the social and economic costs of young people excluded from educational and labor systems (Rincón Coronado et al., 2023). According to the International Labor Organization -ILO-, one-fifth of the global youth population falls into this category, lacking income, work experience, and opportunities for skills development (Organización Internacional del Trabajo, 2020).

Several studies have analyzed Latin American youth, including a report by the Economic Commission for Latin America and the Caribbean (ECLAC) on labor inclusion. This report underscores the need to approach the school-to-work transition from a multidimensional and comprehensive perspective. In Latin America, inequality particularly affects rural youth, where only 44.1% of individuals aged 20 to 24 complete secondary education, compared to 69% in urban areas. The disparity widens at the higher education level, with an average completion rate of just 15% among young people aged 25 to 29 (Comisión Económica para América Latina y el Caribe, 2019).

ECLAC further warns that Latin American youth leave the education system significantly earlier than their counterparts in the Organisation for Economic Co-operation and Development (OECD) countries (Comisión Económica para América Latina y el Caribe, 2019). Other studies have examined the length of time it takes young people to transition into the workforce. Using cross-sectional surveys, Gontero and Weller (2015) estimated an average transition time of six years across the region.

In Colombia, research indicates that young people face mounting challenges related to productivity, competitiveness, and technological changes driven by globalization (Cardona; Macías; Suescún, 2008). While various initiatives aimed at improving youth conditions have been well-intentioned, they have often fallen short due to inadequate characterization of the target population (Cardona; Macías; Suescún, 2008). Similarly, other studies highlight “[...] a lack of reliable, region-specific data and analysis” to inform effective policies (Calvo Cepeda et al., 2021).

Calvo Cepeda et al. (2021) emphasize that the youth population is highly diverse and cannot be treated as a homogeneous group. They advocate for a differential and intersectional approach that considers territorial, social, cultural, and relational factors. Furthermore, they recommend actively involving young people in decision-making processes to enhance “[...] their well-being, agency, leadership, and societal impact” (Calvo Cepeda et al., 2021). This perspective aligns with findings from the United Nations Development Programme (Programa de las Naciones Unidas para el Desarrollo, 2021), which suggest that Colombian youth aspire to lead and undertake projects. However, they also recognize the frustrations stemming from unmet needs and emphasize the importance of a long-term vision to break cycles of poverty and inequality (Programa de las Naciones Unidas para el Desarrollo, 2021).

On the other hand, some studies highlight “[...] a perceived disconnect between institutional efforts and the realities of the population they aim to serve” (Rodríguez Sánchez; Celis León; Jiménez Rubio, 2021). Additionally, research encourages policymakers to consider institutional frameworks while also “[...] recognizing the crucial role of students within their family and social environments, including their relationships, backgrounds, and prior knowledge” (Rojas Arangoitia; Carrasco Pons, 2024).

Within this context, a research project was carried out in Rionegro, Santander, a municipality designated as a ZOMAC (Zone Most Affected by the Armed Conflict) by the Colombian government. With a population of 27,114, Rionegro has historically been impacted by guerrilla and paramilitary groups, serving as a strategic corridor connecting the Catatumbo region—one of Colombia’s most conflict-affected areas—with other parts of the country. Located just 19 kilometers north of Bucaramanga, Santander’s capital and Colombia’s fifth-largest city, Rionegro exists at the crossroads of two contrasting realities: one marked by conflict and rurality, and the other offering opportunities linked to proximity to an urban economic hub.

Beyond its historical and geopolitical significance, Rionegro possesses considerable potential due to its diverse topography, varied climate, fertile soils, and rich biodiversity. These characteristics have positioned it as an emerging ecotourism destination, supported by its abundant flora, fauna, and water resources that promote recreation and sustainable tourism.

Currently, the town has 10 educational institutions offering elementary and high school education, serving 5,286 students from kindergarten (age 5) to 11th grade (ages 16-17). However, Rionegro lacks local higher education institutions, meaning that students must rely on universities in Bucaramanga. This limited access to tertiary education restricts young people's opportunities for personal and professional growth, potentially increasing their vulnerability to illicit activities as a means of subsistence.

This research project, supported by the "Orchids, Women of Science, Agents of Peace" program—an initiative of Colombia's Ministry of Science, Technology, and Innovation in collaboration with the Organization of Ibero-American States (OEI)—aims to address these challenges. The central research question guiding this initiative is: ¿How can Social Appropriation of Knowledge (SAK), as a methodological approach, be leveraged to design educational and life pathways that promote the social inclusion of at-risk youth in Rionegro, Santander?

A key conceptual framework for the project is the notion of pathways as introduced by the United Nations Children's Fund (UNICEF), which defines them as "[...] the roads each person follows to reinforce, support, or transform their learning and development throughout life" (Fondo de las Naciones Unidas para la Infancia, 2020). In a similar vein, Méndez Martínez (2024) advocates for the recognition of both formal and traditional pathways, as well as those shaped by emerging interests and opportunities, promoting a more inclusive perspective that encompasses diverse learning environments.

Additionally, the project is grounded in the sociocritical paradigm, which "[...] incorporates critical self-reflection into knowledge processes" to drive the transformation of social structures (Alvarado; García, 2008). By prioritizing the active participation of those involved, the research seeks to generate social change based on situated knowledge. The participatory action research (PAR) methodology, which integrates the processes of knowledge creation and social intervention, serves as the foundation of this initiative. This approach aligns with perspective on PAR as "[...] a necessary experience for advancing democracy—not only as a system of attitudes and values, but also as a working method that gives meaning to praxis in the field" (Fals Borda, 1999).

The project employed various Social Appropriation of Knowledge (SAK) techniques in alignment with Colombian public policy. According to the Ministry of Science, Technology, and Innovation, SAK is defined as "[...] an intentional process that engages all social actors in practices of exchange, dialogue, analysis, reflection, and negotiation, fostering both understanding and active participation in specific contexts" (Colombia, 2021).

METHODOLOGY

The project aimed to design educational and life pathways through the process of Social Appropriation of Knowledge (SAK) to promote the social and labor inclusion of at-risk youth in Rionegro. To achieve this goal, the research employed a qualitative and participatory design, with Participatory Action Research (PAR) and SAK serving as its core methodological strategies. The first phase involved a bibliographic review, identifying 45 relevant documents published over the past decade using the Scopus and Google Scholar databases. Of these, 9 focused on the contextualization and characterization of Rionegro, 8 addressed contemporary youth-related issues, 16 explored employability and training pathways, and 12 analyzed the conceptualization and implementation of SAK. The review indicated that, since 2020, SAK has gained increasing relevance according to Scopus metrics. This trend is likely linked to the global crisis triggered by the COVID-19 pandemic, which underscored the importance of making scientific knowledge accessible to the general public. Furthermore, a significant proportion of the reviewed SAK literature originates from Latin America, suggesting its potential as a valuable tool for democratizing knowledge in local communities.

Several scholars highlight the transformative and context-sensitive nature of SAK, emphasizing the value of local epistemologies and knowledge in understanding social realities and addressing challenges. Lozano et al. (2021) argue that SAK enables communities to tackle social problems from a sustainable, locally driven perspective. Chaparro Chaparro (2018)

reinforces this notion by defining SAK as a gradual, collective, and systemic process that connects communities to their territories, strengthening identity and sociocultural memory. Correa-Díaz, Benjumea-Arias and Valencia-Arias (2019) further highlight its role in fostering innovation by creating new interactions between knowledge, technologies, and cultures, breaking down traditional barriers between experts and non-experts. Meanwhile, Pabón (2017) expands the concept by framing SAK as a communicative and cultural practice that fosters social cohesion beyond the traditional focus on liberating oppressed groups.

The project was conducted over ten months in two of the ten educational institutions in Rionegro. The sample consisted of 120 tenth- and eleventh-grade students from Fray Nepomuceno Ramos and El Pórtico schools, representing 12.5% of the total student population at these levels. Selection criteria included representativeness, interest, and willingness to participate. Both institutions are well-regarded within the community and primarily serve rural families with distinctive socioeconomic and cultural characteristics. Additionally, school principals demonstrated strong interest and motivation to support the initiative, facilitating access to classes and other interaction opportunities by assigning dedicated teachers to the project.

All participants—including students, teachers, university students, and representatives from the Municipal Youth Council—completed informed consent and data processing agreements, as managed by the Organization of Ibero-American States (OEI).

To facilitate dialogue, problem-solving, and critical engagement, the project designed and adapted various methodological tools aligned with the SAK principles outlined by the Ministry of Science, Technology, and Innovation (Colombia, 2020). These tools are detailed in Tables 1 and 2.

Table 1. Description and Evaluation of ASC Tools Based on the Principles of Context Recognition, Participation, and Critical Reflection.

Speedboat Workshop	Social Cartography	Ikigai Workshop
A visual organizer, applied to 120 students, employs the metaphor of a journey to explore aspirations (destination), motivations (winds), obstacles (anchors), and supports (lifelines). Based on the speedboat technique documented in Innovation Games by Hohmann (2007), this approach proved highly effective in fostering a safe space for self-expression while capturing valuable insights into students' perspectives and needs.	A graphic representation was used to provide a comprehensive overview of the territory, mapping key resources and locations in collaboration with community members.	A workshop was conducted with 120 students to introduce the ancient Japanese concept of Ikigai ("reason for being"). Through this framework, students reflected on what they love, what they excel at, what the world needs, and what they can be rewarded for. This workshop complemented the "Speedboat" technique.

Table 2. Description and Evaluation of ASC Tools Based on the Principles of Transformation and Knowledge Dialogue.

Audiovisual Production Workshop	"Life After School" Survey	Lego Serious Play Workshop	Socio-Emotional Skills Workshop
In this workshop, 120 students engaged in both on-camera and behind-the-scenes roles, recording themselves as they explained their Ikigai. This exercise fostered self-reflection and teamwork.	A Google Forms survey was conducted to explore the experiences and challenges of transitioning to college. Out of 48 contacted graduates from Colfray College, 22 responded. The survey provided valuable data to better understand and validate students' perspectives.	This workshop leveraged Lego Serious Play (Kristiansen; Rasmussen, 2014) to enhance creativity and problem-solving. Four members of the Municipal Youth Council collaboratively built "the tower of their dreams," fostering dialogue and uncovering gaps and needs within their community.	This workshop, conducted with 120 students, evaluated teamwork under pressure. The exercise highlighted key challenges, particularly in effective communication.

The diverse range of techniques employed was instrumental in achieving the research objectives. Moreover, they can be adapted for similar studies in comparable contexts or populations. The study prioritized horizontal interactions, integrating local voices, experiences, and knowledge, which strengthened both the validity and reliability of the findings.

Data triangulation was employed as a key methodological approach, incorporating multiple sources, methods, and perspectives to ensure a comprehensive understanding of the data. In participatory qualitative research, triangulation is essential for amplifying participants' voices, capturing the complexity of the social context, and minimizing biases.

RESULTS

Thematic analysis was used to present the study's findings, combining inductive and deductive approaches. The inductive process identified emerging themes, while the deductive approach structured the information into relevant and manageable categories. Key findings highlight critical issues, emerging patterns, and their practical implications for policy and educational interventions. The qualitative analysis of categories and key findings is detailed in Table 3.

Table 3. Qualitative analysis of categories and key findings.

Category	Subcategory	Description of results	Implications
Educational aspirations	Higher education	66% aspire to enter university, with 47.5% specifying their preferred careers	Higher education is a primary goal, but there is uncertainty about the choice of academic program.
	Technical/ technological programs	Low engagement in these programs, particularly at SENA.	Strategies are needed to shift negative perceptions and emphasize the opportunities these programs provide.
	Entrepreneurship and other alternatives	Moderate interest in entrepreneurship, the arts, sports, or military service.	Vocational guidance options need to be diversified to incorporate alternative career pathways
Drivers and barriers	Family support	55% identify their immediate family as their main source of motivation, while 12% cite extended family.	Reaffirms the family's central role in offering emotional and practical support for achieving goals.
	Barriers	35% cite economic reasons as the biggest barrier, followed by emotional factors like lack of motivation and laziness (30%).	It is crucial to address both economic and socio-emotional barriers.
Skills and vision for the future	Lack of strategic vision	Most prioritize their current abilities but lack long-term planning skills.	Workshops on life planning and goal-setting beyond high school are essential.
"Life After School" Survey	Access to higher education	63.6% enrolled in university, while only 9.1% pursued technical or technological programs.	Although most accessed higher education, they faced significant challenges, with exclusion perceived due to limited resources and insufficient governmental and institutional support.
	Barriers	Lack of funding for 31.8% and perception of institutional neglect.	Institutional intervention is needed to improve funding and highlight opportunities.

Table 3. Continued...

Category	Subcategory	Description of results	Implications
Vocational guidance	Need for reinforcement and development	Vocational guidance and support for life planning during school years are insufficient.	Effective programs should be implemented at different stages, from primary to secondary education.
Saber 11 Tests	Low performance	Suboptimal results hinder access to free public higher education	Strengthening core competencies and implementing strategies for successful exam performance are essential.
Geographic and financial accessibility	Transportation	Establishing agreements with companies to facilitate affordable transportation to universities in Bucaramanga is essential.	Providing transportation support could significantly enhance accessibility and motivation for students to pursue higher education in the region.
Insights and suggestions from graduates	Strategic planning and resilience	Graduates recommend setting clear goals, staying organized, and managing time effectively in high school.	Emphasis on the need for teaching strategies that foster self-management and planning skills among students.

Students from both institutions show a strong aspiration to pursue higher education rather than shorter programs, such as the technical or technological training offered by SENA, a public Colombian institution providing free education. However, limited access to information and guidance on higher education pathways, coupled with a lack of structured vocational counseling, hinders their ability to navigate the admission process. Additionally, insufficient preparation affects their performance on the Saber 11 Test, a state exam that assesses key competencies at the end of secondary education.

While financial constraints remain the most significant barrier, it is equally important to address the emotional challenges identified by students and graduates, particularly those related to personal development and practical life skills.

Families, both nuclear and extended, play a crucial role as allies in shaping life plans. However, school principals and members of the Municipal Youth Council perceive that Rionegro is not a priority for the government or the region's universities, fostering a sense of exclusion. This feeling is somewhat nuanced by the town's proximity—just 19 kilometers—from the capital city. Nonetheless, the level of attention and quality of services in Rionegro differ significantly from those in other municipalities within Bucaramanga's Metropolitan Area, such as Piedecuesta, Girón, and Floridablanca.

Finally, a disconnect exists between the region's agro-industrial potential and students' career aspirations. This misalignment could lead to future labor shortages and hinder efforts to modernize the municipality's rural areas, despite national agricultural policies aimed at fostering development.

DISCUSSION

The six pathways outlined below emerged from the triangulation of information and were validated through two key processes. First, an open dialogue with 120 students, facilitated by reflection cards, provided initial insights. Second, a focus group with five experts in online education, access to higher education, innovation, social transformation, and curriculum—members of the academic community at UNAB University in Bucaramanga—offered further evaluation. This validation process helped refine the pathways in terms of relevance and feasibility. They are presented in order from highest to lowest rating; however, the proposed approach is multidimensional, meaning the pathways complement each other, and each can progress independently without relying on the development of the others (Figure 1).



Figure 1. Life and Educational Pathways Resulting from the Co-Construction Exercise with Youth.

Educational and vocational inclusion is highly valued by students, as it provides access to essential information and support for entering and continuing higher education. Key aspects include vocational guidance, preparation for the Saber 11 exams, and access to information on scholarships, financial aid, and the university application process. Additionally, given the distance between Rionegro and Bucaramanga, establishing agreements with local transportation companies to subsidize fares is recommended to ease mobility challenges.

Two comparable initiatives have been implemented in Spain and Chile within this pathway. The first, “Professional Guidance for Vulnerable Youth”, was a digital career guidance project developed by a consortium of 10 entities across eight European countries, aligned with the European Agenda for Adult Learning (Comunidad de Madrid, 2022). The second is Chile’s Higher Education Access Program (PACE), led by the Ministry of Education, which aims to support high school students from public schools in accessing higher education (Chile, 2023). According to the Chilean Ministry of Education, “[...] beneficiaries highlight the program’s comprehensive support from high school to university, which has enabled them to adapt and grow both personally and professionally” (Chile, 2023).

The second scenario, Local and Agroindustrial Entrepreneurship, though not initially prominent in early discussions with students, gained significant interest in later interactions. This interest was driven by the potential to access seed capital programs for developing ventures across various sectors, including but not limited to agroindustry. To support this, educational strategies that cultivate an entrepreneurial mindset and culture at the school level are highly recommended. Internationally, notable models include Spain’s Youth Social Entrepreneurship Itinerary, a free program led by the Ministry of Social Rights, Consumption and the 2030 Agenda. Designed for unemployed individuals aged 18 to 35, it employs a blended methodology incorporating teamwork, independent work, group workshops, mentoring, and online training (Acción Contra el Hambre, 2024). In Colombia, the #EmprenderJoven campaign—spearheaded by the Ministry of Commerce, Industry, and Tourism in collaboration with iNNpulsa Colombia—connects young people with initiatives, events, and resources to strengthen their entrepreneurial ideas and projects (iNNpulsa Colombia, 2024).

The third scenario, Digital Innovation and Technological Skills, aligns with emerging opportunities in fields such as programming, digital marketing, content creation, and artificial intelligence. This scenario envisions the implementation of a digital innovation lab and/or training program in the town, providing young people with a space to explore and enhance their technological skills.

The fourth scenario, SENA Programs Linked to University Offerings, serves as a strategic pathway for high school graduates seeking accreditation and recognition of prior learning. It aims to strengthen the connection between SENA programs and university degrees, facilitating a smoother transition into professional programs at institutions of interest.

The fifth scenario, Support for Online or Blended Higher Education Programs, seeks to identify strategies for successfully implementing online and blended learning models that ensure academic performance and personal satisfaction. Given the widespread lack of motivation toward online education due to pandemic-related experiences, this scenario addresses critical barriers such as limited connectivity and inadequate access to computing devices, particularly in rural areas. In this regard, UNICEF has been advising countries on alternative education programs designed for adolescents with interrupted educational pathways (Fondo de las Naciones Unidas para la Infancia, 2020). According to UNICEF, “[...] priority should be given to programs that are adaptable in terms of schedule, location, registration process, delivery platform (remote, blended, online, independent learning), and available on demand” (Fondo de las Naciones Unidas para la Infancia, 2020).

The sixth scenario, Development of Socio-Emotional Competencies and Mental Health emerged early in discussions with young people. As the dialogue evolved, the focus shifted from a traditional clinical perspective to a more holistic approach to well-being. This shift underscores the need to explore the effectiveness of such programs, as highlighted by Clemente, Urrea and Arnau-Sabatés (2023) in their scoping review of evidence-based socio-emotional interventions for adolescents. These authors emphasize the value of preventive programs that “[...] promote social and emotional learning as a protective factor, fostering better socio-emotional adjustment through participatory methodologies that actively engage students” (Clemente; Urrea; Arnau-Sabatés, 2023, p. 96). Based on their findings, they recommend initiatives lasting between three and nine months, with weekly or biweekly sessions incorporating active, participatory dynamics to maximize impact.

CONCLUSIONS

Returning to the guiding question posed in the introduction, this study affirms that the Social Appropriation of Knowledge (SAK) can and should be effectively integrated into the design of educational and life pathways to enhance social and labor inclusion of young people in Rionegro. The participatory nature of SAK prioritizes the recognition of their voices, experiences, and expectations, ensuring that interventions are contextualized around real needs and available opportunities. The pathways outlined above aim to provide meaningful and decisive support as young people navigate their transition into further education and professional development.

Furthermore, the project aligns with national and international initiatives that address educational and social gaps among youth. UNICEF, for instance, prioritizes reducing disparities for young people in Latin America and the Caribbean through its Alternative Education initiative, which focuses on adolescents with incomplete educational pathways and limited access to reintegration opportunities. This approach includes counseling based on the theory of change, comprehensive program design strategies, educator support, community and intersectoral collaboration, and efforts to strengthen education systems (Fondo de las Naciones Unidas para la Infancia, 2020).

Another relevant international benchmark is the Second Chance Schools (S2S) model, initially launched as an initiative of the European Commission and, since 2016, organized under the Spanish Association of Second Chance Schools. These institutions are designed as “[...] an effective educational response for young people (15-29 years old) who have faced challenges

in traditional academic pathways, continue to struggle to obtain qualifications, or are at risk of social and/or labor exclusion” (Escuelas de Segunda Oportunidad, 2025).

Building on these benchmarks and to further advance the research agenda, it is important to explore strategic alliances with government and private sector actors to ensure the sustainability and scalability of these pathways, while assessing their adaptability to evolving socio-economic dynamics. In Colombia and Latin America, a comparative approach is recommended to examine how other towns with similar socioeconomic contexts have implemented Social Appropriation of Knowledge processes to support young people’s educational and professional pathways.

While this study provides valuable insights, certain limitations must be acknowledged. Notably, the absence of a longitudinal evaluation prevents an in-depth analysis of the long-term impact of the proposed interventions. To address this gap, ongoing research is essential to refine these strategies and strengthen the social fabric of communities like Rionegro. By fostering environments conducive to personal and professional growth, these efforts can empower young people to play a pivotal role in sustainable territorial development.

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Authors contribution

AMA: Conceptualized and designed the study, collected data, conducted analysis and interpretation of results, and prepared the manuscript. LNSG: Edited the manuscript and provided administrative support.

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