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Research Group Dynamics and Strategies in Public Universities: Qualitative Evidence from the Global South

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ABSTRACT

Research groups in public universities across the Global South face persistent challenges in consolidating themselves and generating socially relevant knowledge, due to structural constraints, limited funding, and fragile institutional support. This study aimed to explore the internal dynamics, organisational strategies, and collaborative practices of multidisciplinary research groups within a public university in Lima, as well as their development of collective academic identity and absorptive capacity. A qualitative phenomenological design was adopted. Semi-structured interviews were conducted with 14 participants, including academic staff and students from three research groups selected for disciplinary diversity and varied roles. Data were analysed through thematic hermeneutic analysis, informed by theories of academic social capital, communicative interaction, and interdisciplinary integration. Findings revealed that the groups were structured around inclusive leadership, mentoring practices, academic affinity, and pre-existing trust, which facilitated adaptive responses to environmental constraints. Two main research lines were identified: applied computer science in education (personal safety, traffic, environmental issues) and computational analysis of social dynamics. While disparities in participation were noted, engaged participants sustained cohesion and innovation. The results underscore the importance of flexible organisational structures, effective commitment management, and fostering absorptive capacity to maintain productivity and resilience under resource limitations. It is concluded that strengthening institutional strategies aimed at inclusive participation, recognition of diverse contributions, and sustainable collaboration can enhance the contextualised scientific output of public universities in the Global South. Future research should integrate gender, diversity, and intersectionality perspectives to better understand participation dynamics and the co-construction of knowledge.

Keywords: Research Groups; Academic Collaboration; Absorptive Capacity; Global South; Interdisciplinarity; Higher Education

INTRODUCTION

University research groups have become key pillars in the production of scientific, technological, philosophical, and humanistic knowledge. Their formation, organisation, and internal dynamics directly influence the effectiveness of research processes and the generation of meaningful outcomes. In both high- and low-resource settings, these groups function not only as production units but also as spaces of academic socialisation, knowledge

transfer, and the collective construction of academic identity in contextually situated environments for researchers with diverse academic trajectories (Kezar & Maxey, 2016; Wenger-Trayner & Wenger-Trayner, 2015).

In the Latin American context, investment in research and development (R&D) has historically been limited. Recent data indicate that in countries such as Peru, this investment accounts for only 0.12% of GDP (World Bank, 2024), significantly below the average of the Organisation for Economic Co-operation and Development (OECD, 2022). This structural constraint affects the availability of competitive funds, access to infrastructure, and the development of sustainable research ecosystems. As a result, research groups often emerge as grassroots strategies to optimise institutional resources, foster inclusive learning processes, and respond to increasing demands for academic productivity and social relevance (Etzkowitz & Leydesdorff, 2000; Vallaeys et al., 2022).

Various regulatory initiatives in Peru, such as University Law No. 30220 and the oversight of the National Superintendence of University Education (SUNEDU), have promoted the consolidation of research groups as essential units for scientific advancement. However, academic literature suggests that significant gaps remain in understanding how these groups are formed, how they navigate institutional constraints, and how they manage interdisciplinary collaboration, especially in structurally disadvantaged environments. While some studies have focused on bibliometric outputs or institutional performance indicators (Salas Pilco & Yang, 2022; Finardi et al., 2023), less attention has been paid to the internal organisational cultures, interpersonal relationships, and epistemic strategies that shape research group dynamics (Barrios-Hernández et al., 2024; Limaymanta et. al., 2022). Notably, Chavarro et al. (2014) and Olmeda-Gómez et al. (2012) have stressed that collaboration networks and visibility in global knowledge circuits are often hindered in peripheral regions by inequalities in access, language, and academic recognition.

In addition to structural limitations, communicative and relational factors play a crucial role in shaping research group functioning. Theories of communicative action (Habermas, 1984), interpersonal dynamics (Argyle, 2013), and group development (Fundació per al Foment de la Investigació Sanitària i Biomèdica de la Comunitat Valenciana [FISABIO], 2023) suggest that effective collaboration depends not only on institutional conditions but also on the quality of interaction, mutual understanding, and shared epistemic goals. These theoretical lenses are essential for understanding how group cohesion, leadership, and identity are cultivated within constrained academic settings.

Moreover, existing evidence from the Global North cannot be readily extrapolated to Latin American public universities, where academic careers are frequently precarious, mentoring structures are fragile, and funding for research is sporadic. Sharma (2024) notes that in some Global South contexts, weak governance and misconduct further hinder collaborative efforts. In contrast, other studies suggest that horizontal leadership models and mutual engagement can foster resilience and innovation, even under resource-constrained conditions (Fakunle & Higson, 2021; Bruce et al., 2004).

In this scenario, there is a pressing need to investigate how research groups in the Global South internally organise themselves, how they foster the collective construction of academic identity, and what practices enable them to generate relevant, interdisciplinary, and socially impactful knowledge. Existing evidence has seldom examined how research groups build their adaptive capacity to incorporate new knowledge in response to shifting institutional and societal demands—a process that Cohen and Levinthal (1990) conceptualised as absorptive capacity. This dimension is particularly salient in under-resourced environments, where mentoring practices and intergenerational collaboration can sustain innovation and resilience over time. Furthermore, the meaningful participation of undergraduate and early-career researchers has been underexplored as a mechanism for strengthening academic social capital, promoting the co-production of knowledge, and reinforcing collective identity within research teams. Addressing these gaps is essential for understanding how research capacity can be cultivated and sustained in public universities facing structural constraints.

This study aims to explore the internal dynamics, organisational strategies, and collaborative practices of multidisciplinary research groups within a public university in Lima, Peru. It also examines how these groups shape their collective academic identity and develop socially oriented research lines in the absence of robust structural support. The study adopts a phenomenological design and a hermeneutic analytical approach to capture the lived experiences and meaning-making processes of group members. In doing so, it contributes to a deeper understanding of how research capacity can be cultivated in settings marked by institutional limitations and uneven access to resources.

THEORETICAL FRAMEWORK

This theoretical framework provides the conceptual basis for examining how research groups in structurally disadvantaged universities operate, collaborate, and produce socially relevant knowledge. It is organised into five interrelated sections: (1) research group formation and collaborative dynamics, (2) communicative interaction and

academic identity, (3) interdisciplinary integration and knowledge ecosystems, (4) structural challenges and policy asymmetries in the Global South, and (5) research gaps and emerging perspectives.

Research Group Formation and Collaborative Dynamics

Research groups constitute foundational units for knowledge production and innovation within higher education systems. They function not only as organisational structures but also as evolving communities of shared meaning and practice (Lave & Wenger, 1991; Wenger-Trayner & Wenger-Trayner, 2015). These collectives are shaped by interdependent factors such as academic affinity, leadership strategies, and institutional cultures (Kezar & Maxey, 2016). Within Global South contexts, research groups often emerge informally, drawing on social capital and pre-existing professional networks to navigate resource constraints and institutional fragmentation (Finardi et al., 2023; Barrios-Hernández et al., 2024).

Cohen and Levinthal's (1990) concept of *absorptive capacity*—the ability to identify, assimilate, and apply external knowledge—offers a useful lens for understanding the adaptive resilience of such groups. In contexts where formal support is uneven, absorptive capacity depends on leadership inclusivity, distributed expertise, and mentoring dynamics that integrate early-career researchers and students into meaningful scientific work.

Emerging literature in Latin America suggests that the success of research groups is less determined by bureaucratic compliance and more by the capacity to construct horizontal, trust-based relations (Limaymanta et al., 2022; Vallaeys et al., 2022). These findings support a redefinition of effectiveness in research collaboration, one that is sensitive to local epistemologies, affective ties, and context-driven motivations.

Communicative Interaction and Academic Identity

Effective collaboration requires more than task coordination; it involves communicative practices that foster mutual understanding, recognition, and identity formation. Habermas's (1984) theory of communicative action highlights the role of dialogical interaction in achieving consensus and resolving tensions within groups. These processes are particularly salient in research collectives where authority is often informal and distributed.

Moreover, Argyle (2013) identifies interpersonal communication skills as essential for maintaining cohesion and resolving conflict, both of which are critical in pluralistic teams working under institutional and temporal pressures. As research groups strive to balance diverse epistemological perspectives and disciplinary languages, communication becomes central to the co-construction of academic identity—a dynamic and contextually situated process (Fakunle & Higson, 2021).

Recent evidence also points to the relational dimension of identity within academic collectives in the Global South, where participation is uneven and often shaped by asymmetrical access to resources, mentoring, and institutional validation (Chavarro et al., 2014; Bruce et al., 2004). Addressing these inequities requires not only equitable participation mechanisms but also sustained efforts to affirm diverse trajectories and contributions.

Interdisciplinary Integration and Knowledge Ecosystems

The complex problems facing contemporary societies demand integrative research approaches that transcend disciplinary silos. Interdisciplinarity enhances the epistemic capacity of research groups and facilitates the emergence of hybrid knowledge capable of responding to urgent local challenges (National Academy of Sciences et al., 2005; Bruce et al., 2004).

Studies from the Global South have shown that such integration is often pursued not through formal policy incentives but as a pragmatic response to underfunding and fragmented academic structures (Sharma, 2024). Researchers in Latin America and Africa frequently develop interdisciplinary collaborations to access complementary expertise and address multisectoral concerns (Finardi et al., 2023; Gómez-Adorno et al., 2024).

However, effective interdisciplinary collaboration also depends on institutional cultures that value epistemic diversity and reflexivity. Olmeda-Gómez et al. (2012) underscore the importance of structural flexibility and role fluidity in enabling long-term cooperation. Without such conditions, interdisciplinary efforts risk becoming short-term or symbolic, rather than transformative.

Structural Challenges and Policy Asymmetries in the Global South

Research systems in the Global South face persistent challenges rooted in structural inequalities, policy discontinuities, and international dependency. These asymmetries manifest in limited research funding, precarious employment conditions, and high barriers to publication in mainstream journals (Krauskopf, 2021; Méndez-Isla et al., 2024).

For example, Chavarro et al. (2014) found that researchers working on local issues in Colombia were often excluded from high-impact publication circuits, reflecting a bias against context-specific and interdisciplinary work. Likewise, Limaymanta et al. (2022) observed that while collaboration improves scientific impact, it remains constrained by institutional silos and insufficient policy coordination across the region.

These dynamics contribute to what has been termed *epistemic asymmetry*—the undervaluation of knowledge produced in or for the Global South (Vallaeys et al., 2022). Reversing this trend requires reimagining institutional frameworks that prioritise equity, context sensitivity, and sustained collaboration. Cross-national comparisons (e.g., Barrios-Hernández et al., 2024) demonstrate that structural support, when aligned with inclusive participation strategies, can mitigate fragmentation and promote resilient research ecosystems.

Marrugo-González et al. (2021) provide empirical evidence of centralised research output in Colombia, with uneven institutional collaboration despite high productivity in fields such as optics. Similarly, Urrunaga-Pastor et al. (2024) identify persistent asymmetries in the institutional distribution of publications on university social responsibility across Latin America and the Caribbean, underscoring the need for more inclusive and coordinated regional strategies.

These structural inequities reflect deeper epistemological asymmetries. As Boaventura de Sousa Santos (2014) argues, the global scientific system is structured by epistemologies of the North that often exclude, invisibilise, or devalue knowledge emerging from the Global South. This phenomenon, which he terms *epistemicide*, has led to the marginalisation of locally grounded knowledge systems. Similarly, Walsh (2017) stresses the importance of decolonial pedagogies that re-centre indigenous, Afro-descendant, and feminist knowledges within academic institutions. Integrating such critical frameworks into the governance of research systems is essential to build epistemically just and contextually relevant research ecosystems.

Research Gaps and Emerging Perspectives

Despite growing attention to research group dynamics in Latin America, significant gaps persist. Comparative analyses remain limited, particularly those that integrate qualitative insights into institutional, interpersonal, and epistemological dimensions. Moreover, few studies explicitly examine the role of undergraduate student integration, gender equity, or intersectionality in shaping research collaboration.

Recent initiatives, such as those reported by FISABIO (2023) and the Global Research Council, call for greater investment in capacity building, inclusive governance, and multilingual dissemination. These strategies align with an emerging consensus that robust research ecosystems must be both locally rooted and globally engaged.

Future research should further explore the longitudinal evolution of research groups, particularly in relation to leadership transitions, funding volatility, and policy shifts. Attention to non-traditional metrics—such as community engagement, co-authorship networks, and mentoring practices—may yield richer understandings of what sustains scientific production in under-resourced environments.

MATERIALS AND METHODS

This study adopted a qualitative phenomenological approach to explore in depth the experiences and internal dynamics of research groups at a public university in Lima. According to Moustakas (1994), phenomenological methodology enables a profound understanding of experiences from the perspective of the individuals involved, which is essential for this type of research.

Selection and Characteristics of the Population and Sample

The study population consisted of members from three research groups at a public university in Lima, established in 2017. Selection was based on their disciplinary diversity and research activity. Inclusion and exclusion criteria were defined to ensure that participants provided relevant and meaningful perspectives, a practice recommended in phenomenological studies to enhance the validity of the findings (Creswell & Poth, 2018).

The following table presents the composition of the research groups according to the roles performed by their members, providing insight into the structure and internal dynamics of each group.

Table 1. Composition of Research Groups by Role and Case Study

Category	Coord.	Academic Staff TC	Academic Staff TP	Ext. Assoc.	UG Student	PG Student
Case 1	A	2	2	2	1	1
Case 2	B	2	4	3	6	0
Case 3	C	3	0	0	1	1

Note. Coord. = Coordinator; Academic Staff TC = Academic Staff with Tenured Contract; Academic Staff TP = Academic Staff with Temporary Position; Ext. Assoc. = External Associate; UG = Undergraduate Student; PG = Postgraduate Student. Prepared by the authors based on data collected during the interviews.

Each group was led by a coordinator (identified as A, B, or C), who played a central role in the group's management and direction. Full-time academic staff participated more consistently, while part-time staff were involved more intermittently, likely in specialised or temporary roles. Collaboration with external associates was

significant in the first two cases, indicating a degree of openness to outside contributions. Both undergraduate and postgraduate students formed part of the teams, with notably high undergraduate participation in Case 2, representing a valuable opportunity for early-stage research training. Although overall postgraduate involvement was lower, it was more evenly distributed across the three cases, reflecting their engagement in more advanced projects. This diversity in group composition highlights a multifaceted collaborative dynamic conducive to academic and research development.

Data Collection Procedures

This study employed semi-structured interviews, a core technique in phenomenological research, as they allow for an in-depth exploration of participants' lived experiences in their own terms (Smith et al., 2009; Patton, 2015). The interview protocol was informed by the study's conceptual framework and designed to elicit detailed reflections on research group organisation, collaborative practices, and strategies for scientific production.

Participants were selected through purposive sampling, guided by inclusion and exclusion criteria appropriate for phenomenological designs (Creswell & Poth, 2018). Inclusion criteria required participants to be active members of a selected research group for at least one academic year, having participated in at least one collective research activity. Individuals who had joined within the last academic semester or had not participated in group activities during the data collection period were excluded.

Access to participants was coordinated with each group's leadership and carried out via institutional emails. Prior to participation, all individuals received an information sheet and signed an informed consent form, in accordance with ethical standards for social science research. Anonymity was ensured through the use of pseudonyms and coding of responses.

Interviews were conducted in Spanish, lasted between 40 and 60 minutes, and were audio-recorded with participants' permission. Transcriptions were performed verbatim and checked for accuracy. Complementary fieldnotes were produced during and immediately after each interview to record contextual impressions and non-verbal cues relevant to data interpretation. These notes supported the hermeneutic dimension of the analysis by enhancing situational understanding (van Manen, 2016).

Tools and Technology Used

For the analysis of qualitative data, NVivo 12 Plus software (QSR International, 2020) was employed. This specialised tool supports the systematic organisation, coding, and interpretation of textual data, facilitating the identification of patterns, emerging categories, and thematic structures. NVivo's advanced features, such as node creation, coding matrices, and query functions, allowed for both semantic and latent coding, enhancing the rigour and traceability of the analytical process.

Data Analysis Methods

The data were analysed using a thematic hermeneutic approach, consistent with the study's phenomenological design and its objective of understanding participants' lived experiences within the research groups. The analytical process was guided by the principles of Interpretative Phenomenological Analysis (IPA), as proposed by Smith et al. (2009), complemented by Braun and Clarke's (2006) six-phase framework for thematic analysis.

The process began with iterative readings of the interview transcripts to achieve immersion and familiarity with the data. Initial notes and reflections were developed to identify units of meaning linked to the participants' perceptions and actions. These units were then coded manually and with the support by NVivo 12 Plus software (QSR International, 2020). Coding combined both semantic and latent strategies to ensure a comprehensive understanding of participants' expressed and implied meanings.

A total of 47 codes emerged from this process. These were clustered into 18 categories based on thematic similarity and conceptual relevance. Through several rounds of analytical refinement, four overarching thematic dimensions were constructed, representing the core areas explored in the study.

Two researchers carried out the coding independently. Inter-coder reliability was established through comparison and discussion, resulting in an agreement rate of 87%. Discrepancies were resolved by consensus. The final themes were validated through triangulation with fieldnotes and analytical memos, enhancing the trustworthiness and depth of interpretation.

This analytical approach enabled the exploration of how research group members interpret their roles, relationships, and academic practices, particularly under structurally constrained institutional conditions. It also allowed the researchers to capture the interplay between individual experiences and collective organisational dynamics.

Table 2. Summary of Methodological Components

Component	Description
Sample	14 participants (academic staff and student members from 3 research groups)
Data Collection Technique	Semi-structured interviews (audio-recorded and transcribed verbatim)
Analytical Software	NVivo 12 Plus (QSR International, 2020)
Coding Strategy	Manual and software-assisted; semantic and latent strategies
Categories Identified	18 categories grouped into 4 thematic dimensions
Inter-coder Agreement	87% agreement; discrepancies resolved by consensus
Validation	Triangulation with fieldnotes and research memos

RESULTS

This section describes how the strategies and dynamics of research groups at a public university in Lima contribute to their formation, organisation, collaboration, development of identities and methodologies, and the generation of new knowledge in the sciences and humanities. The presentation is structured around four categories that emerged from the qualitative analysis, guided by the conceptual contributions of group theory, communicative interaction theory, and interdisciplinary approaches. References to decolonial thought and critical epistemologies are also incorporated to enrich the interpretation from an inclusive and context-sensitive perspective.

4.1 Formation and Organisation of Research Groups

The effective organisation of research groups is essential to their consolidation and success. One of the interviewed coordinators explained that the selection of members was based not only on academic competence but also on personal and professional affinity, which facilitated the creation of a collaborative and committed environment.

The responsibility for organising this group rests with me. I began by inviting academic staff with whom I shared both personal and professional affinities, assessing how our skills and expectations could contribute to the team's success. This affinity enabled us to establish a solid foundation for collaboration. Subsequently, I selectively incorporated undergraduate students with whom I had previously worked on research linked to their thesis projects. This selective approach not only facilitated integration and project progress but also ensured that we could effectively achieve the expected outcomes. In my role as thesis supervisor, I have worked closely with these students, which has been crucial for the ongoing development of their research skills and the successful completion of their theses (Fieldnotes, 2024).

This strategy aligns with group theory (FISABIO, 2023) and the concept of communities of practice, understood as learning collectives based on mutual engagement and shared goals (Lave & Wenger, 1991; Wenger-Trayner & Wenger-Trayner, 2015). Strategic selection based on trust and shared objectives enhances group cohesion and collaboration, particularly in resource-constrained contexts. This finding is echoed in studies from similar contexts: Similar findings were reported in comparable settings: Finardi et al. (2023) noted that interdisciplinary research groups in Brazil are often sustained by affinity-based leadership and shared purpose.

These dynamics can also be interpreted through the concept of absorptive capacity, defined by Cohen and Levinthal (1990) as the ability of an organisation to identify, assimilate and apply external knowledge. The integration of students through supervision and course-based relationships illustrates how mentoring structures expand the group's internal knowledge base and adaptability. These mentoring practices not only strengthen absorptive capacity but also function as bonding forms of academic social capital, reinforcing trust within the group and enabling boundary-crossing ties with external networks (Granovetter, 1973; Barrios Hernández et al., 2024).

These perspectives are reinforced by Kezar and Maxey (2016), who argue that collaborative academic cultures flourish when group identity is anchored in mutual recognition, distributed leadership, and consistent interaction. The participant's testimony, therefore, exemplifies a broader model of functional research organisation grounded in affinity, trust, and academic complementarity.

Table 3. Categorical Assessment of Organisational Factors in Research Groups (Relative Frequency of Interview Mentions in %)

Assessment Category	Subcategory	Academic Staff	Students	Assessment (%)
Organisation	Scientific Affinity	3	-	30%
	Friendship	2	-	20%
	Conceptual Alignment	3	-	15%
	Supervisory Work	-	2	20%

	Thesis Course Lecturer	-	2	15%
Total				100%

Note. Developed by the authors based on coded responses from ten semi-structured interviews conducted with academic staff and students.

The results reveal an organisational structure that prioritises both scientific affinity and personal relationships. According to the frequency of coded interview responses, academic affinity (30%) and interpersonal bonds such as friendship (20%) among academic staff contributed to the group's initial cohesion. The inclusion of students through supervisory relationships (20%) and course-based teaching links (15%) further underscores the value placed on mentoring and academic development. Collectively, these elements reflect a model of research organisation that leverages trust, academic complementarity, and sustained collaboration to foster a productive and resilient academic environment.

Teamwork in Research Groups

Effective collaboration is essential in settings where time and resources are limited. In the university studied, this challenge is particularly evident. One of the interviewed coordinators noted the difficulties arising from external commitments of some members:

Collaboration is not always smooth, as many teaching staff have responsibilities outside the university, which limits the time they can devote to research. However, we have a core of committed academics who are essential to the progress of our projects. This central team works cohesively and has been key in securing funding and achieving significant results.

This testimony illustrates how the sustainability of collaborative research relies heavily on a nucleus of committed participants. These stable subgroups are vital to maintaining productivity and ensuring the continuity of long-term research agendas. The importance of these cohesive cores aligns with recent empirical evidence. For example, Limaymanta et al. (2022) demonstrated that inter-institutional collaboration improves both scientific visibility and productivity in South American public universities. This resonates with the findings of Marrugo González et al. (2021), who observed that centralised bonding capital within Colombian groups boosts productivity, but bridging links are necessary to avoid isolation and sustain long-term collaboration.

Furthermore, Behle's (2021) work on employability outcomes in the German higher education system highlights how structural pressures and performance expectations shape institutional collaboration dynamics. Similarly, Keskiner and Gür (2023) describe how academic performance and participation may be constrained by broader systemic conditions, especially when staff face competing demands or lack institutional support. Finardi et al. (2023) also emphasise the need for institutional frameworks that promote shared leadership and sustained participation in Latin American academic settings.

These studies confirm that fostering teamwork in academic settings requires more than shared goals; it demands support structures, distributed leadership, and institutional commitment to long-term collaboration. In this regard, research groups in Latin American public universities often depend on informal networks and the voluntary commitment of their members, which can lead to both innovation and vulnerability. Recognising and strengthening these collaborative nuclei through institutional policies could help mitigate fragmentation and foster a more resilient research culture.

Table 4. Categorical Assessment of Teamwork in Research Groups (Relative Frequency of Interview Mentions in %)

Assessment Category	Subcategory	Academic staff	Students	Assessment (%)
Team work	Commitment to Research	3	-	30%
	Effective Collaboration	2	-	20%
	Limitations Due to External Commitment	1	-	50%
Total				100%

Note. Developed by the authors based on ten semi-structured interviews. Percentages reflect the number of interviewees who spontaneously referenced each subcategory during discussion of group collaboration.

The findings reveal that, although 50% of academic staff face time constraints, 30% demonstrate a high level of commitment that sustains collective work. This situation is best understood through the lens of communicative interaction theory (Habermas, 1984), as the effectiveness of the group depends not solely on the amount of time

available, but on the quality of communication, intentional coordination, and mutual understanding achieved by the cohesive core team.

Group Identity in Research Groups

Group identity is a key factor in promoting internal cohesion and sustaining collaborative work. However, the interviews reveal notable differences in member participation. One coordinator stated:

Unfortunately, in my group not everyone participates equally. Some individuals are very responsible and proactive, always with a positive attitude and a clear focus on achieving our goals. However, others contribute very little, and in some cases, I have even considered removing them from the group.

This testimony highlights a challenge in many academic collectives: unequal participation and varying levels of commitment. These discrepancies can weaken cohesion and generate frustration among more engaged members.

Fragmented group identity suggests low bonding capital among peripheral members—a dynamic described by Barrios Hernández et al. (2024). To compensate, institutional strategies fostering bridging capital—such as inter-group exchanges or regional networks—may enhance cohesion and knowledge diversity.

These patterns of exclusion and marginal participation also reflect broader issues of epistemic injustice. As Boaventura de Sousa Santos (2014) notes, the devaluation of certain voices and contributions within academic spaces forms part of what he terms "epistemicide". Members deemed expendable may be operating within knowledge traditions or communicative styles not recognised by dominant research cultures. Similarly, Walsh (2017) argues that promoting epistemic justice requires acknowledging multiple ways of knowing and valuing diverse forms of academic participation.

Table 5. Categorical Assessment of Group Identity in the Research Groups (Relative Frequency of Interview Mentions in %)

Assessment Category	Subcategory	Assessment (%)
Group identity	Varied Participation	20%
	Consistent and Enthusiastic Commitment	10%
	Lack of Optimised Participation	20%
	Insufficient Participation	20%
	Limited Participation	10%
	Perceived Dispensability	20%
Total		100%

Note. Developed by the authors based on data obtained through semi-structured interviews (n=10).

Table 4 reveals a fragmented group identity. The majority of categories (70%) refer to low or inconsistent levels of participation, reflecting a lack of uniform commitment among members. This situation can weaken group cohesion, particularly when perceptions of dispensability (20%) or insufficient participation (20%) affect internal relationships. Nevertheless, consistent and enthusiastic commitment, though in the minority (10%), acts as a catalyst for group dynamics.

These findings resonate with Barrios-Hernández et al. (2024), who found that the internal bonding capital within Colombian research groups had a significant, though curvilinear, impact on scientific productivity. Excessive internal cohesion, if not complemented by external linkages, may limit diversity and innovation, highlighting the need for a balanced approach to group identity and collaboration.

Similarly, Fakunle and Higson (2021) argue that institutional pressures and structural asymmetries across global higher education systems can shape how identity and collaboration are enacted in practice, especially in under-resourced contexts. These perspectives suggest that reinforcing group identity requires intentional strategies such as inclusive leadership, clear role definition, and recognition of member contributions.

Hence, to promote cohesive and productive research groups, institutions should develop policies that support not only shared goals but also equitable participation, addressing disparities in involvement and fostering a sense of belonging across all members.

Strategies and Methodology for Scientific Production

The research groups studied organise their scientific production around two main lines: applied computer science in education and computer science in society. One coordinator explained their approach:

Our research is organised around two main lines. On the one hand, we focus on applied computer science in education, where we address critical issues such as personal and family safety, road insecurity, and environmental impact studies. In this line of work, our aim is not only to tackle these problems from a technological perspective but also to enhance understanding and communication of these issues within affected communities. On the other hand, we are exploring computer science in society, employing sentiment analysis technologies and other advanced tools to better understand how technology influences everyday life and decision-making processes.

This dual agenda also illustrates the effort to re-centre knowledge production around local priorities. As de Sousa Santos (2014) contends, recognising and valuing context-based research is fundamental to countering epistemic hierarchies. The emphasis on community-relevant topics and the inclusion of students in knowledge generation represent steps toward a more plural and inclusive scientific culture.

This orientation corresponds with global trends. Salas Pilco and Yang (2022) identified predictive modelling and natural language processing as key drivers of artificial intelligence applications in Latin American higher education, particularly in early-warning systems and educational analytics. Likewise, Gómez Adorno et al. (2024) reviewed sentiment analysis techniques for Spanish-language corpora and highlighted the sophistication of deep-learning models, in line with the technological focus observed in the groups studied.

These research configurations align with Bruce et al. (2004) and the National Academy of Sciences et al. (2005), who stress that solving complex societal challenges requires both interdisciplinary integration and methodological flexibility. As Finardi et al. (2023) and Chavarro et al. (2014) demonstrate, these hybrid research agendas emerge pragmatically in contexts with limited funding and demand institutional structures that recognise and support integrated solutions—not merely technical solvency.

The observed dual agenda demonstrates not only technical innovation but also responsiveness to real-world needs—such as improving public safety or the social perception of environmental risk.

From a public policy perspective, this dual-line approach implies the need for (a) funding frameworks that promote interdisciplinary and community-based research; (b) training programmes; and (c) evaluation systems that recognise both scientific excellence and social impact. Through these strategies, research groups in resource-constrained contexts can achieve both relevance and rigour, as is increasingly evident across Latin America.

Table 6. Strategies and Methodologies for Scientific Production in Research Groups (Relative Frequency of Interview Mentions in %)

Assessment Category	Research Lines	Subcategory	Assessment (%)
Strategies and Methodologies	Computer Science Applied to Education	Personal and Family Safety	30%
		Insecurity: Vehicular Traffic and Road Transit	20%
		Environmental Impact and Technical Language	20%
	Computer Science in Society	Sentiment Analysis Using Cutting-Edge Technology	30%
Total			100%

Note. Developed by the authors based on semi-structured interviews.

The findings reveal a body of scientific production deeply embedded in socially relevant concerns, tackled through an interdisciplinary lens. The emphasis on computer science applied to education (70% of activity) and sentiment analysis in societal contexts (30%) reflects a deliberate strategy to generate both applied and theoretical knowledge.

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These research configurations echo Bruce et al. (2004) and the National Academy of Sciences et al. (2005), who stress that solving complex societal challenges requires both interdisciplinary integration and methodological flexibility. The dual research agenda observed demonstrates not only technical innovation but also responsiveness to real-world needs—such as increasing public safety awareness or improving the social perception of environmental risk.

From a policy perspective, this dual-line approach implies the need for (a) funding frameworks that promote interdisciplinary and community-based research; (b) training; and (c) evaluation systems that recognise both scientific excellence and societal impact. Through these strategies, research groups in resource-constrained environments can achieve both relevance and rigour, as is increasingly evident across Latin America.

DISCUSSION

The findings of this qualitative study offer a nuanced understanding of the internal dynamics that characterise research groups within a public university in Lima. The organisation of the groups relied on prior affinity and selective engagement, which, while effective in some cases, also led to tensions affecting group identity. The

emergence of socially oriented research lines within this setting reveals a complex ecosystem that shapes the groups' capacity to produce relevant and impactful knowledge.

From the perspective of group theory (FISABIO, 2023; Wenger-Trayner & Wenger-Trayner, 2015), initial cohesion is built around pre-existing networks of trust and collaboration between academic staff and students. Communities of practice, understood as spaces for mutual learning and the shared construction of meaning, find fertile ground for consolidation within these groups. The selection of members is not limited to academic competence; rather, it prioritises theoretical affinity, prior joint experience, and the complementarity of working styles. These findings align with the ideas of Cohen and Levinthal (1990) regarding the absorptive capacity to integrate new knowledge, which is especially relevant in resource-constrained settings such as public universities in the Global South. In this study, absorptive capacity was evident in the adoption of computational methods for analysing social issues and in the integration of undergraduate students into sustained research processes—both practices that extend the group's learning and production potential.

The sustainability of collaborative research within these groups relies heavily on a nucleus of committed participants. While many academic staff face time constraints due to external responsibilities, cohesive core teams have been instrumental in securing funding and maintaining long-term research agendas. This situation is best understood through the lens of communicative interaction theory (Habermas, 1984), as the effectiveness of collaboration depends not only on time investment but on the quality of dialogue, intentional coordination, and mutual understanding achieved. Similar dynamics have been documented by Limaymanta et al. (2022) in South American universities and by Keskiner and Gür (2023), who examined how systemic conditions and performance expectations shape academic engagement.

Group identity, however, appears fragmented. The coexistence of highly committed members alongside others with limited engagement generates tensions that hinder the consolidation of a strong collective identity. This phenomenon is also reported in studies on academic cultures (Kezar & Maxey, 2016) and collaborative networks in Latin America (Barrios-Hernández et al., 2024). In some cases, a high degree of internal cohesion may reduce openness to diverse perspectives, underscoring the need for inclusive strategies that address participation disparities and reinforce the sense of belonging. Fakunle and Higson (2021) further argue that structural asymmetries in higher education systems affect how group identity and collaboration are enacted, particularly in under-resourced contexts.

The concept of academic social capital—particularly the distinction between bonding and bridging ties—provides a useful lens to interpret the observed differences in participation and influence within the groups. Bonding ties helped consolidate internal cohesion and trust among long-standing collaborators, while bridging ties—although less frequent—enabled connections with external actors and interdisciplinary initiatives. This imbalance, however, limited broader collaboration and constrained the circulation of diverse ideas and methodologies. Future research should explore how targeted support for bridging social capital could enhance group inclusivity and innovation.

The research groups examined direct their scientific efforts towards issues with high social relevance. Two lines stand out: applied computer science in education and the use of computational tools to analyse social dynamics. This dual agenda demonstrates not only technical innovation but also responsiveness to local needs, echoing Bruce et al. (2004) and the National Academy of Sciences et al. (2005), who advocate for interdisciplinary approaches to complex societal problems. Salas Pilco and Yang (2022) identify predictive modelling and natural language processing as key trends in AI applications in Latin American universities, while Gómez-Adorno et al. (2024) describe the increasing sophistication of sentiment analysis models for Spanish-language corpora, reinforcing the relevance of the strategies observed in the studied groups.

These practices acquire greater meaning when viewed through the lens of systemic gaps that affect public universities in the region. Etzkowitz and Leydesdorff (2000) note that in contexts where traditional innovation frameworks are weak, bottom-up strategies and local initiative become essential. This is evident in the Peruvian case, where academic initiative plays a central role in sustaining research capacity, unlike other Global South scenarios—such as India—where collaboration has been compromised by governance and misconduct issues (Sharma, 2024). Encouragingly, Limaymanta et al. (2022) found that inter-institutional collaboration is linked to higher impact in South American public universities, while Vallaeys et al. (2022) highlight the role of social responsibility in shaping context-specific scientific production.

From a critical Global South perspective, the dynamics observed in this study echo broader concerns about epistemic asymmetries. The findings can be interpreted in light of the concept of epistemicide proposed by Boaventura de Sousa Santos (2014), which refers to the systematic marginalisation of locally grounded knowledge systems. The limited recognition of context-specific research and interdisciplinary approaches in international publication circuits suggests the need for decolonial strategies in knowledge governance. As Walsh (2017) argues, integrating indigenous, Afro-descendant, and feminist epistemologies into academic practices is crucial to achieving epistemic justice and rebuilding inclusive research cultures. The inclusion of students and early-career researchers

in knowledge production, as observed in this study, represents a potential lever for disrupting these hierarchies and promoting more horizontal and pluralistic knowledge systems.

These insights demand a more explicit engagement with critical epistemologies in the discussion of research dynamics in the Global South. While previous studies have noted structural and organisational constraints, few have linked these directly to the colonial legacies and epistemological exclusions that shape the global hierarchy of knowledge production. Our findings, when viewed through this lens, suggest that sustainable research groups must be supported not only through funding and institutional incentives, but also by cultivating plural epistemic environments where diverse forms of knowledge—technical, situated, relational—can coexist and co-produce.

This interpretation is consistent with broader comparative studies that document similar tensions in research systems across the Global South. For example, studies in African contexts (e.g., CODESRIA) have shown how regional collaboration and community engagement can serve as counterweights to institutional fragmentation. Sharma (2024) highlights that in Indian public universities, a lack of governance transparency undermines collaborative networks—yet informal mentoring systems help sustain research continuity. Similarly, successful regional networks—e.g., CLACSO, CODESRIA—demonstrate how bridging capital can mitigate fragmentation and support plural epistemologies (Méndez Isla et al., 2024).

While this study provides significant insights, it is important to acknowledge certain limitations. The data do not offer a detailed account of students' participation disaggregated by gender, ethnicity, or socioeconomic background, nor do they include the perspectives of university administrators or funding agencies. Additionally, this study did not systematically examine structural and institutional conditions such as the availability of funding streams, the criteria used to assess scientific productivity, or the existence of incentive policies that might support or constrain research groups. The absence of these perspectives limits the capacity to fully contextualise the collaborative dynamics within broader organisational and policy frameworks. Future research would benefit from integrating analyses of institutional financing mechanisms, performance indicators, and governance arrangements to provide a more comprehensive understanding of how structural constraints and enablers shape research engagement and knowledge production in public universities. Moreover, longitudinal and mixed-methods studies may provide further evidence on how absorptive capacity, identity, and collaboration evolve under different policy and organisational configurations.

In policy terms, the findings suggest concrete actions for strengthening research ecosystems in disadvantaged university settings. These include establishing targeted funding schemes for interdisciplinary and socially relevant research; creating evaluation systems that value mentoring, community impact, and collaborative practices; expanding capacity-building programmes for early-career researchers, especially women and underrepresented groups; supporting regional research networks that connect institutions facing similar structural limitations; and investing in long-term research infrastructure and providing time-release policies that enable academic staff to participate meaningfully in collective research.

Overall, strengthening institutional frameworks that support inclusive leadership, mentorship, and interdisciplinary collaboration is key to enhancing research sustainability in disadvantaged settings. This study also opens avenues for further inquiry. Comparative research across Latin American universities may reveal commonalities and divergences in group organisation, while quantitative approaches could explore links between institutional policies and research impact. Longitudinal studies may shed light on the evolution of group identity and absorptive capacity under shifting leadership and policy environments. Finally, greater attention to student participation may inform strategies to foster early academic integration and develop research talent.

Methodologically, the phenomenological design allowed for the in-depth exploration of lived experiences, capturing both explicit practices and latent tensions within research groups. The hermeneutic approach facilitated a rich interpretation of participants' perspectives, enhancing our understanding of how organisational and interpersonal dimensions intersect in shaping research outcomes. In sum, this study contributes to the growing body of knowledge on research group dynamics in the Global South and offers practical insights for developing more equitable and effective research ecosystems.

CONCLUSIONS

This qualitative study has provided valuable insights into the internal dynamics, organisational strategies, and collaborative practices that shape the functioning and academic identity of research groups within a public university in Peru. Even in contexts marked by structural constraints, limited institutional support, and scarce resources, these groups demonstrated the capacity to consolidate and produce socially relevant research by fostering academic affinity, clear communication, and purposeful engagement.

The findings show that group identity and cohesion are strengthened when there is a solid relational foundation anchored in trust, mentoring practices, and inclusive leadership. These elements echo Wenger-Trayner and Wenger-Trayner's (2015) concept of communities of practice and Cohen and Levinthal's (1990) notion of

absorptive capacity. At the same time, internal tensions and uneven participation can undermine collective identity if they are not addressed by appropriate institutional strategies. Likewise, the development of interdisciplinary and socially impactful research lines reflects the groups' adaptive responses to environmental challenges, aligning with Bruce et al. (2004) and the National Academy of Sciences et al. (2005), who emphasise the importance of interdisciplinary integration in tackling complex societal problems.

These results carry important implications for university policies that aim to promote collaborative, sustainable, and inclusive research environments. Strengthening flexible support structures, creating evaluation frameworks that value mentoring and community impact, and investing in leadership development among academic staff can help to mitigate the risks of fragmentation described by Barrios-Hernández et al. (2024) and Fakunle and Higson (2021). Furthermore, promoting the integration of students and early-career researchers as active members of research teams contributes to building more horizontal and pluralistic knowledge systems, resonating with the decolonial perspectives of Boaventura de Sousa Santos (2014) and Walsh (2017).

While this study provides significant insights, it is important to acknowledge certain limitations. The data do not offer a detailed account of student participation disaggregated by gender, ethnicity, or socioeconomic background, nor do they incorporate the perspectives of university administrators or funding agencies. Additionally, the analysis did not systematically examine structural and institutional conditions such as the availability of funding streams, the criteria used to assess scientific productivity, or the existence of incentive policies that might support or constrain research groups. The absence of these perspectives limits the capacity to fully contextualise the collaborative dynamics within broader organisational and policy frameworks. Future research would benefit from integrating analyses of institutional financing mechanisms, performance indicators, and governance arrangements to provide a more comprehensive understanding of how structural constraints and enablers shape research engagement and knowledge production in public universities. Longitudinal and mixed-methods studies may also yield evidence on how absorptive capacity, identity, and collaboration evolve under shifting policy and organisational conditions.

Finally, this study reinforces the relevance of phenomenological and hermeneutic approaches for capturing both explicit practices and latent tensions within research collectives. By illuminating how organisational, relational, and epistemic dimensions intersect, this research contributes to the growing body of knowledge on research group dynamics in the Global South and offers grounded, practical insights for designing more equitable, resilient, and effective research ecosystems.

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Ethical Approval

This study was conducted in accordance with the ethical principles of the Declaration of Helsinki and the institutional regulations of a public university in Peru. According to our institution's policies, formal ethical approval was not required, as the study did not involve medical procedures, the collection of sensitive personal data, or interventions posing any risk to participants. Prior to data collection, all participants were fully informed about the purpose of the study and provided their voluntary written informed consent. Anonymity and confidentiality were strictly maintained, and all collected data were anonymized to protect participants' identities.

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REFERENCES

Argyle, M. (2013). *Cooperation: The basis of sociability* (Psychology Revivals). Routledge. https://doi.org/10.4324/9780203786758

Barrios-Hernández, K., García-Villaverde, P. M., & Ruiz-Ortega, M. J. (2024). Impact of bonding capital and bridging capital on scientific results of research groups. *Journal of the Knowledge Economy, 15*, 14235–14255. https://doi.org/10.1007/s13132-023-01401-x

Behle, H. (2021). Taking stock: Employability as an outcome of higher education. Evaluating developments in the German higher education system. *Higher Education Quarterly, 75*(4), 562–574. https://doi.org/10.1111/hequ.12318

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Bruce, A., Lyall, C., Tait, J., & Williams, R. (2004). Interdisciplinary integration in Europe: The case of the Fifth Framework Programme. *Futures*, 36(4), 457-470. https://doi.org/10.1016/j.futures.2003.10.003

Chavarro, D., Tang, P., & Rafols, I. (2014). Interdisciplinarity and research on local issues: Evidence from a developing country. *Research Evaluation, 23*(3), 195–209. https://doi.org/10.1093/reseval/rvu012

Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*, 35(1), 128-152. https://doi.org/10.2307/2393553

Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). Sage Publications.

De Sousa Santos, B. (2014). *Epistemologies of the South: Justice against epistemicide*. Routledge.

Etzkowitz, H., & Leydesdorff, L. (2000). The dynamics of innovation: From national systems and "Mode 2" to a triple helix of university-industry-government relations. *Research Policy*, 29(2), 109-123. https://doi.org/10.1016/S0048-7333(99)00055-4

Fakunle, O., & Higson, H. (2021). Interrogating theoretical and empirical approaches to employability in different global regions. *Higher Education Quarterly, 75*(4), 525–534. https://doi.org/10.1111/hequ.12345

Finardi, K. R., França, C., & Guimarães, F. F. (2023). Knowledge production on internationalisation of higher education in the Global South: América Latina en foco. *Diálogos Latinoamericanos, 32*, 51–69. https://doi.org/10.7146/dl.v32i.127278

Fundació per al Foment de la Investigació Sanitària i Biomèdica de la Comunitat Valenciana (FISABIO). (2023). *Bases de acreditación de grupos de I+D+i* [in Catalan].Retrieved January 10, 2024, from https://fisabio.san.gva.es/media/upload/arxius/investigacion/convocatorias/bases-acreditacio-n-grupos-i-d-i-fisabio-2023.pdf

Gómez-Adorno, H., Bel-Enguix, G., Sierra, G., Barajas, J.-C., & Álvarez, W. (2024). Machine learning and deep learning sentiment analysis models: Case study on the SENT-COVID corpus of tweets in Mexican Spanish. *Informatics, 11*(2), Article 24. https://doi.org/10.3390/informatics11020024

Granovetter, M. S. (1973). The strength of weak ties. *American Journal of Sociology*, *78*(6), 1360–1380. https://doi.org/10.1086/225469

Habermas, J. (1984). *The theory of communicative action, Volume 1: Reason and the Rationalization of Society*. Beacon Press.

Keskiner, H., & Gür, B. S. (2023). Questioning merit-based scholarships at nonprofit private universities: Lessons from Turkey. *International Journal of Educational Development, 97*, 102719. https://doi.org/10.1016/j.ijedudev.2022.102719

Kezar, A., & Maxey, D. (2016). *Envisioning the faculty for the twenty-first century: Moving to a mission-oriented and learner-centred model*. Rutgers University Press.

Krauskopf, E. (2021). Article processing charge expenditure in Chile: The current situation. *Learned Publishing, 34*(1), 12–17. https://doi.org/10.1002/leap.1345

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge University Press.

Limaymanta, C. H., Quiroz-de-García, R., Rivas-Villena, J. A., Rojas-Arroyo, A., & Gregorio-Chaviano, O. (2022). Relationship between collaboration and normalized scientific impact in South American public universities. *Scientometrics, 127*, 6391–6411. https://doi.org/10.1007/s11192-022-04523-2

Marrugo-González, A., Bustos-González, A., & Rueda, E. (2021). The state of optics research in Colombia: A scientometric analysis. *Óptica Pura y Aplicada, 55*(1), 1–12. https://doi.org/10.7149/OPA.55.1.51094

Méndez-Isla, M., Versino, M., & Varela, S. (2024). Studying university–industry collaboration in Latin America: A systematic review of the period 1993–2022. *Multidisciplinary Journal for Education, Social and Technological Sciences, 11*(2), 108–136. https://doi.org/10.4995/muse.2024.21800

Moustakas, C. (1994). *Phenomenological research methods*. Sage Publications.

National Academy of Sciences, National Academy of Engineering, & Institute of Medicine. (2005). *Facilitating interdisciplinary research*. The National Academies Press. https://doi.org/10.17226/11153

Olmeda-Gómez, C., Perianes-Rodríguez, A., & Ovalle-Perandones, M. A. (2012). Analysis and visualization of the dynamics of research groups in universities: A case study. *Information Research, 17*(3), paper 524. Retrieved July 20, 2024, from http://informationr.net/ir/17-3/paper524.html

Organisation for Economic Co-operation and Development (OECD). (2022). *Main science and technology indicators* (Vol. 2022 Issue 1). https://doi.org/10.1787/4db08ff0-en

Patton, M. Q. (2015). *Qualitative research & evaluation methods: Integrating theory and practice* (4th ed.). Sage Publications. https://us.sagepub.com/en-us/nam/qualitative-research-evaluation-methods/book232962

QSR International. (2020). *NVivo qualitative data analysis software* [Computer software]. https://www.qsrinternational.com/nvivo-qualitative-data-analysis-software/home

Salas-Pilco, S. Z., & Yang, Y. (2022). Artificial intelligence applications in Latin American higher education: A systematic review. *International Journal of Educational Technology in Higher Education, 19*, 21. https://doi.org/10.1186/s41239-022-00326-w

Sharma, K. (2024). Over two decades of scientific misconduct in India: Retraction reasons and journal quality among inter-country and intra-country institutional collaboration. *Scientometrics, 129*(12), 7735–7757. https://doi.org/10.1007/s11192-024-05192-z

Smith, J. A., Flowers, P., & Larkin, M. (2009). *Interpretative phenomenological analysis: Theory, method and research*. Sage Publications.

Urrunaga-Pastor, D., Bendezu-Quispe, G., Dávila-Altamirano, D., Asmat, M. N., & Grau-Monge, J. (2024). Bibliometric analysis of scientific production on university social responsibility in Latin America and the Caribbean [version 2; peer review: 2 approved]. *F1000Research, 12*, Article 1340. https://doi.org/10.12688/f1000research.141987.2

Vallaeys, F., Oliveira, M. L. S., Crissien, T., Solano Cornejo, D. R., & Suárez, A. (2022). State of the art of university social responsibility: A standardized model and compared self-diagnosis in Latin America. *International Journal of Educational Management, 36*(3), 325–340. https://doi.org/10.1108/IJEM-05-2020-0235

van Manen, M. (2016). *Researching lived experience: Human science for an action sensitive pedagogy* (2nd ed.). Routledge.

Walsh, C. (2017). *Interculturalidad y colonialidad del poder: Un pensamiento desde el sur*. Ediciones Abya-Yala.

Wenger-Trayner, E., & Wenger-Trayner, B. (2015). *Introduction to communities of practice: A brief overview of the concept and its uses*. Retrieved January 15, 2025, from https://wenger-trayner.com/introduction-to-communities-of-practice/

World Bank. (2024). *Gasto en investigación y desarrollo (% del PIB) – Perú.* Retrieved Jun 20, 2024, from https://datos.bancomundial.org/indicator/GB.XPD.RSDV.GD.ZS?locations=PE

