

Pluralism under Asymmetry:
China's International Research Collaboration in Economics
and Education



Kexin Yu
Kellogg College
University of Oxford

A thesis submitted for the degree of
Doctor of Philosophy
Michaelmas 2025

Contents

Pluralism under Asymmetry:	1
China’s International Research Collaboration in Economics	1
and Education	1
Contents.....	2
List of Figures.....	7
List of Tables.....	8
Acknowledgement.....	9
Abstract.....	10
Chapter 1.....	11
Introduction.....	11
1.1 International Research Collaboration through the Lens of China.....	12
1.2 Chinese Social Sciences.....	16
1.3 Selection of Disciplines and Collaborators.....	18
1.3.1 Economics and Education.....	20
1.3.2 US, France, South Korea, Pakistan.....	22
1.4 Bibliometric Patterns of China’s International Co-authorship.....	31
1.5 Structure of the Thesis.....	33
Chapter 2.....	39
Materiality, Epistemology, Values and Imaginaries.....	39
2.1 Introduction.....	39
2.2 Internationalisation and Globalisation of Science.....	40
2.3 Materiality: Infrastructure, Regulations, and Funding.....	44
2.3.1 Infrastructures: Repositories, Labs, and Networks.....	47
2.3.2 Policy Regulations: Mobility, Access, and Governance.....	49
2.3.3 Funding systems: Performance, Incentives, and Evaluation.....	51
2.4 Epistemology: Disciplines, Methodologies, and Innovation.....	53
2.4.1 Epistemology and Disciplines.....	54
2.4.2 Methodologies, Methods, and <i>Sibian</i>	58
2.4.3 Innovation and Pluralism.....	63
2.5 Values and Imaginaries: Norms, Narratives, and Asymmetries.....	67
2.5.1 Global Objectives versus National Imperatives.....	70
2.5.2 Institutional Narratives versus Individual Imaginaries.....	72
2.5.3 Differences, Inequalities, and Asymmetries.....	75
2.6 Summary.....	77

Chapter 3.....	79
Practices, Trust, and Power.....	79
3.1 Introduction.....	79
3.2 Practices: Production, Collaborations, and Circulation.....	80
3.2.1 Initiating International Collaboration.....	84
3.2.2 Negotiating Priorities in International Collaboration.....	86
3.2.3 Evaluating International Collaboration.....	89
3.3 Trust: Goodwill, Credibility, and Reciprocity.....	93
3.3.1 Trust, Goodwill, and Mutual Learning.....	93
3.3.2 Trust Building in International Collaboration.....	96
3.4 Power: Negotiation, Leadership, and Inclusion.....	100
3.4.1 Negotiation and Power.....	103
3.4.2 Leadership and Inclusion.....	107
3.5 Summary.....	111
Chapter 4.....	114
Methodology.....	114
4.1 Rationale: Exploratory Emergent Methodology.....	115
4.1.1 Philosophical Underpinnings.....	117
4.1.2 Research Process.....	118
4.2 Bibliometric Methods.....	120
4.2.1 Sources.....	121
4.2.2 Scoping Search.....	123
4.2.3 Formal Search.....	124
4.3 Semi-structured Interviews.....	125
4.3.1 Participants.....	127
4.3.2 Dyadic Interviews.....	129
4.3.3 Interview Questions.....	131
4.4 Data Analysis.....	133
4.4.1 Bibliometric Data Analysis.....	134
4.4.2 Transcription and Translation of Interviews.....	134
4.4.3 Thematic Analysis.....	136
4.5 Reflexivity and Positionality.....	143
4.6 Ethical Considerations.....	146
4.7 Limitations.....	148
Chapter 5.....	150
Collaboration Structures: Materiality, Epistemology, Values and Imaginaries.....	150
5.1 Introduction.....	150

5.2 Material Structures.....	151
5.2.1 Institutional Infrastructures and Uneven Capacities.....	152
5.2.2 Publishing Regimes and Academic Incentives.....	157
5.2.3 Geopolitics, Pandemic, and Regional Collaboration.....	163
5.3 Epistemology and Disciplines.....	167
5.3.1 Research Orientation and Policy Engagement.....	167
5.3.2 Empiricism, <i>Sibian</i> tradition, and Theories.....	170
5.3.3 Disciplines Features and Shared Consensus.....	175
5.4 Values and Imaginaries.....	179
5.4.1 Hegemony, Inclusivity, and Diversity.....	180
5.4.2 Education System and Critical Inquiry.....	183
5.4.3 Research Innovation and Global Positioning.....	187
5.5 Conclusion.....	194
Chapter 6.....	196
Collaboration Relations: Practices, Trust and Power.....	196
6.1 Introduction.....	196
6.2 Balancing Priorities, Resources and Preferences.....	197
6.2.1 Leveraging and Mobilising Mentorship and Academic Capital.....	198
6.2.2 Pooling Resource and Complementary Expertise.....	203
6.2.3 Negotiating Asian Efficiency and Euro-American Criticality.....	208
6.3 Trust Building.....	212
6.3.1 Respect, Credibility, and Authority.....	213
6.3.2 Receptiveness, Responsibility, and Reciprocity.....	216
6.4 Negotiating Relations of Power.....	220
6.4.1 Leadership and Team Management.....	220
6.4.2 Agentic Negotiation, Resistance and Reconceptualisation.....	224
6.5 Summary.....	229
Chapter 7.....	231
Similarities and Differences in the Dyadic Groups.....	231
7.1 Introduction.....	231
7.2 Cheng with Chris (Economics): Fleeting Collaboration from Visiting Experiences...233	
7.3 Zi with Zach (Economics): Enduring Collaboration based on Supervisory Relations 235	
7.4 Lan with Leo (Education): Adapting Anglophone Frameworks to Local Realities.....237	
7.5 Hong with Henry (Education): Transformative Visiting Experiences and Research Values.....240	
7.6 Bai with Betty, and with Ben (Education): Complementary Expertise and Reciprocal Learning.....242	

7.7 Summary.....	244
Chapter 8.....	246
Discussion.....	246
8.1 Introduction.....	246
8.2 Materiality and Infrastructure.....	248
8.2.1 Institutional Infrastructures and Uneven Capacities.....	249
8.2.2 Publishing Regimes and Academic Incentives.....	251
8.2.3 Geopolitical Tensions and the Pandemic Legacy.....	253
8.3 Epistemology and Disciplines.....	255
8.3.1 Epistemic Orientations and the Purposes of Research.....	256
8.3.2 Methodological Standards: Empiricism, <i>Sibian</i> , and Rigour.....	257
8.3.3 Disciplinary Cultures: Economics as Unified, Education as Pluralist.....	259
8.4 Values and Imaginaries in International Collaboration.....	262
8.4.1 Global Objectives and National Imperatives.....	262
8.4.2 Education, Innovation, and the Politics of Imagination.....	264
8.5 RQ1: Negotiation and Experiences at the Structural Level.....	266
8.6 Trust, Vulnerability, and Agency.....	268
8.6.1 Negotiating Respect, Credibility, and Authority.....	269
8.6.2 Receptiveness, Responsibility, and Reciprocity.....	271
8.7 Power – Negotiation, Leadership, and Inclusion.....	274
8.7.1 Negotiating Interactional Styles between Open Debate and Subtle Agreement. .	274
8.7.2 Leadership as the Organisation of Power.....	277
8.8 RQ2: Negotiation and Experiences at the Relational Level.....	280
8.9 Similarities and Differences in Dyadic Collaboration.....	281
8.9.1 National and Global.....	282
8.9.2 Variations in Depth.....	283
8.9.3 Relations of Power.....	284
8.10 RQ3: Similarities and Differences.....	286
8.11 Main Question: Global and National Research Systems through the Lens of International Collaboration.....	287
Chapter 9.....	293
Conclusions.....	293
9.1 Contribution.....	293
9.1.1 Theoretical Contribution.....	293
9.1.2 Methodological Contribution.....	295
9.1.3 Practical Contribution.....	297
9.2 Limitations.....	300

9.3 Future Studies.....	302
Final remarks: Collaboration, Power, and AI.....	305
References.....	307

List of Figures

Figure 1. Productivity of China-US co-publications in economics and education in CSSCI (2017-2022).....	33
Figure 2. Theoretical framework of the thesis.....	35
Figure 3. The global scale as materiality, imaginaries and social practices. Source: Marginson (2022).....	42
Figure 4. The structural level of the framework.....	43
Figure 5. The relational level of the framework.....	80
Figure 6. An early version of categorising and grouping codes.....	139
Figure 7. The refined version of themes.....	141

List of Tables

Table 1. Year-on-year number of co-authored publications in SSCI from 2017-2022.....	31
Table 2. Year-on-year number of co-authored publications in CSSCI from 2017-2022.....	32
Table 3. Research process overview.....	119
Table 4. Number of co-authored publications in SSCI and CSSCI from 2017-2022.....	125
Table 5. Original plan of the number of participants in each collaboration group and discipline.....	128
Table 6. The actual number of participants in each collaboration group and discipline.....	129
Table 7. Information on the dyadic interview participants.....	131
Table 8. The initial version of the interview questions.....	132
Table 9. More refined interview questions.....	133

Acknowledgement

I extend my deepest gratitude to my supervisors, Professor Alis Oancea and Professor Simon Marginson, whose commitment to academic excellence and passion for educational research have significantly shaped this dissertation. I am equally thankful to my master's supervisor, Dr Xin Xu, who introduced me to the topic of global science and provided constructive feedback for my master's dissertation and doctoral application. I am grateful to Dr Catherine Yuan Gao and Dr Xu Liu for welcoming me in their research team where I gained much insights on statistics and Chinese philosophy; and to my undergraduate supervisor, Professor Yamin Qian, who first sparked my interest in the discussion of 'Structure' and 'Agency' — this theme has continued to underpin my thesis seven years later and presumably in more work to come. My discussions with these amazing scholars about research and about everyday life have profoundly shaped my worldview and influence my choices ahead.

I owe special thanks to my friends, (Dr-to-be) Lingxuan Chen, Dr Minyi Zhang, Dr Nicole Law, (Dr-to-be) Jisoo Seo, Dr Johannes Schulz, (Dr-to-be) Ann-Kathrin Maurer, Dr James Lian for the stimulating conversations and shared laughter through the highs and lows of the DPhil journey — you have been my anchor. My sincere thanks also go to the faculty and peers in the Department of Education, Kellogg College, Lady Margaret Hall, and across the university. It has been a privilege to spend my twenties surrounded by such brilliant, generous spirits in this extraordinary place called Oxford. I have obtained enormous courage, confidence, and resilience along the way and I am truly happy with who I turn out to be.

Finally, and most importantly, I am forever indebted to my family for their unconditional love and support; I could have never made it here without them. This dissertation is dedicated to my grandfather, who passed away in my second year of study during the COVID-19 pandemic. I hope you are proud of me.

Abstract

Scientific activities can be largely conceptualised into two interlocking levels—the national and the global systems. International collaboration as a distinctive practice in this dual system is shaped by materiality (infrastructures, regulations, funding), epistemology (disciplinary logics and methods), and values and imaginaries (norms of openness, merit, and techno-nationalist imperatives). Researchers in international collaboration seek to build trust and negotiate relations of power through various strategies regarding agendas, authorship, data, and leadership. This study investigates social science collaborations between on one hand researchers from China, on the other hand researchers from Western countries (the United States and France), the East Asian region (South Korea) and the global South (Pakistan). Collaborations in two disciplines are explored: Economics and Education. The central question of the study is: what do these researchers' cross-country collaborative experiences suggest about the global and national research systems? To address the question, this study used an exploratory emergent design that applied primarily semi-structured interviews (N=43, including 11 cross-country dyads on the same projects) complemented with bibliometric analysis. In the experiences of these researchers, global standards travel through unequal infrastructures and nationally inflected imaginaries, producing patterned yet negotiable asymmetries whose outcomes hinge on how partners organise relations of power, translate epistemic repertoires, and sustain reciprocity. In this sense, global science is neither a flat, stateless network nor a fixed centre–periphery order. It is a layered system in motion in which structural inequalities are consequential yet never fully determining; collaboration is made workable—and sometimes innovative—through situated practices that reorder relations of power and render epistemic difference intelligible.

Keywords: International research collaboration; Social sciences; Global science

Chapter 1

Introduction

International research collaboration is the set of practices through which researchers in different countries coordinate work, share expertise, pool resources, and co-produce knowledge (Wagner et al., 2017). Over the past two decades internationally collaborative research has increasingly become a central engine of research impact, with rising national performance largely explained by the growth of internationally co-authored work (Adams & Szomszor, 2024). This rise rests on expanding digital communication, shared research infrastructures, mobile scientific labour, and policy frameworks that incentivise cross-border partnering (OECD, 2023). Equally consequential are the values and imaginaries that animate these systems; open science, excellence, and mission-oriented problem-solving cast collaboration as a pathway to global public goods and societal benefit (UNESCO, 2021).

Yet collaboration unfolds on uneven ground. Differences in language, methods, institutional priorities, and disciplinary cultures generate friction; diverse infrastructure and reputation shape who frames questions, who leads, and whose contributions travel (Bosquet & Combes, 2013; Wagner et al., 2018). Geopolitical tensions further condition who can work together, on what topics, and under which rules. Understanding international collaboration therefore requires looking beyond counts of co-authorship to the material arrangements, epistemic norms, and value commitments, as well as to the everyday practices such as translation and negotiation.

This thesis takes up this task through a comparative study of China's international collaborations in Economics and Education. The main research question is: 'What do

researchers' experiences in international collaborations between China and four partner countries, the US, France, South Korea, and Pakistan, tell us about global and national research systems?' Empirically, the study primarily applies interviews complemented with bibliometric mapping, tracing how teams coordinate evidence, translate concepts, and allocate credit. Conceptually, it advances an infrastructural-relational framework to explain variation in collaborative processes and outcomes, and it specifies how navigation practices, trust building, inclusive leadership enable productive asymmetry. In doing so, it reframes international collaboration not as a flat marketplace of ideas but as a stratified, governable field where agency and structure meet. This introductory chapter situates China as the primary and non-exclusive lens due to its scientific rise, foregrounding the revival and tensions in Chinese social sciences. It then justifies the selection of the disciplines Economics and Education, and the four partner countries, the US, France, South Korea, Pakistan, and presents bibliometric trends to contextualise collaboration patterns. Chapter 1 seeks to establish the study's scope, rationale, and empirical foundation, setting the stage for theoretical and empirical exploration in the chapters that follow. The final part of Chapter 1 briefly summarises the main contents of those subsequent chapters.

1.1 International Research Collaboration through the Lens of China

This study approaches the dynamics of international collaboration through a primary focus on China, while retaining a non-exclusive perspective. The decision to foreground China is driven by both empirical and reflexive considerations. Empirically, China represents one of the most significant transformations in the history of modern science. In just four decades, it

has moved from a relatively marginal position in global research to becoming the world's largest producer of scientific publications and one of the top investors in research and development (NSF, 2024; OECD, 2023). In 2024, China's gross domestic expenditure on R&D (research and development) reached 2.68 per cent of GDP, amounting to over 3.6 trillion RMB (approximately USD 506 billion), placing it second globally after the United States (National Bureau of Statistics, 2025). Its publication output now exceeds that of the US in several high-impact STEM (Science, Technology, Engineering, Mathematics) domains, and it ranks first globally in the number of highly cited researchers in engineering, materials science, and chemistry (Elsevier, 2023).

China's rise is not only quantitative but also institutional. Over the past two decades, the country has invested heavily in building research universities, creating world-class laboratories, and developing competitive grant systems. Initiatives such as the 'Double First-Class' plan have targeted both institutional prestige and disciplinary specialisation, aiming to elevate Chinese universities into the global top tier (Li & Yang, 2020). International collaboration has been a cornerstone of this strategy: the proportion of China's publications co-authored with foreign partners rose from under 10 per cent in the 1990s to around 23 per cent across disciplines in 2022 (NSF, 2024).

At the same time, China occupies a distinctive position in global science that makes it a particularly rich site for studying international collaboration. It is both a beneficiary and a challenger within the existing global knowledge order. On the one hand, Chinese researchers have gained visibility and recognition through participation in Anglophone-dominated journals and conferences (Liu et al., 2021). On the other, the country has launched policies to strengthen indigenous innovation, reduce dependence on foreign technologies or theories, and promote research agendas aligned with national priorities (Cao et al., 2020). This dual

orientation of embracing international engagement while asserting national distinctiveness creates a dynamic environment in which collaboration is both encouraged and politically inflected.

China's trajectory of science development has also been shaped by historical interruptions and reforms. For much of the 20th century, political upheavals, including the Cultural Revolution, disrupted higher education and research (Zhang, 2017). Since the reform era of the late 1970s, the government has restored and expanded scientific capacity at unprecedented speed (Zhao et al., 2024). This rapid rebuilding has left a legacy of ambition, centralised policy direction, and a willingness to use state resources to shape research priorities, conditions that differ markedly from many established scientific powers (Hayhoe, 2019).

The author's own positionality adds another dimension to the rationale for choosing China as a primary lens. Having been educated in both China and the United Kingdom, I approach this research with a hybrid perspective. Born and raised in China until the completion of undergraduate education, my experiences grounded me in the norms and structures of the Chinese culture and academic system. My subsequent postgraduate study in the UK exposed me to contrasting epistemic traditions and collaborative cultures. This dual immersion positions me simultaneously as an insider who is familiar with the linguistic, cultural, and institutional contexts of Chinese academia, and as an outsider able to view its dynamics from a comparative standpoint. As Reiter (2017) points out, positionality shapes not only what researchers see but also how they interpret and represent it. Being reflexive about this influence is essential to ensuring that the analysis in this study remains attentive to participants' perspectives rather than overly filtered through my own.

The ‘non-exclusive’ aspect of the lens of China is equally important. While China serves as the focal case, the study situates its experiences within broader global patterns. This is partly methodological: restricting the scope to a single national case could risk essentialising its characteristics or overlooking how certain dynamics are shared across contexts (Yang et al., 2025). It is also analytical: many of the structural forces that shape China’s international collaborations such as global publication norms and funding competition operate across multiple countries (Bosquet & Combes, 2013). Retaining a non-exclusive lens allows for the recognition that China’s position is embedded in, and responsive to, these wider systems.

By adopting China as the primary but non-exclusive lens, this thesis aims to illuminate both the particularities of its scientific rise and the commonalities it shares with other national science systems navigating global science and international collaboration. In turn, the study of research and collaborations involving China provides insights into relations in global and national science. In the scholarly and policy discourse, China’s ascent is often framed through a narrative of exceptionalism, depicting it as an unprecedented case defined by extraordinary speed, scale, and state coordination (Zhou & Leydesdorff, 2016; Cao et al., 2020). Nonetheless, an uncritical acceptance of exceptionalism risks treating China as fundamentally incomparable, thereby obscuring the structural conditions and global interdependencies that underpin its development (Liu et al., 2021). A critical lens on the case of China means accounting for its deep integration into international research networks, the role of returnee scholars trained abroad, and the adoption of globally circulating evaluation metrics and publication practices, as well as the influences of internal factors (Xiao et al., 2022).

1.2 Chinese Social Sciences

Chinese social sciences have a turbulent history marked by political disruption and subsequent revival. In the early 20th century, fields like sociology flourished, with Chinese scholarship considered globally influential during the 1930s (Hayhoe, 1993). However, after 1949, most social science disciplines were dissolved or absorbed into Marxist political education (Hayhoe, 1993). During the Mao era (1950s–1970s), independent social science research effectively vanished, creating a ‘lost generation’ of scholarship (Liu, 2007). Following the Cultural Revolution, the establishment of the Chinese Academy of Social Sciences (CASS) in 1977 symbolised a renewed commitment to rebuilding the field (Zhang, 2017). Through the 1980s and 1990s, social sciences re-emerged in universities with growing institutional and financial support (Zhang, 2017).

Since the 2000s, Chinese social science research has expanded its global presence. Bibliometric data show rising publication outputs in international journals; co-authorship with global partners has become more common, and Chinese scholars are increasingly first authors in collaborative work (Liu et al., 2015; Zhao et al., 2024). The process of internationalisation seems to be uneven across disciplines. For instance, economics, influenced by globally standardised theories and populated by Western-trained returnees, is among the most internationally integrated fields (Demeter et al., 2025). Other disciplines such as sociology and education are historically more localised and normatively laden, demonstrating lower level of global visibility, although subfields like higher education saw a higher rate of joint publications with overseas scholars compared to other education topics (Demeter et al., 2025).

Yet, the drive for internationalisation coexists with ideological tensions. China's social scientists need to navigate a dual mandate: they strive to align with global academic norms while aiming to foster indigenous and local-embedded research. This dynamic, sometimes termed 'hybridisation', reflects competing pressures to publish in English and engage globally while adhering to Marxist and nationalist frameworks (Xu, 2021). Under Xi's administration, emphasis on socialist values has intensified, reinforcing a cautious stance toward Western paradigms (Gong, 2023). Xi first emphasised 'writing papers on the motherland's soil (把论文写在祖国大地上)' in 2016 to encourage practical, domestically focused research, an idea he reemphasised in 2020 to align theoretical work with China's national priorities (2016; 2020). Scholars are reported to face contradictory incentives to convey China's social realities in international terms and to produce locally relevant research rooted in national priorities (Zhang et al., 2021). Few Chinese-language journals in social sciences have entered the international index, limiting their global reach (Zhao et al., 2024). This is partially due to the structural constraints in global academia; Anglophone dominance and editorial bias create barriers to recognising non-Western journals and researchers (Xu, 2021).

Another persistent challenge for Chinese social scientists lies in the stringent publishing requirements, which in some cases have fostered instrumentalist approaches to research. Literature has documented an overemphasis on output metrics, which has raised concerns about quality and integrity, with a tendency to prioritise quantity over innovation (Lu, 2019). For instance, early-career academics at a top-tier Chinese university are reported to face intense pressure to publish, prompting some to rush work to press at the expense of innovation and scholarly rigour (Tian & Gu, 2017). Similar patterns of fatigue and diminished research integrity under metric-driven pressures have been observed in specific fields such as economics and clinical studies (Yang et al., 2025).

The government has attempted to address these issues through top-down reforms. The ‘Break Five Only’ (BFO) initiative, introduced in 2018 and updated in 2020, sought to reduce overreliance on citation indices and the primacy of SSCI (Social Sciences Citation Index) listings in research evaluation and career promotion (Gao & Guo, 2023). However, some studies found that in practice, the reforms have had other presumably unintended effects. They have expanded administrative and academic discretion, further empowering institutional leaders and established scholars (*xuefa* 学阀), while amplifying the role of *guanxi* (关系, personal connections) in career advancement (Zhao et al., 2025). The tension between maintaining research quality and ensuring efficient evaluation remains an unresolved and evolving issue in China’s social sciences.

In summary, Chinese social sciences have experienced considerable evolution from periods of suppression to revival and internationalisation, and now a focus on endogenous scholarship. Within this broader context, this study closely examines China’s research collaborations in Economics and Education with the US, France, South Korea, and Pakistan, countries that represent China's varied economic, diplomatic, and cultural ties. The next section provides the rationale for the country selection.

1.3 Selection of Disciplines and Collaborators

The scope of this thesis necessitates the selection of a few disciplines and countries that could illuminate how China’s international collaboration engages with the global science system. Such selection is both conceptually and practically essential as the scale and complexity of international collaboration make it impossible to analyse the phenomenon in its entirety

within the constraints of a single study. Narrowing the focus allows for a depth of empirical investigation and theoretical engagement that would be unattainable in an all-encompassing way (Hesse-Biber & Leavy, 2006). By working with a bounded yet diverse set of cases, the thesis can draw fine-grained insights from rich material, while still producing findings with broader relevance.

The selection strategy reflects the comparative aims of the study. To understand how collaboration is shaped by both disciplinary cultures and geopolitical relationships, it was necessary to include cases that vary systematically along these dimensions. Economics and Education were chosen as the focal disciplines because they occupy distinctive positions in the spectrum of social sciences and in China's research landscape: one is more globally standardised and quantitatively oriented, the other more context-dependent and methodologically pluralist. These differences create opportunities to analyse how epistemic norms influence collaborative practices, how methodological diversity is negotiated, and how disciplinary embeddedness affects global visibility.

In parallel, the four collaborating countries, the US, France, South Korea, and Pakistan were selected to represent a spectrum of academic, political, and cultural ties with China. This variation allows the study to compare collaboration in contexts of high research capacity and strategic rivalry (US), long-standing institutional partnership (France), regional proximity and complementary strengths (South Korea), and politically aligned development cooperation (Pakistan). Such diversity makes it possible to examine whether disciplinary logics play out differently depending on the partner country, and to examine how national relationships shape the formation, sustainability, and outcomes of collaborative projects.

In short, the case selections balance analytical focus with empirical variety. They make it feasible to explore international collaboration at the necessary level of depth, while

ensuring the findings contribute to wider debates on the interplay between national science systems, disciplinary cultures, and the global research environment.

1.3.1 Economics and Education

Economics and Education are both influential within China's research system, but they possess distinctive characteristics in their epistemic orientations, methodological cultures, and degrees of integration into global knowledge networks. These contrasts make them analytically valuable for examining how disciplinary logics interact with national science systems to shape collaborative practices.

Economics exemplifies a globally standardised social science, dominated by methods, theories, and evaluative criteria particularly from the Anglo-American core (Fourcade et al., 2015). The field's unitary paradigm, rooted in neoclassical theory and increasingly reinforced by empirical causal inference methods, facilitates a high level of comparability across contexts (Hamermesh, 2013). This coherence supports integration into global knowledge networks: top-tier economics journals are almost exclusively English-language, while bibliometric analyses consistently rank economics among the most internationally co-authored social science disciplines (Wagner et al., 2018).

In China, economics has benefitted from policy support for internationalisation, including incentives to publish in SSCI-indexed journals and to participate in international collaborations with leading institutions (Liu et al., 2021). Economics is also embedded in strategic state agencies such as the Ministry of Finance, the People's Bank of China, and planning commissions, linking research directly to both national and global policy processes

(Yan et al., 2013). This policy-proximate position aligns it with the state's developmental priorities while also strengthening the field's global visibility.

Education, by contrast, occupies a more locally embedded and epistemologically pluralist position. While it engages with global agendas such as the Sustainable Development Goals, UNESCO initiatives and large-scale assessments like PISA, much of Chinese education research remains oriented toward local policy challenges, national curriculum reforms, and the sociocultural contexts of schooling (Gu & Schweisfurth, 2015). The field accommodates a wide spectrum of methodologies, from psychometric modelling and learning analytics to ethnography, narrative inquiry, and participatory action research (Punch & Oancea, 2014). This diversity allows responsiveness to the moral, cultural, and political dimensions of education, but can complicate standardisation in cross-national projects that prioritise methodological coherence (Kosmützky, 2018). International collaboration in education often requires reconciling contextual sensitivity with the demands of global comparability, a tension that shapes both research design and partnership dynamics (Steiner-Khamsi & Waldow, 2018).

From a comparative perspective, selecting Economics and Education enables the study to probe a key question: how do researchers in different disciplines navigate the diverse epistemic and methodological profiles in international collaboration? Economics provides a window into a field that is more globally standardised, quantitatively oriented, and closely tied to transnational policy circuits. Education offers a lens onto a more heterogeneous, context-dependent discipline, where collaboration often requires reconciling global benchmarks with local realities. By placing these disciplines side by side, the thesis is able to capture both the convergences such as shared challenges around research evaluation, language barriers, and geopolitical tensions, and the divergences in how the two fields

navigate methodological diversity, policy engagement, and international visibility. Insights generated can potentially inform broader debates about how disciplinary cultures mediate the interplay between national science systems and the global research environment.

1.3.2 US, France, South Korea, Pakistan

To select the four country partnerships for examining China's international collaborations in Economics and Education, the thesis begins with a broad consideration of the major global science regions where China has established significant ties: North America, Europe, and East Asia. These regions encompass the bulk of China's international research activity, reflecting concentrations of scientific excellence, historical engagements, and strategic priorities that shape global knowledge flows (Kitajima & Okamura, 2025; Chen & Sun, 2021).

Within North America, the US emerges as the clear choice, given its position as the biggest player in global science and the sheer scale of China-US academic mobility, including thousands of scholars moving between the two countries annually, which exceeds ties with other North American nations like Canada (NSF, 2024; Tang, 2024).

Turning to Europe, the focus is to identify a collaborator with distinctive academic culture as a national system and with long histories of mutual communication with China. The French Revolution has exercised long influence on the Chinese Marxist movement, encouraging a pattern of intellectual exchanges (Tran, 2024). France established governmental-level frameworks for cooperation with China in both STEM and social sciences since 1960s, encouraged by France's early diplomatic recognition of the People's Republic of China (Godement, 20). The selection of France highlights a blend of more

pronounced cultural affinity and policy alignment compared with other European powers like Germany or the UK.

In East Asia, the selection process emphasises regional connections, cultural proximity, and shared research evaluation systems. This leads to South Korea as a key partner due to its geographic and cultural proximity, aligned innovation policies, and rapid growth in joint publications (Yoon et al., 2017). Additionally, to capture the dynamics of emerging strategic alliances, the Belt and Road Initiative and deepening political partnerships guide the inclusion of Pakistan, which exemplifies how development-oriented diplomacy fosters academic ties in a way distinct from more established East Asian relationships like those with South Korea and Japan (Awan, 2022; Schulhof et al., 2022).

The narrowing from regions to specific countries ensures a balanced representation of diverse collaboration types, from high-volume, competitive partnerships to those embedded in regional and developmental contexts. However, this selection has inherent limits, as within the scope of the doctoral study it cannot encompass all of China's global engagements such as those with the UK, Germany, or Japan while also pursuing in-depth analysis. Nonetheless, these choices allow the study to pursue variations in how geopolitical, institutional, and disciplinary factors intersect in China's international research landscape. The four collaboration partnerships are now analysed in more details.

China-US

China's research collaboration with the US has evolved from nascent exchanges in the late 20th century into the most significant bilateral partnership. After diplomatic normalisation in 1979, formal science and technology (S&T) agreements fostered early cooperation, but the

scale of joint work truly accelerated in the 2010s (Kitajima & Okamura, 2025). By the mid-2010s, China had become the top international collaborator for the US. This peaked in 2020 when 26 per cent of US internationally co-authored papers included at least one Chinese co-author (NSF, 2024), and the majority of collaborative papers were bilateral (Lee & Haupt, 2021). The rise of collaboration was visible across disciplines from physics and engineering to the social sciences, including fields of Economics and Education (Liu et al., 2021). The evolving convergence between China and the US coincided with China's dramatic expansion of R&D capacity and its integration into global science networks (Chen & Sun, 2021). Studies also found that the majority of the high-impact (top 500 most cited in Scopus) collaborative papers had first authors from China and the bulk of the funding for the collaborative projects came from China not the US, which helps explain the US enthusiasm for partnership prior to 2019 (Lee & Haupt, 2020).

Nonetheless, after 2019 a clear downturn emerged: collaborative outputs and researcher mobility between the two countries have declined. The number of scholars with dual US–China affiliations dropped over 20 per cent after 2019, alongside a reduction in co-authored papers, a phenomenon termed as scientific ‘decoupling’ (Tang, 2024). Policy shifts like the US ‘China Initiative’ and tightened visa scrutiny for Chinese scholars have been linked to decreasing collaboration and even an exodus of Chinese scientists from US institutions (Tang, 2024). Despite political tensions, in 2022 China was still the largest international collaborator for US researchers (Wagner & Cai, 2022). Over 24 per cent of US internationally co-authored papers in 2022 had a Chinese co-author, only slightly down from the 2020 peak (Wagner & Cai, 2022).

In summary, the past decade saw China–US research ties reach all-time highs in volume and impact, especially in STEM fields, while recent political frictions have

introduced headwinds. It seems that enduring professional networks and co-authorships seem to persist, underscoring the deep interdependence built over prior decades.

China–France

Franco-Chinese research collaboration has a long historical arc, dating back to France's early scientific exchanges with the People's Republic of China (PRC) in the 1960s–1970s (Tran, 2024). A formal bilateral S&T Cooperation Agreement was signed in 1978, laying groundwork for joint work in areas like nuclear energy and agriculture (Tran, 2024). In the past 10 years, Sino–French research ties have deepened further, albeit on a more modest scale than China's partnerships with the US or UK. France consistently ranks among China's top ten research partners by co-publication count (Godement, 2015). Notably, the institutional ties underpinning this collaboration are strong. Mobility schemes such as the Xu Guangqi and Cai Yuanpei programs facilitate exchange of young researchers, further strengthening collaborative networks (Jami & Blue, 2021). European funding frameworks have also played a critical role: since the EU–China Science and Technology Agreement, major schemes like Horizon 2020 and its successor Horizon Europe have systematically funded joint Sino–EU projects through co-funded calls and mobility grants (Cai, 2023). Meanwhile, Erasmus dimension programmes, especially Erasmus+ and the Erasmus Mundus joint degrees, have fostered researcher and student mobility, catalysing grassroots networking that underpins many academic collaborations (Jiang & Shen, 2019).

In terms of publication patterns, Sino–French collaborative publications are primarily in English, with French playing a diminishing role, and spanning a wide spectrum of disciplines. Studies show that China and France co-authored papers in social science attract

2.8 times more citations than world average, one of the highest among China's partners (Tran, 2024). In the fields of Economics and Education, while the volume of is comparatively small relative to total collaborative papers, meaningful cooperation exists. There are joint studies in development economics and comparative education, often examining African development, where France and China have intersecting interests (Cabestan, 2016). French and Chinese scholars have also co-authored works on education policy, reflecting shared challenges of higher education internationalisation (Tran, 2024). Furthermore, institutional alliances like the Sino-French Research Centre at Tsinghua University facilitate collaboration in humanities and social sciences (Pan, 2025).

Overall, the past decade saw steady growth in Sino–French research collaboration, supported by aligned policy initiatives. France's role as a European Union science leader and China's emergence as a scientific heavyweight have created complementary strengths. While France's share of China's total international collaborations remains modest by recent counts, the partnership is highly valued. It is underpinned by academic diplomacy and mutual strategic interest in areas like climate change. In summary, China–France research cooperation has a rich history and, in the last ten years, has matured into a partnership marked by moderate but impactful co-publication output, robust institutional links, and targeted initiatives to spur joint work in both STEM and social science domains.

China–South Korea

China's research collaboration with South Korea has flourished in recent years, helping to transform East Asia into a vibrant nexus of co-authorship. Although formal scientific ties began later after South Korea established diplomatic relations with China in 1992, the

collaboration has caught up rapidly (Jung, 2012). By the 2010s, South Korea emerged as one of China's top regional partners in science. During 2011–2015, China co-authored 10,665 publications with South Korea, a two-fold increase from about 5,449 in the preceding five-year period (Yoon et al., 2017). This growth trajectory continued into the last decade, reflecting intensified cooperation especially in applied sciences and technology fields (Lee, 2020). South Korea's proximity to China and its status as an OECD high-tech economy make it a natural partner as China has sought to strengthen regional research networks (Sun & Jiang, 2014). Top Korean institutions such as Seoul National University maintain active partnerships with Chinese counterparts like Tsinghua and Shanghai Jiao Tong, supported by government-level agreements (Lee, 2020).

In Economics and Education, Sino–Korean collaboration is evident albeit at a smaller scale than in research collaboration as a whole. There have been joint studies on East Asian education systems, often involving comparative analyses by Chinese and Korean scholars (Yoon et al., 2017). In economics, topics like regional trade integration, supply chain finance, and development policy have spurred co-authored articles by researchers from the two countries, given their intertwined economies (Lee, 2020). These domain-specific collaborations are bolstered by broader academic exchange: hundreds of Korean students pursue graduate studies in China and vice-versa, creating networks that often result in co-authored papers (Bae & Lee, 2020). South Korea's national R&D strategy in the late 2010s explicitly encouraged 'top-down' international projects, including with China (Bae & Lee, 2020).

In summary, the last decade saw China–South Korea research collaboration grow stronger, fuelled by regional proximity, complementary strengths, and intentional policy

support. While geopolitical tensions on the Korean peninsula exist, they have not hindered scientific ties, which remain robust.

China–Pakistan

China’s collaboration with Pakistan is distinctive in its element of strategic partnership and in its rapid recent growth. Often described as an ‘all-weather partnership,’ China–Pakistan ties extend beyond diplomacy into education, science, and technology (Awan, 2022).

Historically, cooperative science efforts were limited due to Pakistan’s modest research capacity, but this has changed substantially in the past 10–15 years (Khan et al., 2020). A turning point was the launch of the China–Pakistan Economic Corridor (CPEC) in 2015, a flagship Belt and Road Initiative (BRI) that also prioritised people-to-people and knowledge exchange (Awan, 2022). The BRI, launched in 2013, is China’s primary global infrastructure and development strategy aimed not only at building land and maritime corridors for collaboration, but also at deepening academic, cultural, and educational ties through means such as scholarships, research partnerships, and student mobility to foster mutual learning and interpersonal networks across partner countries (Schulhof et al., 2022).

Since the commencement of the CPEC, academic collaboration has surged, buoyed by large numbers of Pakistani students and researchers engaging with Chinese institutions (Ali & Akhtar, 2024). China has become the most preferred destination for Pakistani students pursuing advanced degrees abroad. The number of Pakistanis in Chinese universities (for bachelors, masters, and PhDs) rose manifoldly after 2015, with thousands receiving scholarships from Chinese sources each year (Usman, 2025). This educational exchange has translated into greater research collaboration, as many of these students partake in joint

research projects and co-author papers with Chinese mentors (Usman, 2025).

Correspondingly, the volume of Sino–Pakistani co-authored publications climbed steeply in the last decade. Recent bibliometric studies indicate that China is now among the top two international collaborators for Pakistan, alongside the US (Ali & Akhtar, 2024). This reflects not only historical goodwill but also concerted efforts by both sides to link their research communities.

Key areas of collaboration align with the development needs and strengths of the two nations. Joint work in engineering, energy, and technology fields is prominent. For example, Chinese and Pakistani engineers and scientists have co-published extensively on topics like power generation, civil engineering, telecommunications, and artificial intelligence applications (Ali & Akhtar, 2024). These practical collaborations often tie into CPEC projects with teams drawn from Chinese academies and Pakistani universities (Ali & Akhtar, 2024). Co-authorship in economics and social sciences, while smaller in quantity, has grown too. For instance, economists from both countries have jointly examined the economic impacts of CPEC, trade policy, and regional connectivity (Usman, 2025). In education research, collaborations are emerging around topics of higher education reform and student mobility, often analysing the phenomenon of Pakistan–China academic exchange (Usman, 2025). Several institutional partnerships underpin these trends. The Higher Education Commission (HEC) of Pakistan and China’s Ministry of Education have an active Memorandum of Understanding (MoUs) encouraging university linkages (Khan et al., 2021). There are jointly funded research centres, such as the Sino-Pakistan Joint Research Centre established in 2021 with Chinese Academy of Sciences support (Khan et al., 2021).

In summary, the past decade has seen China–Pakistan research collaboration transition from a minor element to a core feature of Pakistan’s scientific landscape. The

partnership's growth is evidenced by both the surge in co-publications and qualitative developments like joint centres and shared PhD programs. Strong political support and perceived mutual benefits help address challenges such as resource disparities and language barriers exist. This unique alliance highlights how strategic international policies such as China's Belt and Road Initiative can significantly shape patterns of scholarly co-authorship and knowledge production.

This section has set out the rationale for selecting both the disciplinary and national cases through which the thesis examines China's international research collaborations. Economics and Education were chosen for their mutually distinct epistemic cultures, methodological orientations, and degrees of integration into global knowledge systems, enriching a comparative analysis of how discipline-specific logics interact with the structures of national science systems. The four collaborating countries, the US, France, South Korea, and Pakistan were selected to represent a spectrum of academic, political, and cultural ties with China, from highly institutionalised and competitive relationships to partnerships embedded in strategic alliances and development cooperation.

It is helpful to gain a clearer picture of the scale and patterns of activity within these cases. Bibliometric analysis offers a way to do this by tracing how co-authored publications between China and its selected partners have developed over time in Economics and Education. Examining these trends provides a quantitative backdrop against which the later, more detailed accounts of collaboration can be read more easily, highlighting where partnerships have been most active, when they have grown or declined, and how these trajectories compare across both disciplines and countries. The next section establishes a bibliometric reference for understanding the contexts in which collaborative relationships take shape.

1.4 Bibliometric Patterns of China’s International Co-authorship

Bibliometric data provide a valuable means of mapping the scales and trajectories of China’s research collaboration in Economics and Education with the US, France, South Korea, and Pakistan. The bibliometric data here were drawn from the Social Sciences Citation Index (SSCI) in Web of Science and the Chinese Social Sciences Citation Index (CSSCI), covering both English and Chinese-language journals in Economics and Education. The analysis covers publications from 2017 to 2022 to capture sufficient data volume for bibliometric analysis and geopolitical tensions as well as COVID-19 influences. The bibliometric trends presented here help provide background information that informs the subsequent chapters in which China’s international collaborations are explored theoretically and empirically. More details of methodological choices are included in Chapter 4. Tables 1 and Table 2 offer an overview of the publication productivity of different collaboration pairs in Economics and Education across the two databases.

Table 1. Year-on-year number of co-authored publications in SSCI from 2017-2022.

	Business & Economics				Education & Educational research			
	China-US	China-France	China-South Korea	China-Pakistan	China-US	China-France	China-South Korea	China-Pakistan
2017	112	0	8	4	292	38	20	1
2018	124	2	7	3	278	6	29	2
2019	184	9	16	7	352	8	17	8
2020	203	16	12	17	367	8	23	22
2021	274	15	21	22	393	7	25	19
2022	270	23	19	25	394	13	28	16
Total	1167	65	83	78	2076	80	142	68

--	--	--	--	--	--	--	--	--

Table 2. Year-on-year number of co-authored publications in CSSCI from 2017-2022.

	Economics				Education			
	China-US	China-France	China-South Korea	China-Pakistan	China-US	China-France	China-South Korea	China-Pakistan
2017	89	5	7	4	64	5	2	3
2018	118	9	8	5	60	9	1	1
2019	117	3	8	1	73	5	4	1
2020	99	2	4	3	45	3	4	2
2021	72	6	3	1	47	0	5	0
2022	67	8	8	1	41	2	1	1
Total	562	33	38	15	330	24	17	8

Across both databases and disciplines, China–US collaborated publications have significantly larger volumes compared to other collaboration pairs. China’s co-publications with the three other countries started with small sizes in 2017 and gradually expanded in the next six years, although there were some fluctuations in between. CSSCI documents fewer co-publications than SSCI potentially due to language barriers (most CSSCI publications are in Chinese).

An interesting trend was found in CSSCI, as shown in Figure 1. The productivity of China-US co-publications in Economics and Education both experienced an initial increase, climaxed around 2018-2019, and then decreased to a lower level in 2022 compared with 2017. The period 2018 to 2019 may signal some policy changes or broader landscape shifts in Chinese-language publishing. This corroborated findings in Lee and Li (2021) where some US-based researchers with Chinese heritage decided to cut ties with China after the China

Initiative; the group who were able to engage in collaborative science in Chinese was significantly affected.

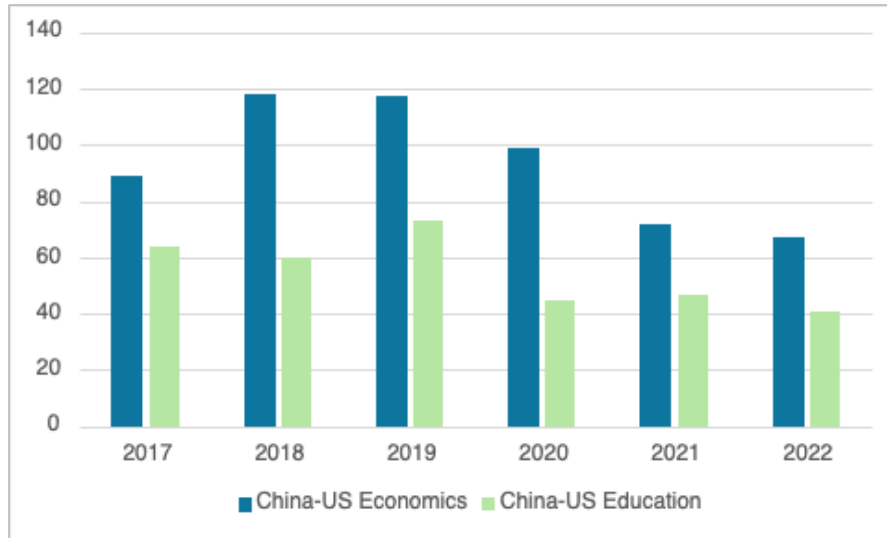


Figure 1. Productivity of China-US co-publications in economics and education in CSSCI (2017-2022).

Despite the relatively small size of these data, this trend potentially indicates the effects of policy changes or wider geopolitical factors. Bibliometric data confirmed previous literature that the US is China’s biggest collaborator (NSF, 2024). This downturn aligns with broader reductions in international co-authorships, US–China geopolitical tensions, and domestic evaluation shifts favouring domestic outputs mentioned earlier (Tang, 2024; Xi, 2016). The bibliometric trends serve as an empirical backdrop for later qualitative analyses, illuminating how participants experience and navigate international partnerships.

1.5 Structure of the Thesis

This thesis is organised into nine chapters to systematically build from contextual foundation and theoretical framing through empirical analysis to synthesis and implications. The progression begins with an introduction to the research landscape; followed by the development of conceptual tools; outline of the methodology; the presentation of findings across structural, relational, and dyadic aspects of the data; the integration of insights from the findings into the discussion; and the conclusion which outlines the contributions of the study and possible future research directions. This logical sequence ensures a coherent arc: establishing the problem, introducing analytical lenses, grounding claims in data, and deriving broader significance, thereby enabling a nuanced understanding of international collaboration as a negotiated process under asymmetry. The main research question of the thesis is: What do researchers' experiences in international collaborations between China and four partner countries, the US, France, South Korea, and Pakistan, tell us about global and national research systems? Three sub-questions are:

1. How do researchers negotiate and experience materiality, epistemologies, values and imaginaries in international collaboration? *[Findings Chapter 5 focuses on this question]*
2. How do researchers negotiate and experience practices around trust and relations of power in international collaboration? *[Findings Chapter 6 focuses on this question]*
3. What are the similar and different negotiation and experiences of researchers in the same international collaboration? *[Findings Chapter 7 focuses on this question]*

The chapter contents are as follows:

Chapter 1 (Introduction) introduces the study's focus on China's international research collaborations in Economics and Education with the US, France, South Korea, and Pakistan. It defines international collaboration and highlights its global rise amid uneven terrains. The

chapter situates China as a primary lens due to its scientific transformation, discusses Chinese social sciences' revival and tensions, justifies the study's selection of disciplines and national collaboration pairings to enable comparative depth, and maps bibliometric patterns to quantify collaboration scales. This foundational chapter provides empirical and reflexive grounding, orienting to the thesis's scope and rationale before theoretical elaboration. Figure 2 details the two-level theoretical framework of the thesis.

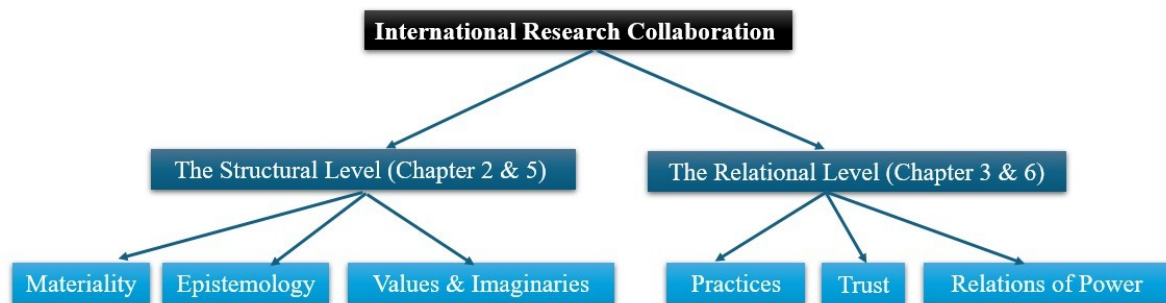


Figure 2. Theoretical framework of the thesis.

Chapter 2 (Materiality, Epistemology, Values and Imaginaries) examines three structural dimensions shaping international collaboration: material arrangements like laboratories and funding, epistemic frameworks including disciplinary logics and standards of rigour, and values and imaginaries that orient research norms and recognition amid asymmetries. It traces the historical emergence of national systems and a transnational epistemic space, compares economics' more rationalist deduction to education's more multi-paradigmatic inquiry, and theorises innovation through various routes. Chapter 2 theorises systemic conditions as the horizon for action identified by empirical evidence, providing a

macro-level baseline to contrast with subsequent relational and experiential dynamics, ensuring the analysis moves from structures to their enactment.

Chapter 3 (Practices, Trust, and Power) shifts to relational and experiential aspects of research collaboration, exploring how researchers navigate asymmetries through practices of initiation and evaluation, trust-building via interpersonal bonds and institutional anchors, and power dynamics in negotiation, leadership, and inclusion. It details standardised routines like peer review alongside local variations, trust as performed amid vulnerability, and leadership modes varying by discipline. This chapter complements the structural focus by illuminating everyday mechanisms that reproduce or resist hierarchies, bridging between systemic conditions and lived negotiation, and setting the stage for the empirical chapters that test these processes in specific contexts.

Chapter 4 (Methodology) outlines the methodology of the study, justifying an exploratory emergent design for the open inquiry into collaboration experiences. It details semi-structured interviews as the primary method, supplemented by bibliometrics. The chapter also covers approaches to data analysis, influences on positionality, and ethical considerations. Its placement after theoretical framing ensures that methods align with conceptual needs, providing transparency on how evidence was generated to address the research questions, and preparing for the findings by explaining how processes of induction are used to capture nuanced real-world dynamics.

Chapter 5 (Collaboration Structures: Materiality, Epistemology, Values and Imaginaries) empirically maps the structural elements of international collaboration through participants' accounts: highlighting material disparities in funding and infrastructure, epistemic traditions shaping knowledge legitimacy, and values with imaginaries informed by ideals and backgrounds. It reveals uneven starting points from administrative capacities to

biases in publishing, and varied innovation benchmarks. This chapter applies the structural-level framework from Chapter 2 to data, portraying a broad landscape of asymmetries and orientations, which is distinctive with subsequent relational aspects discussed in Chapter 6, allowing the thesis to demonstrate how structural conditions are lived and potentially transformed in practice.

Chapter 6 (Collaboration Relations: Practices, Trust, and Power) investigates lived practices of trust building and relations of power: capital mobilisation with resource sharing, trust cultivation through respect and reciprocity, and power contestation via leadership and agency. It shows how differences potentially foster innovation, hierarchies can complicate collaborator relations yet can enable growth for some researchers, and negotiations reshape authority. This empirical extension of Chapter 3 foregrounds agency within constraints, illustrating collaborations as dynamic accomplishments, and building toward micro-level dyads by highlighting general patterns that vary across contexts, thus deepening understanding of the negotiation of asymmetry.

Chapter 7 (Similarities and Differences in the Dyadic Groups) applies a dyadic lens on five paired accounts, describing convergences and divergences in initiation, evolution, epistemics, national-global factors, labour division, and power relations. It reveals shared project architectures alongside differing valuations of purpose, recognition, rigour, and authority, with persistence linked to deepening similarities. This close-up complements broader findings by holding context constant to isolate experiential nuances, bridging structures and relations to micro-politics, and enriching the thesis with descriptive nuances before integrative discussion.

Chapter 8 (Discussion) synthesises the empirical strands to answer the research questions, advancing a relational-infrastructure account in which global standards move

through unequal layers, yielding negotiable asymmetries via organised power, epistemic translation, and reciprocity. It discusses materiality, epistemology, values, relational mechanisms, and dyadic insights, proposing conditions for productive asymmetry. This integrative chapter draws the threads together to make theoretical claims about polycentric stratification, explaining outcome variations and governance levers, and fulfilling the thesis's aim by deriving broader implications for understanding global and national science systems through the lens of international research collaboration.

Chapter 9 (Conclusions) consolidates the contributions to theory, by specifying asymmetry governance; to method, through exploratory emergent design featuring dyadic structure; and to practice, via levers for equity and innovation. It acknowledges limitations including the scope of the sample, and suggests how future research agendas could explore longitudinal tracking and policy impacts. This concluding chapter reinforces the argument's significance, reflects on its boundaries to ensure rigour, and extends the potential reach of the study, providing closure while opening avenues for further inquiry into global science relations.

The chapters move from background to theoretical to empirical to implications. They show that China's international collaboration ties in Economics and Education is an organised negotiation of difference in which infrastructures, epistemic grammars, and value regimes, and relational mechanisms come together to shape possibilities, and in which leadership, translation, and reciprocity influence whether those possibilities yield equitable and innovative knowledge.

Chapter 2

Materiality, Epistemology, Values and Imaginaries

2.1 Introduction

Science has long been a cross-border enterprise, but today it unfolds in a transnational epistemic space sustained by digital infrastructures, collaborative platforms, and mobile research communities. To make sense of how scientists live and work across borders, this chapter maps the structures that prefigure those encounters and set their limits.

Three structures are examined, materiality, epistemology, and values and imaginaries, as the conditions that make collaboration possible while shaping its forms and durations. Materiality refers to the tangible and institutional arrangements that organise participation: laboratories and repositories, data regimes, funding systems, and regulatory environments. Epistemology names the frameworks through which communities decide what counts as knowledge and how it should be produced, including disciplinary logics, standards of inference, and evaluation of innovation. Values and imaginaries capture the normative commitments and collective visions that orient research toward ends within asymmetries.

The chapter begins with a brief historical sketch of how national science systems coalesced and how a global field emerged, then turn to the three dimensions in sequence. Throughout, the focus remains structural and systemic. The relational and experiential dynamics of trust and relations of power in everyday collaborative work are developed in Chapter 3.

2.2 Internationalisation and Globalisation of Science

The evolution of science has been a gradual, uneven, and historically contingent process. Early knowledge traditions emerged in regions such as Mesopotamia, Egypt, and the Indus Valley, contributing developments in mathematics, astronomy, engineering, and medicine (Wright, 2014). The Scientific Revolution of the 16th and 17th centuries consolidated key features of what is now considered modern science, including institutionalised empirical observation, experimentation, and mathematical reasoning (Saliba, 2007). Throughout history, women and scholars from diverse cultural backgrounds have played important roles in shaping scientific knowledge, though their contributions have often been overlooked in dominant accounts. For example, Trotta of Salerno, a 12th-century physician, authored influential medical texts on women's health that informed clinical practice across medieval Europe (Gilmore, 2001). Recognising such contributions highlights the pluralistic and interconnected character of science's development.

During the 18th and 19th centuries, science became increasingly organised within national contexts, with research activities embedded in universities, museums, and state academies (Musson & Robinson, 1989). Scientific knowledge was progressively classified and standardised within disciplinary boundaries, disseminated through peer-reviewed journals, and often anchored in national languages and administrative structures (Raj, 2007). In China, late Qing and Republican-era reformers pioneered a project of scientific nationalism by translating Western science in the early 19th century, founding the Science Society of China, and establishing national institutions such as Academia Sinica, thereby embedding research within emergent state structures (Wang, 2002). After 1949, a Soviet-style academy model concentrated research in ministerial institutes, and post-1978 reforms

progressively rebalanced authority toward universities, competitive funding, and ‘world-class’ initiatives, reorganising the national science system through policy-led incentives (Xue, 1997).

The 20th century brought notable changes in the scale and organisation of scientific work. In the interwar and post-war periods, large-scale collaborations expanded, some driven by wartime research needs and others by emerging geopolitical dynamics (Fan, 2012). Initiatives such as the Human Genome Project illustrate the growing complexity of cooperative ventures linked to strategic priorities (Raj, 2007). Meanwhile, transnational organisations including the International Council for Science (1931), the World Health Organisation (1948), and UNESCO (1945) created platforms for scientific coordination, standard-setting, and diplomacy (Flink & Schreiterer, 2010).

Scientific internationalism thus evolved into a networked infrastructure with geopolitical relevance. The distinction between internationalisation and globalisation is crucial. Whereas internationalisation refers to cross-border collaboration between nationally bounded systems, globalisation designates a qualitatively different formation: the emergence of a transnational epistemic space characterised by shared infrastructures, values, and practices (Marginson, 2022). Digital repositories, open-access journals, collaborative platforms, and citation databases have facilitated real-time, decentralised knowledge production. These infrastructures increasingly constitute a common field in which research is evaluated, circulated, and validated, forming a 'glonacal' system integrating global, national, and local levels (Marginson, 2008).

This global restructuring of science is not merely a matter of expanded connectivity or technological advancement but reflects a deeper transformation in how knowledge is produced, circulated, and legitimised across spatial scales. The dual systems of global and national science has been theorised by Marginson (2022) through the interplay of three

interrelated elements: (1) materiality, comprising infrastructures, resources, and funding systems; (2) practices, involving everyday routines of collaboration, publication, and communication; and (3) values, the normative visions and epistemic values that guide scientific purpose. These three dimensions are not separate layers but co-constitutive forces that shape the institutional and cognitive architecture of science, as shown in Figure 3. This model theorises the global scale and forms the basis of the two-level framework of this thesis.

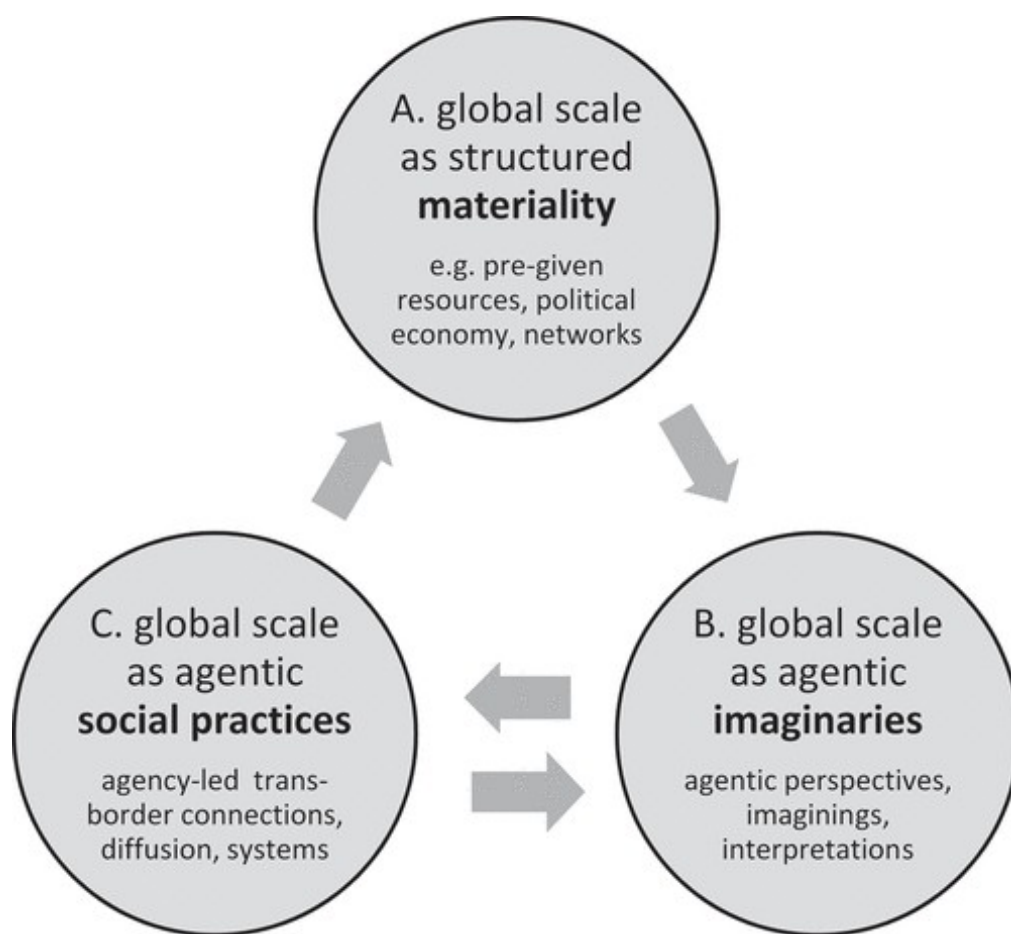


Figure 3. The global scale as materiality, imaginaries and social practices. Source: Marginson (2022).

Situating this three-part model in the context of international research collaboration, this study implements a theoretical framework that is stratified in two levels, the structural

level and the relational level. At the structural level, the study theorises not only the ‘materiality’ and ‘values’ but also adds the dimension of epistemology and agentic imaginaries to examine potential differences of collaboration experiences in Economics and Education and researchers’ navigation of them (shown in Figure 4). The relational level expands on the dimension of ‘practice’ to investigate particularly trust building and relations of power in international collaboration. As noted, the remainder of Chapter 2 focuses on the structural level while Chapter 3 turns to the relational level. Between them Chapter 2 and 3 provide a holistic framing of China’s international research collaboration in Economics and Education.

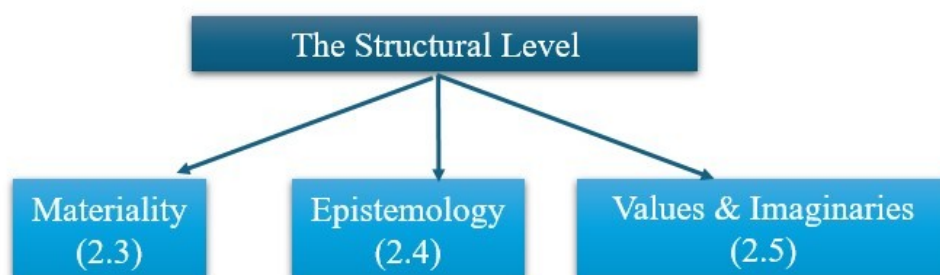


Figure 4. The structural level of the framework.

In theorising structure and agency within this framework, this study draws primarily on Margaret Archer’s critical realist perspective and her morphogenetic approach. Archer (1995, 2003) distinguishes between the structural and the agential domains through what she terms analytical dualism, arguing that social structures and human agency are ontologically distinct yet interdependent. Structures such as institutional arrangements, research systems, and policy frameworks pre-exist the actions of individual researchers and condition their possibilities for action by enabling certain forms of collaboration while constraining others.

However, these structures do not determine behaviour; rather, through reflexive deliberation, agents reproduce or transform the conditions under which they operate. This temporal interplay unfolds through the morphogenetic cycle: structures condition action (T1), agents interact within those conditions (T2–T3), and outcomes either sustain or modify structural configurations (T4) (Archer, 2003). In the context of international research collaboration, this framework highlights how science systems, funding architectures, and disciplinary norms shape researchers' opportunities and expectations, yet also how scholars exercise reflexivity in negotiating epistemic hierarchies, linguistic boundaries, and power asymmetries. Their situated responses contribute over time to morphogenetic change within the global science system.

Archer's position contrasts with Anthony Giddens's structuration theory, which conceives of the duality of structure, the idea that structure and agency are mutually constitutive and inseparable in social practice (Giddens, 2014). While Giddens emphasises the recursive reproduction of social life through routine practices, Archer insists on distinguishing structure and agency analytically to capture their causal interplay across time. This study adopts Archer's temporal and stratified model because it offers a clearer lens for analysing how pre-existing institutional logics of national science systems interact with the reflexive projects of individual researchers, thereby shaping and reshaping the evolving landscape of the global and national science systems.

2.3 Materiality: Infrastructure, Regulations, and Funding

The materiality dimension of science mainly refers to the infrastructures, resources, and regulations that underpin and condition knowledge production (Marginson, 2022). Far from being a neutral or passive backdrop, materiality plays a constitutive role in shaping how science is conducted, who can participate, and what epistemic possibilities are available. This section discusses conceptually and empirically how physical, institutional, and policy architectures of both global and national science systems enable or constrain scientific agency.

At the global level, transnational infrastructures have become increasingly important in facilitating the connectivity, standardisation, and scalability of science. These include large-scale experimental facilities such as the Large Hadron Collider at CERN (the European Organisation for Nuclear Research), international data repositories like GenBank, and digital platforms that support pre-publication exchange, collaborative writing, and code sharing (e.g. arXiv, GitHub, Overleaf) (Große, 2023). Such infrastructures embody global scientific norms, enabling data comparability, methodological replication, and collaborative problem-solving (Redkina, 2024). They also instantiate the universalist ideal of science, wherein knowledge, once produced, is presumed to be accessible, assessable, and reproducible by any suitably equipped scientist, regardless of location (Merton, 1973; Setola et al., 2016).

However, access to these infrastructures is not evenly distributed. Despite the objectives of global science as an open and interconnected field, participation is materially conditioned by national investment in research and development (R&D), and the availability of advanced instrumentation, bandwidth and computing capacity, as well as skilled human capital (Tudor & Sova, 2022). Hence there are disparities manifest in the spatial clustering of high-impact research institutions, elite journals, and citation networks, which remain disproportionately located in the Global North (Marginson & Xu, 2021).

National science systems remain the primary source of research funding, policy direction, and institutional design. While the global scientific field operates through shared standards and imaginaries, it is largely resourced and regulated at the national level (Marginson, 2022). Funding agencies such as the National Science Foundation (NSF) in the United States, the National Natural Science Foundation of China (NSFC), and the European Research Council (ERC) shape research agendas through grant schemes and evaluation criteria. These agencies not only determine which projects are funded but also influence the kinds of knowledge deemed valuable or strategic (Birch, 2017). Performance-based research funding systems, such as those in Iran, Turkey and Malaysia, often encourage publication in indexed, English-language journals, reinforcing global hierarchies of visibility and prestige (Kir & Aptoula, 2025; Mohd Rasdi et al., 2023; Rashed et al., 2023).

Additionally, immigration and visa policies affect the circulation of researchers, while export controls, intellectual property laws, and data protection regulations influence what knowledge and materials can cross borders (Morton et al., 2022). Institutional architectures vary widely: some countries invest heavily in public research universities, while others rely more on specialised institutes, corporate laboratories, or hybrid models (Kerasidou, 2016). These institutional differences affect the organisation of international research teams and the long-term development of scientific capacity.

Scholars have long emphasised the co-constitution of material and social elements in scientific work. Pickering (1995) describes the 'mangle of practice' through which scientists and instruments mutually shape one another in experimental systems. Latour's (1987) actor-network theory similarly positions non-human entities such as machines, laboratories, and databases as integral components of scientific agency. Materiality, from this perspective, is not simply a resource but a participant in knowledge-making. Laboratories are not merely

spaces in which science happens; they are structured environments that stabilise particular forms of inquiry while excluding others (Akrich, 2023). Material systems also reflect national strategies. National governments often fund research infrastructure in alignment with industrial policy, technological sovereignty, or innovation goals (Hallonsten, 2021). Thus, material choices about what to fund, build, and prioritise are saturated with political and ideological meanings.

2.3.1 Infrastructures: Repositories, Labs, and Networks

More specifically in the social sciences, large cross-national databases and survey projects function as analogous infrastructures. Researchers develop collective standards and governance to facilitate secure sharing of data across borders in fields like comparative economics and comparative education. In education, international initiatives such as Programme for International Student Assessment (PISA) and Trends in International Mathematics and Science Study (TIMSS) uniquely enable large-scale, methodologically consistent comparisons of educational systems, offering a shared evidentiary base that informs both international benchmarking and domestic policy reform (Elliott et al., 2019). Similar large-scale data infrastructures in economics such as the Penn World Table and the World Bank's Enterprise Surveys provide cross-country comparisons of firm dynamics, macroeconomic indicators, and inequality (Bolt & Van Zanden, 2025; Xiao et al., 2022). Pakistan's Pakistan Social and Living Standards Measurement (PSLM) survey repository, though national in scale, adopts digital standards that position it for comparative regional use (Ibrahim et al., 2025).

In particular, the rapid expansion of AI-related infrastructure in China further illustrates how physical and digital platforms can co-evolve to support collaboration. Driven

by national policy and funding, top universities have launched AI programmes, built specialised labs with dedicated hardware, and gained access to regional data centres (Dai et al., 2024). These developments reflect a centrally coordinated model in which strategic priorities trigger institutional responses, resulting in a multi-level AI research ecosystem (Fu & Ji, 2024).

Nonetheless in under-resourced contexts, a lack of data access and researcher networks continues to constrain researchers' ability to engage internationally. Studies identified 'restrictions on material and data sharing' as one of the most frequently reported barriers to international research, alongside 'limited funding' and 'administrative complexity' (Matthews et al., 2020). A more recent study based on 59 national science systems demonstrated that countries with lower levels of digital readiness show significantly lower levels of international co-authorship, suggesting that the 'digital infrastructure divide widens the innovation gap' (Du & Wang, 2024, p. 100542). Similarly, an analysis of the US National Institutes of Health (NIH) data-sharing policy highlights the necessity of infrastructure in enabling even well-resourced countries to comply with international open science norms: 'It takes a village of stakeholders ... to construct, manage, and sustain the necessary knowledge infrastructure for disseminating data products' (Borgman & Bourne, 2021, p. 17).

Without investment in the material components of collaboration such as labs, digital platforms, and networks, international cooperation remains aspirational rather than operational. The above studies have underscored that infrastructure is not merely a technical enabler but a structural condition, shaping who can collaborate, how, and on what terms. The extent to which material infrastructure can enable or constrain global science and international collaboration is one of the foci of this study.

2.3.2 Policy Regulations: Mobility, Access, and Governance

Alongside infrastructure, the regulatory and policy environment forms another pillar of structure that deeply influences global and national science systems. Regulations on immigration visas, intellectual property (IP), and data security can either facilitate or hinder cross-border partnerships.

A prominent example is the effect of visa and immigration policies on the mobility of researchers, which is often described as the lifeblood of international collaboration. During both terms of the Trump administration, the US has adopted a restrictive stance that views China as a strategic competitor by introducing measures explicitly designed to limit collaboration in sensitive fields (Ju et al., 2024). In other regions, export control laws and data privacy regulations such as the EU's General Data Protection Regulation (GDPR) complicate data sharing in collaborative research with China (Li & Chen, 2024). In South Korea, erratic and unpredictable application of export licensing disrupts project continuity and discourages collaboration (Solís et al., 2024). Similarly, regulatory ambiguities in frameworks such as Personal Data Protection Bill 2020 in Pakistan have been criticised as researchers face unclear legal obligations and potential compliance risk in international collaboration (Ahmad et al., 2024). These cases illustrate how geopolitical tensions translate into regulatory barriers that structurally constrain who can collaborate and on what terms.

In China, state policies regulate both the entry of foreign researchers and the outflow of research data. Recent data security and privacy laws restrict the transfer of sensitive data abroad, including in fields like genomics and social surveys (Li & Cong, 2024). Social science collaborations now face stricter ethics approvals and mandatory domestic data storage, reflecting growing state oversight (Zhang et al., 2024). Topics such as human rights,

elite politics, and ethnic issues are often off-limits or require delicate negotiation, discouraging international engagement (Li & Cong, 2021). Foreign scholars increasingly report difficulty accessing archives or securing research permits to work in China (Carter et al., 2024).

At the meso-level, institutional architectures such as international relations offices, memoranda of understanding (MoUs), joint research centres and dual-degree programs establish potentially durable channels for the flow of resources, knowledge, and people, while embedding governance protocols that manage cooperation (Yang et al., 2025). Institutions that streamline procedures such as managing research outputs, financial contributions, and administrative logistics were found to be preferable international collaborators (Yang et al., 2024). These institutional structures help sustain long-term stability and have allowed research partnerships to persist even amidst COVID-19 disruptions (Chan, 2022).

Nevertheless, regulatory tensions can arise; differences in national bureaucracy and institutional policy can hinder international collaboration. Participants report difficulties to navigate collaboration coordination in different regulatory modes such as between the more centralised, state-aligned governance model in Chinese universities and the more decentralised systems in some Western countries (Hong et al., 2019). France's university governance, characterised by strong central oversight, sometimes creates friction in international partnerships (Dobbins & Knill, 2017). Some international offices in universities face conflicting internal workflows, which can slow or derail collaborative projects, especially those seeking agile responsiveness (Amdaoud et al., 2024; Cai, 2023).

Therefore, policy regulations significantly enable or constrain international collaboration and global science more broadly. When robust and well-aligned, these structures not only facilitate academic cooperation but also insulate partnerships from

geopolitical or financial shocks, increasing the resilience and productivity. However, when regulatory systems are fragmented, overly centralised, or poorly coordinated across national and institutional boundaries, they can introduce bureaucratic delays, limit researcher mobility and create legal uncertainty, undermining trust and continuity. How researchers negotiate different and multiple regulatory structures in diverse national and disciplinary contexts requires more empirical investigation.

2.3.3 Funding systems: Performance, Incentives, and Evaluation

The funding system functions as the core material resource shaping the structure and trajectory of global and national science activities. The design of various levels of funding frameworks and the availability of cross-border co-funding largely determine the forms of international collaboration that emerge and endure.

At a global level, international funding initiatives play a crucial role in financing China's research activities alongside national funding. International bodies like World Bank have co-funded joint research with Chinese scholars on development and economic issues (Gehring et al., 2022). US universities, foundations (e.g. the Gates Foundation), and agencies have historically supported research collaboration with China until 2021, where practices were disrupted by geopolitical tensions (US Government Accountability Office, 2022; Zhang et al., 2024). More formalised co-funding mechanisms exist in China-Europe collaborations. Within the Horizon Europe framework which encourages partnerships with third countries, China matches EU contributions and provides 200 million RMB (about 28 million USD) annually to support collaboration (Pop & Grigoras, 2021)

At a national level, over 40 per cent of China-affiliated social science publications from 2010 to 2019 in Scopus involved international co-authors, and approximately two-thirds of these acknowledged domestic funders, predominantly the National Natural Science Foundation of China (NSFC) and to a lesser extent the National Social Science Fund of China (NSSFC) (Liu et al., 2021). Recent studies have also showed an increasingly active role of China's national funding in global science. A global analysis of funding acknowledgments found that China and the US have now dominated the global research funding landscape but their roles differed: China provides more acknowledged funding in collaborative publications where it is also a research contributor, while the US more frequently supports research where it is not directly involved (Miao et al., 2023). This potentially suggests that China's funding is more tightly coupled with its own scientific participation and strategic interests, reflecting a growing use of state funding to shape the scope and direction of China's participation in global science (Miao et al., 2023).

In South Korea and Pakistan, national funding has also played a growing impact on their global presence and international collaboration in research. South Korean government launched initiatives like Brain Korea 21 that explicitly reward international publications and global research visibility (Rhee & Yin, 2023). Similar to the case in China, the international focus has nonetheless led to concerns over lack of local embeddedness and reliance on Western theory among social science academics in South Korea (Shin et al., 2023). Pakistan, while still at an early stage in building research capacities, is following a similar trajectory: its Higher Education Commission (HEC) has established grants and seed projects to researchers who present their outputs at international conferences or collaborate with neighbouring countries such as China, India, and Iran (Javed et al., 2020).

Overall, national funding systems not only shape research domestically but increasingly act as drivers of international academic communication and collaboration. This

study seeks to gain a more nuanced understanding of the role of funding in international collaboration across discipline and national contexts.

In sum, section 2.3 has elaborated that materiality fundamentally shapes the nature and success of global and national research and increasingly so in international research collaboration. Infrastructures provide the necessary networks and platforms that enable international communication and collaboration. Regulatory policies set the ground rules that can either ease the flow of knowledge and people or erect barriers. The alignment or misalignment of funding is often the make-or-break element that enables ideas to materialise into collaborative projects. For China, understanding the materiality landscape is particularly important as it seeks to enhance its international collaboration activity. China's rise in science has been undergirded by heavy investment in material capacity, as well as purposeful structuring of collaborations through policies. This study aims to investigate how infrastructure, regulations, and funding shape China's international collaboration across national and disciplinary contexts.

2.4 Epistemology: Disciplines, Methodologies, and Innovation

This section examines how epistemic orientations organise what counts as knowledge, why research is undertaken, and how it is designed, evaluated, and circulated in cross border collaboration. Analysis on Economics and Education illustrates distinctive logics of inquiry: economics leans toward rationalist deduction, shared identification strategies, and standardised evaluation, while education sustains multi-paradigmatic, context attentive approaches that privilege interpretation and ethical reflexivity. These orientations carry distinctive values, from instrumental utility to transformative aims, and they shape collaboration roles, routes to credibility, and ties to policy and practice. Treating

epistemology as a multidimensional cultural system clarifies how disciplines authorise evidence, recognise innovation, and negotiate difference across borders.

2.4.1 Epistemology and Disciplines

Scientific inquiry is underpinned by foundational epistemological orientations that shape how knowledge is defined, justified, and valued across disciplines (Brewer & Lambert, 2001).

Two enduring traditions form the bedrock of these orientations, rationalism and empiricism.

Rationalism privileges reasoning and logical deduction as the primary path to knowledge, favouring internal coherence and abstraction (Katz, 1997). It seeks to derive truths from first principles, meaning fundamental assumptions or self-evident concepts that are not derived from observation but serve as the logical starting point for further reasoning (Katz, 1997). In contrast, empiricism asserts that knowledge stems from sensory experience and observation, grounding truth claims in empirical data and inductive generalisation (Markie & Folescu, 2004). These orientations are not mutually exclusive but rather represent complementary poles along a continuum; most scientific disciplines negotiate some balance between them. Theories may be constructed deductively but require empirical validation; empirical findings may be interpreted through theory-laden lenses, revealing the interdependence of observation and conceptual frameworks (Brewer & Lambert, 2001). Modern science thus tends to embrace epistemic pluralism, valuing simplicity, explanatory power, coherence, and empirical adequacy (Cross, 1982; Franklin, 2015).

These epistemological traditions become institutionalised within disciplines, shaping what counts as valid knowledge and how inquiry is conducted. Biglan's (1973) and Becher's

(1989) typologies of academic fields classify disciplines by degree of paradigm consensus (hard vs. soft) and proximity to application (pure vs. applied). These classifications reveal structural tendencies in how knowledge is organised, legitimised, and shared. Hard disciplines typically operate with high consensus and cumulative progress, while soft disciplines accommodate plural methodologies and contested paradigms (Becher, 1989). More recent studies have extended these typologies by incorporating dimensions such as interdisciplinarity, societal relevance, and global mobility (Fochler, 2016; Whitley, 2000). The new development reflects changing research ecologies where disciplinary boundaries are increasingly shaped by external accountability demands, funding priorities, and transdisciplinary knowledge production.

Economics and Education exemplify different epistemic positions. Economics, particularly in its neoclassical and mainstream forms, aligns strongly with rationalist epistemology. It privileges abstraction, model-building, and mathematical formalism to explain economic behaviour, optimise outcomes, and predict responses to policy interventions (Hausman, 2023). The discipline has historically operated under what Kuhn (1974) calls 'normal science,' guided by a dominant paradigm that defines legitimate problems and appropriate methods. This shared framework facilitates puzzle-solving within relatively stable boundaries, contributing to the field's high level of coherence and cumulative development (Suppe, 1977). While economics has experienced an empirical turn exemplified by the rise of randomised controlled trials (RCTs) and quasi-experimental methods in applied subfields, these empiricist methods remain embedded within a rationalist framework (Angrist & Pischke, 2010). Experimental designs are evaluated in terms of internal validity and theoretical alignment, and qualitative methods are often marginalised or instrumental (Fukuda-Parr et al., 2017). Nonetheless, the emergence of heterodox approaches

such as feminist and ecological economics highlights internal contestation and alternative epistemic commitments (Fukuda-Parr et al., 2017).

Comparatively, education research is more epistemologically pluralist. While certain subfields like psychometrics or school effectiveness research align with empiricist traditions and use positivist methodologies, much of the field is informed by interpretivist, constructivist, and critical paradigms (Punch & Oancea, 2014). These approaches view knowledge as socially situated and emphasise values, meaning, and context (Holland, 1980). Education's multiparadigmatic nature means that it displays less paradigm unity than economics, but this diversity allows for responsiveness to the moral, cultural, and political dimensions of education (Furlong & Oancea, 2005). Kuhn's (1974) notion of pre-paradigmatic science applies more aptly here: competing paradigms coexist without a dominant framework, and methodological choices are often guided by the research question rather than disciplinary orthodoxy.

These epistemological orientations shape how disciplines are materially organised, how research is practised, and what values guide participation in global science. Economics as a discipline is institutionally embedded in finance ministries, central banks at local and national levels, and global organisations such as International Monetary Fund (IMF) and World Bank, reinforcing its national and global legitimacy (Hausman, 2023). It operates as a global language of policy, supported by strong journal hierarchies, technocratic governance, and American-led mainstream approaches (Blaug, 1992). Consequently, economists tend to exchange knowledge across borders with more ease than other social sciences, shaping global research agendas and international collaboration norms. A bibliometric analysis across 221 Web of Science subject categories found that economics and psychology function as

significant knowledge exporters in the social sciences, highly standardised and deeply integrated into cross-border collaborations (Yan et al., 2013).

Education, meanwhile, is embedded more deeply in different national systems and sits at the interface between governments, professional educators, and local communities (Furlong & Oancea, 2005). As such, it is responsive to cultural, institutional, and ethical particularities (Steiner-Khamsi & Waldow, 2018). While it engages with global agendas like the Sustainable Development Goals (SDGs) and participates in IRC through large-scale assessments or development initiatives, its knowledge outputs are often localised, less standardised, and harder to translate across contexts (Peters, 2006). This openness was found to enhance contextual sensitivity but complicate recognition within global science systems oriented toward generalisability and formal rigor. Steiner-Khamsi and Waldow's (2018) study discussed various challenges researchers face in international large-scale assessment (ILSA) such as in Programme for International Student Assessment (PISA); issues of policy repetition, lack of implementation legitimacy, and cultural incompatibility constantly emerged in these international projects.

As Fourcade's (2009) comparative study of economics in the US, UK, and France shows, even globally integrated disciplines reflect national epistemic cultures. American economics foregrounds market-based technocracy; British economics retains public-minded elitism; French economics reflects bureaucratic and statist traditions (Fourcade, 2009). These national variations illuminate how disciplinary epistemologies interact with institutional arrangements, producing distinct global identities and collaboration patterns.

In sum, epistemological orientations, rationalist or empiricist, unified or pluralist, are foundational to how disciplines organise knowledge and enact international collaboration. They shape material infrastructures of journals, rankings, funding, everyday research

practices, and the values that define scientific legitimacy. The current study aims to understand how epistemological orientations and the disciplinary cultures of Economics and Education shape researchers' participation in China's international collaboration.

2.4.2 Methodologies, Methods, and *Sibian*

While epistemology provides the foundational assumptions about what constitutes valid knowledge, methodology translates these assumptions into research strategies and procedures to address research questions (Crotty, 1998). While the rationalist-empiricist divide underpins how disciplines structure research practices, it is through methodological reasoning that these orientations are operationalised. This includes preferences for deductive and inductive logic, the use of quantitative and qualitative methods, and the norms guiding how evidence is constructed, evaluated, and disseminated (Clough & Nutbrown, 2002). This section examines how these methodological choices manifest in economics and education, not only in terms of technical tools but also in their alignment with broader material structures, research practices, and normative commitments within international collaboration. Linking epistemic assumptions to concrete methodologies helps to gain deeper insights into the uneven architectures of global research.

If epistemology addresses foundational questions about what knowledge is and how it is justified, then methodology concerns the logic and strategy through which such knowledge is generated (Crotty, 1998). At its core, methodology is largely shaped by the interplay between deductive and inductive reasoning (Clough & Nutbrown, 2002). Deduction involves drawing logically necessary conclusions from general premises, an approach typically associated with rationalist modelling and hypothesis testing (Clough & Nutbrown, 2002). Induction, by contrast, involves generalising from specific observations to broader

conclusions, central to empirical inquiry and exploratory analysis (Nozick, 1994). These reasoning modes are not mutually exclusive; most research cycles incorporate both, with theories being tested empirically and empirical findings informing new theoretical refinements (Nozick, 1994).

These reasoning modes are operationalised in different ways. Quantitative methods, often aligned with deductive reasoning, are used to measure, model, and generalise patterns through formal instrumentation, statistical analysis, and structured data collection (Creswell, 2003). Qualitative methods, more closely aligned with inductive reasoning, focus on meaning, context, and process (Bryman, 2008). They are interpretive, flexible, and often grounded in real-world settings, allowing researchers to explore lived experiences and social complexities (Bryman, 2008). Mixed-methods approaches seek to combine the strengths of both traditions, offering a more holistic view of phenomena (Tashakkori & Teddlie, 2003). However, these methodological configurations are not just technical preferences; they reflect deeper disciplinary cultures, material infrastructures, and normative commitments.

In economics, methodological preferences strongly lean toward quantitative approaches rooted in formal deduction, emphasising internal validity, replicability, and generalisability (Brewer & Lambert, 2001). Methods such as structural modelling, regression analysis, instrumental variables, and difference-in-differences designs dominate top-tier journals and are rewarded by citation metrics and funding systems (Siesfeld et al., 2009). These preferences reflect a rationalist and technocratic imaginary in which the ideal researcher is a neutral analyst, producing generalisable insights abstracted from context (Hausman, 2023). While heterodox approaches such as feminist, ecological, or institutional economics challenge these conventions by incorporating qualitative or historical analysis, they remain marginal in the journal hierarchy and hiring practices, especially in the US

context (Fukuda-Parr et al., 2017). The material infrastructures of economics including high-impact journals, centralised datasets, and elite training institutions reinforce methodological homogeneity (Angrist & Pischke, 2010). This methodological orientation aligns well with that part of the global science system that privilege standardisation, objectivity, and formal rigour (Aigner et al., 2025). International collaboration is often facilitated by shared analytical tools and a unified evaluative regime (Cimini et al., 2016). These characteristics position economics as a globally mobile discipline, capable of shaping international research agendas and development policy through ‘gold-standard’ evidence (Wagner et al., 2018).

In education, by contrast, methodological diversity is more deeply embedded. While quantitative methods play a major role in areas such as educational measurement, learning analytics, and policy evaluation, they do not dominate the field (Punch & Oancea, 2014). Instead, qualitative and mixed-methods approaches are widespread, especially in subfields such as curriculum studies, pedagogy, and educational sociology (Hodkinson, 2004). These methods are often inductive, context-sensitive, and ethically reflexive, designed not to control for complexity, but to understand it (Oancea & Furlong, 2007). Researchers use ethnography, discourse analysis, grounded theory, and case studies to explore meaning-making, identity formation, and social inequalities in education (Kelly, 2012). Methodological pluralism in education reflects its multi-paradigmatic nature and institutional positioning (Kelly, 2012). Research often addresses problems that are locally embedded and ethically charged: how teachers adapt curricula, how students navigate marginalisation, or how schools respond to cultural diversity (Biesta, 2007). These questions require methodological flexibility and responsiveness. Accordingly, action research, participatory design, and co-production are common in practitioner-focused subfields, valuing collaboration, empowerment, and social transformation (Winch et al., 2015). Criteria of rigour extend beyond validity and reliability

to include ethical accountability, professional relevance, and epistemic justice (Furlong & Oancea, 2005).

This diversity has both strengths and limitations in international research collaboration. On the one hand, it allows scholars to be responsive to diverse institutional settings, accommodating the complexity of education systems that are historically and culturally embedded. Kosmützky (2018), in her study of cross-border research in higher education, showed that international teams often adopt flexible, mixed designs to navigate varying academic systems, terminologies, and governance structures. This flexibility enables collaborative research to remain locally relevant while still contributing to broader comparative insights (Kosmützky, 2018). On the other hand, the lack of unified methodological standards can pose challenges for cross-national comparability and translatability. Dejaeghere (2024) highlighted how international organisations, particularly through education indicators and benchmarking tools, attempt to impose shared frames of reference that often fail to account for the political and epistemological diversity of national education systems. These standardisation efforts risk oversimplifying complex realities and may conflict with the contextual sensitivities of qualitative or interpretive educational research (Dejaeghere, 2024). Therefore, while pluralism enhances responsiveness, it can also complicate collaborative knowledge production in global frameworks that favour coherence, comparability, and metric-based governance.

In addition to disciplinary differences, national culture was found to significantly shape methodological preferences. Literature shows that China's humanities and social-science traditions host an enduring, legitimate 'dual track' of inquiry in which *sibian* (思辨, speculative/conceptual reasoning, some may use 'si bian') and empirical investigation are complementary rather than proxies for qualitative versus quantitative methods (Feng, 2010).

Some scholars argue that *sibian* research has its own norms of conceptual precision, internally coherent argumentation, dialogue with classics and practice (Loi & Evans, 2010). Historicising the empirical side, Hsiung (2015) documents a distinctly Chinese lineage of investigative research (调查/考察) during the Great Leap Forward, showing how field-based inquiry and political-ethical commitments co-evolved, complicating any simple import story in which modern empiricism arrives fully formed from the West. At the level of scholarly rhetoric, classical Chinese textual logics (起承转合, *qi-cheng-zhuan-he*) still shape how arguments are structured. This style often follows a ‘frame–main’ pattern, where the writer first sets up a broad context or frame before moving to the central point. It also allows for synthesis and dialectical shifts that do not align neatly with empirical or linear Western conventions, yet remain systematic in their own logic (Kirkpatrick, 1997).

Contemporary debates on *sibian* synthesise these strands: Yu (2018) reviews recent scholarship to argue for method pluralism in education studies, positioning *sibian* and empiricism as mutually checking modes: conceptual innovation sets problems and lenses, and empirical work tests reach and limits, while urging evaluators to recognise their distinct warrants. Extending this trajectory, Zhu and colleagues’ (2025) study of Chinese scholars documents how indigenous intellectual resources are drawn as assets of approaches, paradigms, and theory motifs through processes of selection, translation, and refinement, further legitimating conceptual traditions as engines of knowledge production rather than local colour.

Thus, methodologies and research methods are part of broader structural aspect of epistemology. The dominance of deductive, quantitative methods in economics supports its global authority but risks overlooking context and complexity. The methodological pluralism of education enables critical and situated inquiry but may face challenges to enhance

comparability in international collaboration. In the Chinese context, a dual track of *sibian* and empirical investigation persists, shaping how collaboration is negotiated. Understanding how methodological norms shape researchers' practices and team positions of is essential to analysing dynamics in China's international collaboration, which is one of the foci of this study.

2.4.3 Innovation and Pluralism

Following the discussion on epistemology and methodology, a further evaluative issue concerns the production and recognition of scientific innovation. Innovation here refers to the generation of problem framings, concepts, and evidentiary combinations that open new explanatory or practical pathways (Uzzi et al., 2013). The normative principle of pluralism enables the coexistence of multiple warrants and repertoires that make more than one route to innovation credible (Longino, 2018). The multiple routes to innovation are patterned by disciplinary grammars, institutional incentives, and linguistic resources that shape what kinds of newness are legible and by whom they are authorised.

Literature on scientific innovation shows two pathways. One is combinatorial, where unusual pairings of ideas, methods, or literatures can create high impact contributions when anchored in a familiar core (Uzzi et al., 2013). The other is boundary stretching, where work departs from standard templates and faces early resistance before acceptance, a pattern visible in evidence of review and funding bias against novelty (Wang et al., 2017). Such contributions usually lack familiar methodological and topical anchors, leading to gatekeepers perceiving higher uncertainty and lower evaluability and systematically disadvantaging novel claims in early review stages (Wang et al., 2017).

Disciplines differ in how they balance these routes. Economics tend to privilege formal coherence and shared identification strategies, which makes combinatorial innovation within an established toolkit travel easily across venues and borders (Angrist & Pischke, 2010). Education sustains broader repertoires for conceptual and contextual innovation, but innovation often appears as design elasticity and situated theorising that can be harder to evaluate within standardised templates for impact (Oancea & Furlong, 2007). In education, interpretive, critical, and participatory approaches routinely generate innovations through reframing purposes and concepts, not only through new instruments or datasets (Furlong & Oancea, 2005). Cross border teams in research sometimes achieve innovation through flexible, mixed designs that can speak to divergent evaluative audiences while retaining local meaning (Kosmützky, 2018).

Language and epistemic tradition are additional determinants of what counts as innovative and can lead to more pluralism. In the Chinese humanities and social sciences, conceptual or speculative inquiry known as *sibian* is a distinct mode of reasoning with its own standards of precision, coherence, and engagement with classic texts and practice (Feng, 2010; Yu, 2018). Studies of writing and genre show that classical textual logics such as *qichengzhuanhe* (起承转合) which follows framing, development, dialectical turns and synthesis, continue to shape the architecture of argument architecture in Chinese academic prose, influencing how claims are introduced and justified in research articles (Kirkpatrick, 1997; Loi & Evans, 2010). Recent empirical work documents how scholars in China translate indigenous concepts and traditions into academic resources through selection, refinement, and codification, turning cultural repertoires into approaches, methodologies, and theory motifs that can circulate internationally (Zhu et al., 2025). These findings indicate that innovation can arise from contextual theorising and conceptual synthesis as much as from

methodological techniques, provided that teams articulate the warrants in ways recognisable across audiences.

The coexistence of *sibian* and empirical investigation in China expands the design space for innovation, allowing projects to originate from conceptual lenses rooted in indigenous traditions and then test scope and limits through empirical work. Historical lineages of investigative research in China provide additional repertoires for field-based knowledge production that do not neatly map onto Euro-American categories yet can be rendered interoperable through careful exposition and comparative anchoring (Hsiung, 2015). Innovation is thus relational and situated.

Pluralism is both the practice and outcome of expanding the admissible warrants of innovation. It creates a knowledge ecology where multiple standards of justification are kept simultaneously in play and rendered mutually accountable through reasoned exchange (Stirling, 2007). The normative ideal is that different kinds of evidence and reasoning can support discovery without being collapsed into a single metric of validity (Longino, 2018). In this view, diversity is not noise but a system property that fosters robustness, since heterogeneity of methods, theories, and data sources creates complementary error checks and new combinatorial possibilities (Stirling, 2007). Longino's account of critical contextual empiricism shows how objectivity is strengthened when differently situated communities interrogate one another's assumptions and standards, institutionalising plural critique rather than enforcing uniform consensus (Longino, 2018). The scientific pluralism program similarly argues that complex phenomena admit multiple, partly overlapping models whose value depends on problem context rather than on a unitary hierarchy of truth claims (Kellert et al., 2006). Santos's ecology of knowledges extends this logic beyond disciplinary boundaries, advocating reciprocal translation across scientific and vernacular traditions to

prevent epistemicide and to widen what counts as credible evidence and valuable problem framing (Santos, 2015). Therefore, pluralism operates as a governance principle: it preserves diversity, organises translation, and thereby enlarges the space in which innovation can be seen and sustained.

Yet pluralism also encounters structural headwinds. Journal ranking systems and metric-based evaluation can suppress interdisciplinary combinations and favour methodologically narrow outputs even when societal problems demand integrative work (Rafols et al., 2012). Individuals who pursue integrative or boundary stretching innovation face higher coordination costs and sometimes career stagnation despite potential long term citation benefits (Leahey et al., 2017). Innovation is therefore not only the outcome of individual creativity but the effect of governance across plural repertoires. It depends on the availability of diverse repertoires, on evaluative settings that do not collapse difference into deficiency, and on collaborative practices that make heterogeneous warrants speak to one another across languages, institutions, and disciplines (Fourcade et al., 2015).

Section 2.4 shows how epistemic orientations organise disciplines, methods, and the recognition of innovation in cross border collaboration. Economics leans toward rationalist deduction, shared identification strategies, and standardised evaluation, which strengthens global comparability but can thin contextual insight. Education sustains methodological plurality and ethically reflexive inquiry, enabling situated theorising yet complicating common metrics. Innovation appears through recombination and boundary stretching, each authorised differently across fields. Pluralism functions as a governance principle that keeps multiple warrants in play and invites translation across communities. In China, the coexistence of *sibian* and empirical investigation enlarges the design space for collaboration,

shaping roles, evaluative expectations, and routes to credibility. How researchers navigate the coexistence is one of the foci of this study.

2.5 Values and Imaginaries: Norms, Narratives, and Asymmetries

Scientific systems are not only built from material structures and practices; they are also sustained by normative values and imaginaries that give meaning and legitimacy to research. These ideational dimensions shape how science is understood, what it is for, and how it should relate to society (Marginson, 2022). While scientific values are often treated as implicit or universal, they vary significantly across levels, regions, and institutional contexts, influencing collaboration, evaluation, and research priorities.

At the global level, science has long been underpinned by an imaginary of universality. Merton's (1973) CUDOS norms, communalism, universalism, disinterestedness, and organised scepticism, have framed science as a transnational and meritocratic enterprise, grounded in methodological objectivity and oriented toward the public good. These ideals support practices to promote open science, data sharing, and borderless collaboration (UNESCO, 2021). Yet national science systems often embed competing imperatives. While formally endorsing openness and objectivity, states may simultaneously pursue strategic goals such as innovation-led growth, geopolitical influence, or technological sovereignty (Marginson, 2006). This has given rise to a form of techno-nationalism, where science and technology are mobilised in service of national security or economic advantage (Weiss, 2012). States may restrict data sharing, limit international partnerships, or selectively invest in sensitive or symbolic fields (Luo, 2021). These tensions become especially visible during periods of geopolitical conflict, exemplified by the ideological and security concerns that lay

between the US and the Soviet Union in the Cold War era (Krige & Barth, 2006). Scientists need to navigate a landscape in which global objectives of openness and meritocracy coexist with national strategies of control, recognition, and ambition.

Institutions serve as the bridge between lofty global ideals and the on-the-ground practice of individuals, operationalising values through formal policies, incentives, and organisational culture (Marginson, 2022). Normative structures such as guidelines for research integrity, ethical review boards, open access mandates, and hiring and promotion criteria instantiate values of honesty, rigor and openness (Birch, 2017). Yet institutions also introduce new norms and pressures that can create tensions with classical ideals. One salient example is the modern ‘publish or perish’ culture: universities and funding bodies highly value productivity and impact, often measured by metrics like number of publications, journal impact factors, and citation counts (Van Dalen, 2021). Funding agencies and research policy bodies also embed particular values into science by deciding what gets supported. For example, a funding agency’s emphasis on AI and ethics in tech R&D explicitly infuses the value of ‘responsibility’ into that scientific domain – encouraging the formation of AI ethics committees, bias audit tools, and cross-disciplinary research that aligns with broader societal norms about fairness and accountability (Rasmussen, 2022). In this way, institutions act as value gatekeepers, translating ideational concerns into material practices.

Crucially, institutions do not merely reflect values; they also construct narratives around those values to legitimise their authority (Gauchat, 2023). A national science academy might narrate itself as the guardian of rigorous knowledge above politics, a stance that invokes the value of neutrality to bolster trust (Frickel & Moore, 2006). Similarly, universities often promote a discourse of meritocracy and innovation where they project themselves as sites where the best minds compete fairly and new knowledge blooms for societal progress (Frickel & Moore, 2006). However, studies have identified phenomena like

the ‘Matthew effect’, where renowned scientists disproportionately reap rewards and recognition, regardless of merit, simply by virtue of prior status (Rigney, 2010). Such a dynamic, driven by informal institutional biases and reputation effects, undermines the narrative of pure meritocracy.

At the level of individual scientists, ideals and norms are both guiding lights and sources of tension. Researchers often internalise the field’s ideals such as pursuing truth and valuing objectivity and rigor, and upholding honesty in methods and reporting. 17th-century natural philosophers relied on gentlemanly trust and shared norms of honest testimony to validate experimental facts, a social foundation for epistemic credibility (Shapin, 1995). In modern contexts, doing science entails not only following formal methodology but also managing one’s reputation and trustworthiness among peers (Frickel & Moore, 2006). This means that individual scientists need to constantly interpret and enact values, deciding when being ‘skeptical’ becomes unconstructive cynicism, or how much openness is possible when competition is fierce (Wang, 2014). Merton also acknowledged the pressure of competition and incentives for priority that complicate disinterestedness (1973). Therefore, at the individual level, values operate in a pragmatic mix: they are internalised as ideals, performed through norms of conduct, and sometimes flexed or reframed to meet personal and community goals. Far from a simplistic application of universal norms, the lived experience of scientific values is one of negotiation, aligning genuine epistemic virtues with the realities of competition, collaboration, and credibility.

The above sections of the chapter on the materiality, practices, values and imaginaries illustrate that the global and national science systems are structurally embedded, practically contingent, and normatively charged. Chapter 2 has analysed the infrastructural and institutional arrangements that underpin scientific activity, the practices through which it is enacted, and the value systems that legitimise it. These insights provide a foundation for

exploring how the relational aspects of trust building and relations of power shape researchers' engagement in international collaboration, the subject matter of Chapter 3.

2.5.1 Global Objectives versus National Imperatives

As noted, science at the global level is normatively portrayed as a universal and meritocratic enterprise governed by shared practices, an ideal that can come into tensions with technonationalist policymaking and knowledge economy imperatives. This section provides empirical evidence of how international scientific collaboration can be strained by national interests.

The ideal of communalism holds that scientific knowledge should be shared openly among the global community, realised through initiatives such as open-access publishing and open-data movements. Yet implementing open science across national contexts has faced resistance. For example, China as now the world's top producer of research papers has not yet implemented a national open-access mandate, and many Chinese institutions remain wary of Western-originated gold open access models due to cost and perceived foreign commercial motives (Chen & Lin, 2024). This illustrates how a globally endorsed ideal like open access encounters practical challenges when translated into local policy and funding structures. National security concerns further complicate communal sharing of scientific data. In some disciplines such as biomedicine, governments deliberately withhold or vet scientific information instead of sharing it freely. Despite calls to treat vaccines as a global public good, many countries engaged in vaccine nationalism, prioritising their own populations and stockpiling doses (Zhou, 2022). National imperatives and resource scarcity can sometimes undermine the communal ideal of widely sharing scientific benefits widely.

The norm of universalism in science suggests that truth-claims should be evaluated objectively, independent of the researcher's nationality, ethnicity, or status. Science is for all humankind. In reality, geopolitical frictions and biases often impede this ideal of a borderless scientific community. A prominent example is the effect on scientific collaboration of US-China tensions. In 2018 the US Department of Justice launched the 'China Initiative,' aiming to counter economic espionage but sweeping up academic scientists in the process. By 2021, at least 77 individuals, 88 per cent of them of Chinese heritage, had been charged under this programme (Flynn et al., 2024). Surveys of Chinese American researchers revealed a climate of fear and mistrust; about 45 per cent of Chinese American scientists said they had reduced collaborations with China in response to the pressure (Li & Lee, 2022). In this case suspicions driven by national security rhetoric undermined the universalist norm by effectively filtering scientific participation based on nationality. Instead of scientists worldwide cooperating as equals, certain groups have felt stigmatised or restricted due to their country of origin, eroding the ideal that science should transcend politics.

Disinterestedness is the ideal that scientists and science policy should act for the sake of knowledge and truth rather than for personal gain or partisan agendas (Djrup & Kappel, 2013). In the context of nations, this norm is challenged by governments' deliberate use of science as an instrument of economic and strategic competitiveness. Around the world, state science agendas often reflect national interests, a trend encapsulated in the push for a 'knowledge economy,' where scientific research is directed toward profit-making industry innovation, wealth creation, and military or business advantage (Powell & Snellman, 2004). These foci can compromise disinterested inquiry. For instance, China enacted the Data Security Law in 2021 that restricts the sharing of research data across borders, requiring researchers in China to navigate government approval to export scientific data and collaborate internationally (Chen & Sun, 2021). South Korea's heavy R&D investments

explicitly aimed at boosting economic competitiveness have sometimes pressured researchers to produce short-term industrial results, potentially skewing the direction of academic inquiry (Aini & Triantama, 2021). These restrictions, justified by authorities as protecting state interests and data sovereignty, exemplify how national imperatives can override scientists' disinterested norms of open science and free collaboration.

Science is often idealised as a universal, meritocratic endeavour guided by shared principles, yet techno-nationalist policies and knowledge economy priorities can create tensions that undermine this vision. Section 2.5.1 has provided empirical evidence of how international scientific collaboration is strained by national interests, highlighting cases where geopolitical frictions, security concerns, and economic agendas challenge the norms of communalism, universalism, and disinterestedness. This study seeks to understand to what extent similar tensions exist in China's international collaboration.

2.5.2 Institutional Narratives versus Individual Imaginaries

At the individual level, scientists embrace scientific ideals but need to navigate practical constraints and personal career aspirations. Empirical studies revealed that the researchers constantly need to make compromises and strategic balances across diverse institutional demands and narratives.

One major tension between individual value and institutional demands is encapsulated in the 'publish or perish' culture. University and national policies elevate productivity and impact metrics as key evaluation criteria, which can conflict with researchers' pursuit of rigorous and disinterested science. A survey of Dutch university researchers showed that about two-thirds of respondents acknowledged serious downsides to the relentless push to

publish, such as goal displacement and even temptations toward unethical practices (Van Dalen, 2021). Yet, interestingly, a remaining one-third saw mostly upsides, often senior scientists who had benefited from the system and perceived it as meritocratic (Van Dalen, 2021). This division suggests that individual responses to institutional demands can be reshaped by career stage and professional success; those who thrive under current norms might champion them, whereas others feel those norms erode the deeper ideals of science like thoroughness or collegiality (Van Dalen, 2021). Similarly, A qualitative study of junior academics at a rural South African university found that the pressure to publish led to serious adverse outcomes: early-career researchers (ERCs) reported bullying disguised as mentorship, declining research quality, participation in predatory journals, mental health issues, and ethical dilemmas (Mutongoza, 2023). Concerning cases were reported in other countries such as China and Spain (Feenstra & Lopez-Cozar, 2021; Gao & Zheng, 2020). These studies highlight a lived tension: scientists value rigor and honesty, but the need to secure jobs and funding may lead them to cut corners or prioritise trendy, fundable topics over risky fundamental inquiries, indicating a shift from pure disinterestedness to a more instrumental mindset.

Empirical evidence also shows individuals wrestling with the norm of communalism versus competition. In principle, scientists are expected to share knowledge freely, but in practice, they compete for priority and recognition. This can lead to guarded behaviour like withholding data or rushing to publish incomplete results for credit, behaviours at odds with open science ideals (Feenstra & Lopez-Cozar, 2021). A survey of South Korean scientists confirmed that communalism practices such as sharing results were found to be under strain in highly commercialised or competitive fields; scientists with larger grants or industry ties were less inclined to share, feeling pressure to protect their intellectual capital (Kim & Kim,

2018). This suggests that individual commitment to communal values is conditional; it weakens when career or financial stakes are high.

Moreover, the narrative of meritocracy in science that the best ideas and people rise to the top is complicated at the individual level by phenomena like the ‘Matthew Effect’ (Merton, 1974). According to this effect, eminent researchers often garner disproportionate recognition, creating a cumulative advantage that is not strictly based on current merit. Recent studies have quantified this inequality. For example, an analysis of grant funding showed that scientists who narrowly won a grant went on to accumulate twice as much funding in the following years as those who had nearly identical proposals but just missed out (Bol et al., 2018). Crucially, there was no evidence that the winners’ subsequent performance was better than the non-winners’, implying that the initial boost was largely a reputational snowball rather than purely merit-based (Bol et al., 2018). Such outcomes underscore how prestige and networks can skew what is ostensibly a fair system of reward. Similar studies in other contexts also found that highly cited papers reinforce the authors’ reputations, helping them attract even more resources and citations, which in turn makes it harder for less-known scientists or novel ideas to gain attention (Antonelli & Crespi, 2013; Liao, 2021). These findings reveal a structural tension at the individual level: scientists are told that science is a meritocracy, but their lived experience might show that ‘who you are’ can sometimes matter as much as ‘what you do.’ The value of impartiality is thus challenged by real-world biases in recognition and reward.

To sum up, in navigating these contradictory values, individual scientists constantly balance ideals and pragmatism, crafting personal narratives to reconcile their ideals with their actions. They operate within the structures at the global and national levels: global objectives provide a possible compass, national and institutional frameworks set the rules of the game,

and individuals have to chart a path that preserves their scientific integrity while achieving professional success. This dynamic interplay ensures that scientific values are neither monolithic nor static: they are living principles continually affirmed, contested, and redefined through the daily work of scientists around the world. This study aims to unpack layers of values embodied by researchers engaged in China's international collaborations and how they are negotiated through daily practices.

2.5.3 Differences, Inequalities, and Asymmetries

Integrating discussions in the previous sections, values and imaginaries are channelled through structures that stratify who speaks, who is heard, and whose work is carried forward. Inequality in science is not only a matter of different inputs such as funding and facilities; it is also produced by network position, language dominance, and evaluative templates that make some forms of contribution more legible than others. These forces generate patterned asymmetries that shape collaborations before they start.

'Asymmetries' in this study refers to the phenomenon that different resources and prestige produce cumulative advantages, leading to nations and institutions with deep R&D investment and established reputations more frequently in central positions in global science (King, 2004). The centrality then confers greater visibility and agenda-setting leverage in international collaboration networks (Wagner & Leydesdorff, 2005).

Cumulative processes operate within funding systems. Studies show that early, small advantages in grant competitions compound into much larger downstream benefits, independent of intrinsic quality differences, thereby widening gaps between groups of researchers over time (Bol et al., 2018). These structures tilt collaboration toward actors

already embedded in dense networks, raising the threshold for scholars and institutions with less resources or reputation to shape questions, methods, and venues (Gazni et al., 2012).

Language structures are an equally powerful source of asymmetry. English-dominant publishing ecosystems create access costs for non-Anglophone scholars at every stage, from literature search to peer review, narrowing whose concepts become part of the common repertoire (Curry & Lillis, 2004). Empirical studies show that large bodies of relevant research remain locked in non-English literatures and are therefore routinely overlooked, with consequences for less evident use and recognition (Amano et al., 2016). Linguistic filtering interacts with evaluation practices. Journal ranking regimes and narrow excellence criteria privilege certain outputs and penalise alternative designs, dampening diversity in repertoires and reinforcing Euro-American standards of innovation and rigour (Rafols et al., 2012).

Asymmetries also appear in the micro-politics of collaboration. Studies of multi-country projects document systematic patterns in authorship order, topic control, and analytic leadership that favour researchers based in high-income settings, even when data and field expertise come from elsewhere (Hedt-Gauthier et al., 2019). Earlier work on North–South partnerships identified similar frictions, including performative roles for local scholars, limited capacity transfer, and unresolved disagreements over credit and ownership, all of which can erode trust and curtail long-term cooperation (Jentsch & Pilley, 2003). These findings indicate that asymmetry is enacted through everyday decisions about who frames problems, who manages data, who shapes the analysis, and who writes for which audience.

Nonetheless, asymmetry does not imply determinism; literature also points to mechanisms that soften stratification. International networks can diffuse benefits when less resourced actors gain bridging positions that connect otherwise separate communities, improving recognition and bargaining power (Wagner & Leydesdorff, 2005). Multilingual

synthesis and deliberate inclusion of non-English evidence expand the evidence base and counteract linguistic filtering, improving both validity and fairness in cumulative knowledge (Amano et al., 2016). Review and funding procedures that reward cross-field combination, clarity of conceptual contribution, and equitable governance have been shown to increase the acceptance of unconventional work and to reduce penalties for integrative designs (Rafols et al., 2012; Bol et al., 2018).

Therefore, differences in capacity and reputation are converted into epistemic influence through network centrality, language, and evaluation. Analyses of collaboration in this study aims to treat these as constitutive conditions rather than background noise. Additionally, governance choices within collaboration projects can reproduce or moderate inequalities through authorship policies, multilingual practices, and negotiation of who can exercise voice. Asymmetries are then historically sedimented but revisable in practice. Interventions that widen access to data, diversify venues, and credit conceptual as well as evidential labour change the payoffs to participation at the margins. In short, difference is an ordinary feature of global science, inequality is one of its recurrent patterns, and asymmetry is the lived configuration that collaborations need to work with and ideally rework.

2.6 Summary

This chapter mapped international collaboration as a structured yet contested field shaped by material arrangements, epistemic cultures, and value regimes. It traced the historical consolidation of national science systems and the rise of a transnational epistemic space, then

used the three aspects of materiality, epistemology, and values to explain how infrastructures, rules, and imaginaries set the horizons of action for researchers.

Materiality covered laboratories, repositories, digital and AI platforms, mobility and data regulations, and funding architectures, showing how these enable exchange but also concentrate advantage and reproduce asymmetrical participation. The chapter examined epistemology through disciplinary comparison and methodological reasoning. Economics exemplifies more rationalist deduction and shared identification strategies that travel easily across venues. Education sustains multi-paradigmatic, context attentive inquiry that privileges interpretation and ethical reflexivity. A Chinese dual track of *sibian* and empirical investigation widens the repertoire for design and evaluation. Building on this, the chapter theorised innovation and pluralism as intertwined. Innovation appears through recombination and boundary stretching, while pluralism operates both ontologically and as a governance principle that keeps multiple warrants in play, organises translation across communities, and enlarges what can be recognised as new. Values and imaginaries were shown to mediate between global ideals and national imperatives, institutional metrics, and individual careers. The section on differences, inequalities, and asymmetries illustrates that different levels of capacity and reputation convert into diverse epistemic influences through network centrality, language dominance, and evaluative templates, but also identified practices that moderate these asymmetries.

These strands explain structurally why collaborations differ in who leads, whose frames prevail, and which outputs gain legitimacy. They also set the stage for Chapter 3, which turns from structures to relations and examines how trust and relations of power are enacted and sometimes reworked in the day-to-day conduct of cross border collaboration.

Chapter 3

Practices, Trust, and Power

3.1 Introduction

Chapter 2 situated scientific activities and international research collaboration within the structural architectures of global and national science systems. The three dimensions of materiality, epistemology, and values and imaginaries were approached as pre-existing structures that shape researchers' experiences before collaboration begins.

Literature analysed in Chapter 2 revealed that these structures do not simply shape collaboration at a macro level; they also embed relational tensions that emerge in the micro practices of collaborative research. Material inequalities and regulatory asymmetries manifested in practices of guarded data sharing (Du & Wang, 2024; Kim & Kim, 2018), inevitably raising questions of trust: who is trusted with access, whose data are trustworthy and reliable, and how openness is negotiated under conditions of competition or political sensitivity. Likewise, the distinctive epistemic and normative frameworks in diverse disciplines and national cultures (Fourcade, 2009; Steiner-Khamsi & Waldow, 2018) point to underlying power relations: whose methods and interpretations dominate, which perspectives are marginalised, and how authority is asserted or challenged in collaborative settings.

Similarly, the value conflicts documented in Chapter 2 from techno-nationalist restrictions on data sharing (Chen & Sun, 2021) to the Matthew Effect in recognition (Bol et al., 2018) show that ideals of openness, meritocracy, and disinterestedness are not simply background norms; they are negotiated and sometimes strategically reframed in everyday

practices. These negotiations are often saturated with questions of power, as actors position themselves in relation to institutional hierarchies and funding priorities.

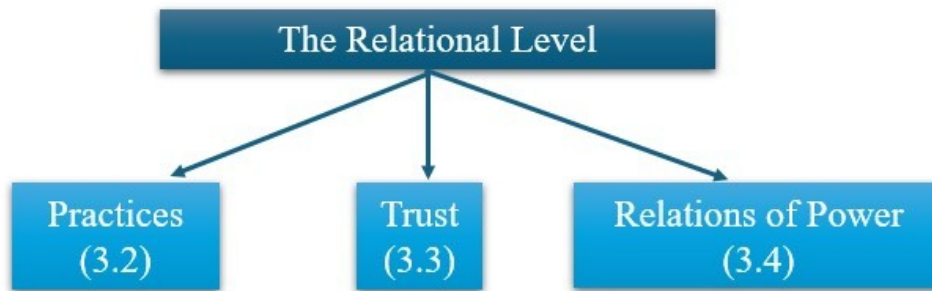


Figure 5. The relational level of the framework.

For these reasons, this chapter shifts the analytic lens from the structural and systemic focus of Chapter 2 to the relational and experiential terrain of collaboration. As illustrated in Figure 5, it explores how scientists navigate, reproduce, or resist these embedded asymmetries through their practices, and how trust and power are constituted, contested, and maintained in the course of working together across borders. In doing so, it extends the framework into an account of how structural conditions are lived and negotiated in the everyday life of international research teams.

3.2 Practices: Production, Collaborations, and Circulation

This section focuses on the practices regarding the production, organisation, and circulation of knowledge within international collaboration, particularly how global scientific practices have become increasingly standardised and interdependent, while still reflecting significant national, institutional, and individual variation (Marginson, 2022).

At a global level, the methods, norms, and collaborative routines through which knowledge is produced have increasingly converged worldwide into a more unified mode. Researchers around the globe now operate within an interconnected network sustained by rapid communication and joint participation in knowledge production (Fecher et al., 2021). Key practices of scientific work, from the use of peer review and publication in scholarly journals to the adoption of common methodologies and ethical protocols, have become widely standardised across countries (Huisman & Smits, 2017). This global standardisation is reinforced by shared professional conventions and publishing practices. Five large multinational firms now dominate scientific publishing, shaping how and where findings are disseminated (Marginson, 2024).

Alongside standardisation, scientific practice has also become profoundly interdependent on a global scale. In an open networked global science system, knowledge production is bottom-up and collaboratively self-organising across borders, operating under universally recognised norms rather than direct state control (Wagner & Leydesdorff, 2005). As a result, global science today has no normative centre imposed by any single nation; instead it is coordinated through collegial peer communities and transnational disciplinary bodies, and codified by journal recognition and bibliometric inclusion (Marginson, 2022). There is an unprecedented level of epistemic interdependence (Gui et al., 2019). In some regions and fields, international co-authorship is even more prevalent than domestic collaboration, a testament to how deeply networked and interlinked the creation of

knowledge has become (Gui et al., 2019). Major scientific endeavours from global clinical trials to large physics experiments now routinely involve multi-national teams sharing instruments, data repositories, and expertise (Wagner et al., 2015). The knowledge, messages and information flowing through this open network accelerate the diffusion of innovations (Choi, 2012). In short, contemporary scientific practice is characterised by a high degree of global convergence: a common set of socio-technical practices and a dense web of collaborations that bind together the world's researchers in what is effectively a single, interdependent enterprise (Baker & Powell, 2024).

Despite these global convergences, at the national level, research practices are shaped by local cultures, policies, and material conditions. While a global science culture thrives without a single central authority, national science remains firmly centred by the nation-state through state policies and funding agendas (Marginson, 2022). How research is organised varies; some countries concentrate research in universities, others in specialised institutes, leading to differences in everyday lab practices, teamwork norms, and the balance between applied versus basic research (Larsen et al., 2009). Crucially, the embrace of global standards can differ. Certain nations or institutions might resist international norms in favour of traditional approaches or prioritise local languages and outlets for publication (Collyer, 2018). In this sense, global scientific norms are always interpreted through a local lens: international and national networks may be shaping each other in a dynamic interplay (Marginson, 2022). The influence of global practices on a given country's research culture can vary widely. Some national systems are highly internationalised and align closely with global conventions, whereas others remain more inward-looking (Sillitoe, 2007).

The adoption of standardised protocols is further filtered through institution-specific priorities shaped by state agendas, funding regimes, and disciplinary legacies, producing a

layered configuration of scientific practice (Marginson, 2022). For example, institutions in resource-rich environments may become nodal sites of global connectivity, aligning closely with dominant epistemic practices, while others may reaffirm local scholarly traditions or mobilise selective compliance to assert alternative trajectories (Sillitoe, 2007). Thus, institutional practices constitute a meso-level domain of socio-technical activity, mediating between the transnational and the national, and conditioning how standardisation and interdependence manifest in everyday research environments.

At the micro level, scientific practices are inseparable from the situated agency of individual researchers, who need to navigate global expectations while also responding to the cultural, linguistic, and institutional logics of their immediate environments. Scientific practice is not merely a set of abstract protocols but a lived, reflexive process involving choices about where to publish, with whom to collaborate, and how to frame research in ways that are legible both locally and globally (Van Der Valk et al., 2007). Individual researchers thus engage in what might be termed epistemic brokerage: translating between the global lingua franca of science and the socio-political specificities of their national or disciplinary contexts (Meyer, 2010). For some, aligning with global norms such as publishing in high-impact journals or co-authoring across borders offers professional capital and institutional mobility; for others, especially in under-resourced or non-Anglophone settings, such alignment may entail epistemic compromise or strategic hybridity (Boari & Riboldazzi, 2014). The global science system offers a shared platform, but the degree to which individual researchers can participate in and benefit from it is uneven, mediated by access, language proficiency, and symbolic recognition (Gluckman et al., 2021). Consequently, individual practices reflect both the affordances and constraints of an asymmetrically structured global research space, marked by simultaneous inclusion and differentiation.

In sum, contemporary scientific practice is increasingly characterised by global standardisation and interdependence that in part facilitate collaboration and circulation of knowledge across borders. Nonetheless, this convergence is refracted through national contexts, where research is shaped by local policies, institutional arrangements, and cultural priorities, leading to differentiated engagements with global norms. At the institutional and individual levels, scientific practices emerge through dynamic negotiations between global expectations and local realities, producing a stratified and uneven research landscape marked by both integration and divergence. In the context of international collaboration, empirical research on scientific practices have focused on themes like initiation pathways, balancing multi-level priorities, and the impact and evaluation of collaboration outcomes.

3.2.1 Initiating International Collaboration

The initiation of international research collaboration is shaped by a complex interplay of individual motivations, social networks, and broader structural factors. Recent empirical studies shed light on how these dimensions interact to influence when, why, and with whom researchers engage in the early initiation of international collaboration.

At the individual level, personal aspiration is key to initiation. Intellectual curiosity and the desire for creative exploration consistently emerge as primary motivators of collaboration (Wagner et al., 2017), while a strong need for achievement and affiliation further increases the likelihood of initiating international and cross-disciplinary partnerships (Hall et al., 2012). Building friendships and fostering mutual learning are also cited as central drivers for sustained collaboration, particularly in intercultural contexts (Beaver, 2013).

Similarly, trust, empathy, and the enjoyment of working with like-minded peers motivate individuals to engage in and maintain international partnerships (Bozeman & Corley, 2004). These findings highlight the central role of internal psychological dispositions in shaping early collaboration decisions.

Building on individual aspiration, social networks and former affiliations serve as critical conduits for initiating international collaboration. Shared academic heritage and dual institutional affiliations often act as natural entry points, as seen in the case of Chinese PhD graduates who continue collaborating with their European supervisors after returning home (Gök & Karaulova, 2024; Shen, 2018). In Pakistan, foreign doctoral training significantly increases researchers' engagement in international projects and conferences, underscoring the value of international exposure (Baloch et al., 2021). In South Korea, international collaboration is commonly initiated through informal, trust-based relationships rather than institutional matchmaking (Hemmert & Kim, 2020). When direct ties are absent, researchers sometimes rely on indirect pathways, such as introductions through trusted domestic collaborators (Chen et al., 2025). A Delphi study further confirms that expanding one's academic network is a key motivation for initiating collaboration in fields such as education (Bond et al., 2021). In this sense, networks are not only the means through which international collaborations are initiated but also one of the outcomes researchers seek to obtain through such engagements.

At the team level, researchers are found to be more likely to join groups that demonstrate high productivity, prior international orientation, and embedded social capital, factors shown to be stronger predictors of collaboration decision than the individual capacity of the principal investigator (De Frutos-Belizón et al., 2024). Structured international teams with clear governance and shared objectives also enhance attractiveness to potential

collaborators by fostering trust and reducing administrative barriers (Düerkop et al., 2024). Additionally, technological proximity is found as a more important factor than geographic distance when researchers deciding whether to join a collaboration, based on data of the international collaborations of EU's Fifth Framework Programme (Scherngell & Barber, 2009). Therefore, the initiation of international collaboration is a multifactorial process shaped by an interplay of individual preferences, scholarly affinity, and relational compatibility across technological and geographic dimensions. This study seeks to explore the diverse initiation scenarios of China's international collaborations.

3.2.2 Negotiating Priorities in International Collaboration

Once collaboration is established, the sustained process hinges on collective decision-making to balance diverse priorities at national, local, and institutional levels.

Researchers in international collaborations need to align globally recognised research agendas with locally relevant challenges. This tension and the efforts to reconcile it have emerged as a key empirical theme in studies of international research collaboration.

Qualitative case studies in China, Ghana, and Turkey showed that researchers adopted hybrid topic framing such as linking global climate narratives with local agricultural concerns to ensure relevance on both fronts in international collaborations (Oldac et al., 2025).

Researchers from Pakistan were found to similarly integrate global science trends with local developmental challenges of water security and energy access (Sabah et al., 2019). French researchers need to integrate a layer of regional agenda such as EU-wide environmental frameworks into the balancing of global standards and local rootedness (Laredo et al., 2010). Balancing and aligning diverse agendas have been both bottom-up and top-down efforts.

University leaders and policymakers in South Korea actively encouraged researchers to incorporate global prestige domains such as AI and biotechnology into the investigation of national economic and employment priorities in research and particularly through international collaborations (Kim & Mobrand, 2025).

At a practical level, researchers in international collaboration integrate standardised methods and critical contextual nuances. For instance, a study focusing on France's international collaborations illustrates how quantitative metrics and scientometric tools were used to uncover structural patterns aligned with policy priorities, while case-level interpretations accounted for institutional and regional diversity, showing sensitivity to local research ecosystems (Delemarle & Laredo, 2010). Similarly, Cappellaro et al. (2024), in *Bridging Global Mandates and Local Realities*, employed a comparative case study design across eight UN-linked development clusters to trace how universal frameworks were adapted on the ground. Their method highlighted 'local calibration', the adaptation of methods to match site-specific administrative, cultural, and logistical contexts, while still maintaining alignment with global reporting protocols (Cappellaro et al., 2024).

Within this process, researchers from non-Anglo-American countries often face the need to adapt Euro-American traditions to reflect local contexts and research goals. Studies have demonstrated that researchers used modernisation theory or institutionalism to secure credibility in international publishing systems, while simultaneously embedding these within culturally grounded interpretations of governance, education, and development (Oldac et al., 2025). A comparative study focusing on North–South research collaboration similarly showed that partners from the Global South often operated within the Paris Declaration on Aid Effectiveness yet re-interpreted or reframed these theories using local socio-political logics such as participatory governance or grassroots mobilisation (Kotze & Dymitrow, 2022). Meanwhile, Northern partners tend to emphasise standardised theoretical models and

maintain comparative and generalisable insights (Kotze & Dymitrow, 2022). Theoretical hybridity thus emerges as a pragmatic and strategic response to the challenges of collaboration between Anglo-American and non-Anglo-American researchers.

Teams also negotiate different communication styles. Following Goffman, face work in meetings and writing involves continual efforts to preserve dignity and competence; misaligned face wants can be misread as obstruction or disrespect (Goffman, 1959). Self-face orientations favour direct feedback and rapid commitment, whereas other-face orientations privilege restraint, relational harmony, and incremental agreement (Ting-Toomey, 2005; 2008). The distinction of high context and low context adds some explanations as to why certain groups rely on tacit cues while others require explicit agendas and written protocols (Hall, 1976). Empirical studies show that cross national teams often misinterpret indirect refusals as weak commitment and escalate conflict unless norms are made explicit (Hinds et al., 2011). Language barriers can depress trust and amplify status asymmetries (Tenzer et al., 2014). In academic writing, interactions using English as lingua franca interactions rely on repetition and confirmation checks to secure shared understanding (Björkman, 2011).

A particular genre of international collaboration, often in the form of large-scale multi-national projects, emphasise more on cross-national comparability more than local interpretability. Such projects aim to leverage methodological consistency to enable robust generalisation and global benchmarking. For example, international health research ensured statistically valid and comparable results across countries through a 10-step framework such as standardised translation procedures and measurement invariance testing (Zhao et al., 2024). Similarly, studies documented a series of multi-country psychology replication projects that employed pre-registration and centralised methodological protocol to maintain uniformity (Jarke et al., 2022). These strategies allow for cross-country comparisons and minimise interpretive variability.

International research collaboration reflects a continuous negotiation between global, national, and local priorities. While some large-scale projects prioritise cross-national comparability through standardised frameworks and statistical modelling, others adopt more hybrid approaches to ensure contextual relevance. This study examines the extent to which the two modes reflect the approach of China's international collaboration, and how researchers navigate the balance between global legitimacy and local meaning, whether as mutually reinforcing or as conflicting goals.

3.2.3 Evaluating International Collaboration

International research collaboration yields diverse outcomes, influencing scientific progress and professional growth across global, national, and individual levels. This section explores the assessment of international collaboration through metrics of scientific impact, research performance, and professional development, while emphasising the contextual factors that shape its value.

At the global level, international research collaboration is often evaluated through bibliometric indicators that capture its growing scale and scientific impact. One common measure is the share of publications co-authored by researchers from multiple countries. Globally, the fraction of all scientific articles with international co-authors in Web of Science Core Collection grew from about 4.7 per cent in 1980 to 25.7 per cent by 2021 (Aksnes & Sivertsen, 2023). In the social sciences specifically, international co-authorship of papers included in Scopus has likewise increased to 22.6 per cent in 2020 (NSF, 2022). Nonetheless, participation in international collaboration varies widely by country and region. Small, high-income countries and those with limited domestic capacity often rely heavily on international

partnerships while scientific superpowers produce a large volume of domestic research alongside extensive international ties (Wang et al., 2024). For instance, major European and Anglophone nations report well over half of their research output as internationally co-authored (e.g. 65 per cent in the UK, 61 per cent in France), whereas larger systems such as the US (40 per cent) and China (22 per cent) have lower rates (NSF, 2023).

Another key outcome is the citation impact of internationally co-authored work. Consistent evidence shows that papers involving cross-border collaboration tend to garner more citations in Web of Science and Scopus on average than those produced within a single country (Narin et al., 1991; Ni & An, 2018; Wang et al., 2024), and account for a higher share of highly cited research (Dong et al., 2017). Nonetheless, some scholars cautioned that this nominal citation advantage might be partly due to self-selection; top researchers with access to better resources are more likely to collaborate internationally (Adams, 2013). This advantage may also be mediated by the language of publication, since English-language journals dominate global indexing and citation systems, amplifying the visibility and impact of internationally co-authored work.

At the national level, the outcomes of international collaboration are often framed in terms of research performance, capacity building, and contribution to the global knowledge pool. Countries track indicators such as the number of international co-publications, the citation rates of those papers, and the share of output involving foreign co-authors as proxies for the impact of their collaboration efforts (Kwiek, 2021). Empirical studies in various national contexts confirmed that greater international engagement can improve the quality and visibility of research. For example, a bibliometric analysis of Pakistan's leading universities found that institutions derived more benefit from international partnerships than from local collaboration, measured by publication productivity and citation impact (Sabah et

al., 2019). Similarly, China's drive to build world-class universities has leveraged international research ties as a means to enhance scientific impact (Zhe et al., 2021). Evidence from recent years shows that increased international collaboration 'effectively improves research performance, deepens academic networks, and disseminates local issues and solutions to the world' (Zhang et al., 2021). Therefore, at the national level outcomes are measured in publication impact and capacity gains, reflecting the country's increasing global visibility and contribution.

At the individual researcher level, international collaboration yields a range of outcomes affecting scholarly productivity, impact, and professional development. Scholars gain complementary expertise and data, development of new research skills, and broadened perspectives on social science problems (Hashiguchi et al., 2024). In a survey-based analysis of a resource-constrained system (Poland), internationally active scholars ('internationalists') produced significantly more publications than their domestic-oriented peers (Kwiek, 2020). This stratifying effect of international collaboration is evident in many other aspects: international collaboration often correlates with higher career rank, larger research grants, and greater peer recognition based on data of Italian academics (Abramo et al., 2014; Muric et al., 2019).

Additionally, early career scholars gain mentorship and exposure to diverse methodologies through international projects, which can accelerate their professional growth (Carroll et al., 2010). These outcomes are conditioned by institutional contexts; generous national and institutional support amplifies the benefits individuals receive from international collaboration, whereas lack of support can make sustained collaboration difficult. Global measures of impact trickle down to inform national evaluation criteria; national and institutional incentives set the stage for individual researchers' choices; and the collective

actions of those individuals, in turn, build the global collaboration networks that drive scientific progress in the social sciences. This study seeks to investigate how researchers' practices respond to and simultaneously shape diverse levels of outcome evaluation in the context of China's international collaboration.

While collaboration is often foregrounded in analyses of global research, competition is an equally significant force shaping scientific activity at both global and national scales. Competitive pressures emerge from limited funding, priority in publication, prestige rankings, and national science policies that prioritise world-class outcomes. Studies argued that hyper competition such as intensified demands for funding and jobs can undermine creativity, resource sharing, collegiality, and even research integrity, even when it offers incentives for productivity and innovation (Fang & Casadevall, 2015). Similarly, a study of research clusters found a 'coopetition' environment among 'frenemies', in which Principal Investigators must both cooperate (to advance shared scientific goals) and compete (for recognition, funding, and leading authorship) (Hückstädt, 2022). In these clusters, tensions between competition and collaboration produce specific problems like disputes over credit, resource allocation, and differential investment in shared infrastructure, which affects how knowledge is produced and shared.

In sum, section 3.2 argues that research practices are shaped by both increasing global convergence and persistent local variation. Collaboration initiation is driven by both individual agency and structural facilitation. Once collaborations are underway, researchers need to negotiate and balance global scientific standards with national relevance. Outcomes of international collaboration are reflected in research visibility, capacity building, and career prospect, simultaneously shaping the reform of evaluation metrics and policy frameworks. Together, international collaboration practices are socially negotiated processes, dynamically

shaped by the interaction of global systems and local settings. This study seeks to examine the nuances in the case of China's international collaboration.

3.3 Trust: Goodwill, Credibility, and Reciprocity

Trust is widely acknowledged as a central condition for effective scientific collaboration, particularly in international contexts marked by epistemic, institutional, and cultural diversity. Trust enables researchers to navigate potential vulnerability and engage in sharing ideas, data, and authorship without full control over outcomes or formal enforcement mechanisms. As such, trust functions both as a relational foundation and a normative ideal that sustains the ethos of global science as a cooperative, self-organising system.

Understanding how trust is built, maintained, and sometimes broken is critical for grasping the dynamics of international research collaborations.

3.3.1 Trust, Goodwill, and Mutual Learning

Trust is a foundational yet complex element in international collaboration. This section explores how trust enables researchers to navigate vulnerability, negotiate power asymmetries, and engage in transformative, cross-cultural knowledge co-production, moving collaboration beyond mere coordination toward mutual learning and epistemic openness.

At the interpersonal level, trust typically needs to be earned and sustained over time. The term collaboration conveys 'the idea of sharing in a spirit of harmony and trust', highlighting how ideal collaborations are imagined (D'Amour & Oandasan, 2005). In

practice, however, entering a research partnership often entails risk and vulnerability. One party (the trustor) may rely on the trustee's integrity without full assurance; trust involves an act of faith in another's goodwill, which inherently creates vulnerability (Tschannen-Moran, 2001). Especially in new collaborations, partners may hesitate to make themselves vulnerable (Tschannen-Moran, 2001). Reputation and institutional affiliation become proxies for trustworthiness while they provide only partial guarantees (Malhotra & Lumineau, 2011).

It often takes repeated positive interactions to build robust interpersonal trust, and once broken it is hard to restore (Bond-Barnard et al., 2018). Recognising this, scholars have distinguished trust from mere reliance: one can rely on a collaborator's role due to contracts or monitoring without fully trusting their goodwill, honesty or values (Malhotra & Lumineau, 2011). This distinction is crucial in asymmetric partnerships between well-resourced and less-resourced teams (Hattori & Lapidus, 2004). Heavy reliance on personal trust can sometimes exacerbate vulnerability for the weaker partner; formalised reliance and clear agreements may be safer in contexts of power imbalance (Kerasidou, 2016). Ultimately, promoting equitable collaboration 'requires addressing the power imbalances between partners, and establishing an even playing field' rather than assuming trust alone will suffice (Kerasidou, 2016).

In scientific collaboration, trust can be fostered by institutional norms and practices that structure scientific communities. Peer review, codes of ethics, co-authorship conventions, and training practices all can contribute to a generalised trust that makes collaboration possible among researchers who may not know each other personally (Malhotra & Lumineau, 2011). Moreover, in Confucian traditions the concept of *li* (禮, ritual propriety) performs bonding work: everyday rituals, rites of passage, and codes of conduct reinforce shared norms and mutual responsibilities, cultivating loyalty and trust even in large impersonal

institutions (Wu, 2016). Similarly, the Classic Maya civilisation functioned in part as a theatre-state: public ritual performances by priest-aristocrats were not only symbolic but political, creating a shared sense of identity, legitimacy of rulers, and social cohesion across dispersed communities (Smith, 1994). These ritual infrastructures, *li* in China and theatrical ritual in Maya rule, are often under-appreciated in studies of trust but are crucial for understanding how trust is exercised through shared cultural meaning, not only formal institutions. These epistemic infrastructures enable the circulation of knowledge across institutional and national boundaries, making scientific claims mutually recognisable and contestable (Jasanoff, 2005). Trust in journals, funders, and partner institutions thus mediates individual trust, allowing researchers to engage with distant others through established norms and evaluative procedures.

The goal of trust building in international research collaboration is to enable mutual learning among communities with diverse disciplinary, epistemic, and cultural background, so that new forms of knowledge can be produced and circulated (Dodgson, 1993; Hojholt & Kousholt, 2019). Meaningful collaboration depends on an openness to epistemic difference, the recognition that knowledge is situated, and that one's own methods and assumptions are not universal (Mason & Lefrere, 2003). Mutual learning rests on a reciprocal relationship between trust and epistemic humility, where researchers are willing to revise their views, share interpretive authority, and engage in reflexive dialogue (Van de Ven & Ring, 2006).

This is especially important in international collaborations that bring together actors from different disciplines, linguistic backgrounds, or institutional cultures, where misunderstandings are likely, and translation is required both linguistically and conceptually (Mason & Lefrere, 2003). Mutual learning also entails a shift from transactional to transformative collaboration. In a transactional model, collaboration is valued for

productivity such as joint publications, grant success, or data generation. In a transformative model, collaboration becomes a site for knowledge co-production, where the aims, methods, and values of research are negotiated, and where outcomes are not predetermined but emergent (Hojholt & Kousholt, 2019). Trust is especially indispensable to this process. It allows researchers to tolerate ambiguity, navigate disagreement, and co-create new conceptual frameworks (Ellstrom, 2007). In this view, trust is both a precondition and an ongoing practice that is continuously performed and re-evaluated.

As such, trust operates at multiple levels in international research collaboration and facilitates coordination, mutual learning, and long-term relationships. It is more productive to conceptualise it as a dynamic, ethically embedded, and relationally situated practice central to international research collaboration; one that needs to be continually cultivated to create genuinely inclusive and innovative knowledge. This study seeks to explore the nuanced social dynamics through which trust is built, negotiated, or strained in China's international collaborations in economics and education.

3.3.2 Trust Building in International Collaboration

When partners come from different cultural, institutional, or disciplinary backgrounds in international research collaboration, trust can be fragile. This section explores how trust is gradually cultivated through interpersonal relationships, communication practices, institutional norms, and disciplinary conventions, and how it underpins the conditions for sustained, equitable, and innovative collaboration.

Empirical studies confirm that trust-building in international collaborations often begins at the interpersonal level, where partners gradually cultivate mutual confidence

through repeated, low-risk interactions. For example, researchers may start with modest joint activities such as short-term pilot projects or workshops to establish rapport and demonstrate reliability before committing to larger ventures (De Grijns, 2015). Bagshaw et al. (2007) similarly found that effective teams ‘allow time to build trust and a shared research idea or question’ rather than rushing into high-stakes commitments. In one longitudinal partnership, five years of collaboration yielded significant capacity-building outcomes that ‘could not have been achieved without good personal relationships... built on trust developed over 20 years’ (Mayhew et al., 2008). These findings underscore that interpersonal trust is earned gradually through consistent goodwill and openness, especially in cross-cultural teams where initial hesitancy or language barriers may heighten vulnerability (Tschannen-Moran 2001).

Open and adaptive communication practices are key to sustaining this interpersonal trust in diverse teams. Research showed that teams which co-develop their communication norms, for instance, agreeing on language use, meeting etiquette, and responsiveness, report stronger cohesion and collective identity (Satterthwaite et al., 2024). Cross-border collaborators can benefit from intercultural communication training, learning to interpret indirect feedback and silence not as disengagement but as cultural style (Toprak & Genc-Kumtepe, 2014). Indeed, effective communication and trust reinforce one another: clear, respectful dialogue reduces uncertainty and demonstrates goodwill, in turn encouraging members to share ideas more freely. Conversely, breakdowns in communication such as missed emails, unaddressed concerns, or one-sided decision-making can quickly sow doubt about a partner’s reliability or respect, illustrating how fragile nascent trust can be (Kostis et al., 2022).

Importantly, interpersonal trust does not operate in isolation from issues of power and equity. In asymmetrical collaborations such as between well-resourced and less-resourced

teams, sole reliance on personal goodwill can exacerbate vulnerability for the weaker partners. Kerasidou (2019) argued that while a shared belief in integrity is vital, disadvantaged collaborators should not be forced to depend purely on trust; formal agreements and clarity of roles are needed to protect them from potential exploitation. Empirical accounts show that one international team that failed to negotiate authorship credit and IP rights upfront later experienced conflict in these areas once the research was under way (Bagshaw et al., 2007). Here, trust was undermined because formal safeguards were missing. Therefore, trust at the personal level is foundational in enabling openness, risk-taking, and honest dialogue but it flourishes most in a context where expectations are transparent and each member feels secure from misuse of their vulnerability.

Beyond individual relationships, institutional structures and practical norms such as peer review, research ethics codes, funding oversight, and authorship conventions create a baseline of generalised trust in international research collaboration. When a paper, proposal, or dataset comes vetted by respected journals or institutions, collaborators who have never met were found to operate with a default level of confidence in each other's methods and findings (Paula et al., 2020). In this way, trust is mediated by the scientific community's institutions: one trusts 'the journal, the grant agency, or the university' and by extension is willing to trust the unknown researcher affiliated with them (Malhotra & Lumineau, 2011).

Established norms like sharing data openly, disclosing conflicts of interest, or following ethical guidelines also signal a commitment to integrity that helps partners from different backgrounds find common ground (Flaherty, 2013). Many consortia now adopt authorship contribution statements or the CRediT taxonomy to explicitly acknowledge each member's role, thus promoting fairness, transparency, and trust (Lariviere et al., 2021). As Jasanoff (2005) observes, these epistemic infrastructures allow knowledge to circulate across

borders in recognisable ways, so that scientists can ‘engage with distant others through established norms and evaluative procedures’ (p. 256).

At the same time, disciplinary norms can shape trust-building differently in the extent to which they formalise collaboration. For example, collaborations in economics or natural sciences often lean on formal structures like contracts, standardised protocols, clear authorship hierarchies to manage cooperation, a mode of trust through transparency and control (Woolthuis et al., 2005). In such settings, clarity in expectations and rigorous methods can substitute for deep personal trust at the outset. By contrast, fields like education or participatory social science emphasise relational and ethical bonds: partners may prioritise shared values, common mission, and mutual respect over detailed contracts, reflecting a trust through personal relationship approach (Tschannen-Moran, 2001).

These differences are reflected in practice. Economics collaborations, often centred at elite institutions, can have lower interpretive friction because everyone adheres to similar quantitative standards – trust is built by speaking the same methodological language (Wildman, 2010). In international education research, however, teams frequently span diverse pedagogical paradigms and local contexts; here trust must be continually negotiated via dialogue about meanings, goals, and quality criteria (Steiner-Khamsi & Waldow, 2018). Neither approach is inherently superior but each highlights how practical norms either streamline or complicate trust-building.

Ultimately, the purpose of cultivating trust in international research partnerships is to unlock mutual learning and creative knowledge production that would be impossible in isolation. When trust is present, collaborators can truly combine their diverse expertise, listen well, challenge each other’s assumptions, and venture into new intellectual territories without fear of exploitation or misunderstanding. Studies found that high-trust teams are more willing

to share incomplete ideas or tentative data, which accelerates collective learning and adaptation (Isabelle & Heslop, 2014). The openness to knowledge exchange enabled by trust in turn fosters learning and innovation. Surveys of international science teams have found that high levels of trust correlate with greater creativity and problem-solving capacity in the group (Oliver et al., 2020). One study of research consortia noted that with trust, teams more easily work out issues and conflicts that cannot be covered in formal agreements, enabling them to navigate unforeseen challenges and co-create novel solutions (Robinson-Garcia et al., 2019).

Therefore, trust allows the collaboration to shift from a merely transactional exchange where each side guards their piece of knowledge to a transformative partnership where new frameworks and questions emerge through dialogue. It is the engine of mutual learning; it gives collaborators the confidence to teach and learn from each other across disciplinary or cultural divides, resulting in genuinely innovative research that neither party could have achieved alone. Building and maintaining trust is an ongoing practice in successful international collaborations, one that requires continual communication, reflexivity, and institutional support. This study seeks to explore how trust is established in China's international collaborations in the two disciplines, and the extent to which it has transforms collaboration into a site of collective knowledge growth, where mutual learning thrives and truly novel research can emerge.

3.4 Power: Negotiation, Leadership, and Inclusion

International research collaboration is inherently shaped by power relations that manifest in both subtle negotiations and formal structures. These power dynamics play out through the

distribution of material resources, epistemic authority, and institutional prestige, influencing whose knowledge counts, who leads, and who benefits. This section examines how relations of power are exercised, contested, and redistributed through two interlinked processes: negotiation in everyday collaboration and leadership practices that either reinforce or mitigate asymmetries. Understanding these dynamics is crucial to advancing more equitable and inclusive forms of knowledge production, particularly in the context of China's evolving role within global science networks.

International collaboration is inherently a process of negotiation of meanings, methods, roles, and responsibilities across diverse epistemic, institutional, and cultural contexts. As researchers work to establish shared reference points through tools like trading zones and boundary objects, these interactions are inevitably shaped by underlying power relations. Whether expressed through control of resources, authorship, or disciplinary legitimacy, power is embedded in the everyday practices through which collaboration is enacted and maintained.

In everyday practices, negotiating differences often entails finding a common ground in research questions, methods, and goals despite varying assumptions or standards. Scholarly discussion has conceptualised such interactions with metaphors like trading zones, spaces where distinct scientific subcultures with vastly different practices and discourses can interact and negotiate a joint enterprise (Collins et al., 2007). In a trading zone, groups develop a shared contact language, often a simplified jargon or set of procedures, that enables exchange without requiring full convergence of underlying worldviews (Collins et al., 2007). This is closely related to the idea of boundary objects: artifacts or concepts that are flexible enough to adapt to local needs and have different distinct identities in different communities, but at the same time are robust enough to maintain a common identity across boundaries (Välk et

al., 2019). Classic examples include datasets, models, or definitions that mean slightly different things to researchers, yet serve as a mutually recognised reference point for collaboration (Fominykh et al., 2016). By using such boundary objects, teams can bridge gaps in knowledge practices and values: for instance, agreeing on a core dataset or term allows each side to proceed in its own idiom while still working toward a shared goal (Huang et al., 2018).

Trading zones come in varieties from fractionated exchanges that rely on a thin pidgin to more stabilised jargons that sustain durable joint work. In high energy physics engineers and theorists learn enough of each other's idiom to co-design instruments and analyses (Galison, 1997). A study of the Berkeley Museum traces how boundary objects such as standardised specimen forms and field notes coordinated amateurs and professionals without imposing a single worldview (Star & Griesemer, 1989). In the social sciences, international indicators and classifications routinely function as boundary objects: PISA (the Programme for International Student Assessment) frameworks and datasets coordinate ministries, psychometricians, and researchers while letting each read the results through their own lenses (Grek, 2009; Lawn & Grek, 2012). The Human Development Index and World Bank indicator suites enable cross country comparison and donor coordination even as local actors reinterpret what the numbers mean for policy (Merry, 2011; Davis et al., 2012). Education's ISCED (International Standard Classification of Education) classification and survey metadata standards such as DDI (Data Documentation Initiative) create a shared 'contact language' for assembling and reusing diverse datasets without forcing full methodological convergence (Akkerman & Bakker, 2011; Lampland & Star, 2009).

Therefore, trading zones cultivate minimal shared competence, while boundary objects provide the stable yet pliable artifacts that make such competence productive. The

creation of these shared reference points is a form of negotiation and compromise: each party tacitly adjusts or simplifies some expectations so that joint work can move forward (Gorman, 2002). This iterative process of who gets more influence to decide the ‘common language’ is often embedded in the level of control of broader research materials, practices, and values. Compromises, in this sense, are inevitable but also productive. By trading some control over definitions or approaches, collaborators co-create a space where both perspectives are respected enough to contribute (Deepwell & King, 2009).

3.4.1 Negotiation and Power

Power struggles for control and influence are evident in the negotiation of material resources and institutional support in global science. A study based in China showed that significantly more researchers from elite universities engaged in international collaboration and those researchers from less-renowned universities who entered international collaboration found their voices carry comparatively less weight in decision-making (Liu et al., 2021; Zhang et al., 2021). Moreover, the institution controlling key resources such as unique equipment, a longitudinal dataset, or the main funding account can wield control over the project’s direction (Hottenrott et al., 2021). Addressing this requires conscious effort. Researchers found it useful for project leaders to rotate meeting venues and responsibilities, and create advisory structures where all institutions regardless of size or prestige have a say in strategic decisions (Faubert, 2019). Ultimately, transparency in resource management and acknowledgement of each site’s contributions can alleviate the hierarchies of institutional prestige.

As discussed earlier, resource asymmetries are especially pronounced in cross-cultural and North–South collaborations. One common manifestation is ‘helicopter research’ or ‘parachute research,’ where scientists from wealthier countries swoop in to collect data or samples in a developing country, then leave to analyse and publish the results with minimal involvement of local scientists (Adame, 2021). Similarly, evidence showed that local collaborators in such cases often provided essential on-the-ground support such as arranging field access, translating, gathering samples, yet received little acknowledgement or authorship in publications (Swist & Magee, 2017). The research findings themselves often remain inaccessible to them behind paywalls and in English, disconnected from local needs (Swist & Magee, 2017). Data on Sino–Korean co-authored publications found that Chinese institutions retained significantly higher centrality and visibility in institutional and national positions than South Korean counterparts (Park et al., 2016).

Consequently, international collaborations can become vehicles of neo-colonial science. The tension lies in whose problems are being solved, whose rules apply, and who gets credit. Geopolitical tensions can be mitigated by genuine capacity building and two-way knowledge exchange such as Northern partners investing in Southern labs, or ensuring research questions also address local community needs rather than only global theories (Adame, 2021).

Power negotiations in everyday practices are also deeply rooted in the values and norms in the scientific community: whose contributions are deemed intellectual versus technical, and whose methodology is more valid and credible (Liao, 2021). Power asymmetries also occur along lines of academic seniority and cultural norms of hierarchy. This can create a mentor-mentee power dynamic that complicates collaboration (Hudson, 2016). Cultural factors play a role here: teams that span different national cultures may have

mismatched expectations about hierarchy and communication (Kochan, 2013). Chinese researchers often operate within high power-distance cultures, where hierarchical deference is expected (Hofstede, 2011); US colleagues, accustomed to flatter structures, may interpret such formality as resistance or lack of initiative (Lin & Xie, 2023). Hierarchy can lead to phenomena like junior scientists doing the bulk of labour but senior authors getting the credit, a practice now being challenged by journals requiring contribution statements (Brand et al., 2015).

Gender is another crucial axis of power in international collaboration. Women remain underrepresented in scientific leadership, affecting whose voices carry authority (Keller, 2003). Although about one-third of the global research workforce, they hold only about 16 per cent of national academy seats (Ceci et al., 2023). Bias and unequal recognition persist in large teams, especially for women of colour (Ceci et al., 2023); ideas get overlooked until echoed by men, and women are steered toward coordination and mentoring rather than core science (Abramo et al., 2019). Junior women face compounded hurdles (Aksnes et al., 2019). Some international collaborations have started instituting diversity and inclusion officers or committees to monitor efforts like rotating leadership tasks, enforcing codes of conduct that prevent sexist behaviour (Misra et al., 2017). Moreover, visibility of female scientists is key. Ensuring women lead presentations, appear as corresponding authors, and serve as spokespeople helps normalise their authority in the eyes of all collaborators (Ceci et al., 2023). Overcoming gender power imbalances is not just about fairness; it leverages a wider pool of ideas and talent, strengthening the outcomes of collaboration.

In international collaborations, different disciplines and methodologies can translate into differences in status and power. Status hierarchies transfer into collaboration: biomedicine and the natural sciences often outrank social sciences due to funding and public esteem (Lyll

et al., 2013). This fosters epistemic dominance where one field's standards define 'good science' for others. Boon and Van Baalen (2019) argued for replacing a physics-style representational ideal with an engineering-style toolkit view, aided by metacognitive scaffolds to surface disciplinary assumptions. Climate research shows uneven but promising inter-epistemic work when Indigenous and Arctic knowledge are genuinely integrated (Murphy, 2011). Power also concentrates where design choices and review norms privilege certain methods. Hypothetico-deductive expectations can sideline inductive work in management and organisation studies (Woiceshyn & Daellenbach, 2018). To counter this, a stage-by-stage framework was proposed to make power visible in qualitative research collaboration and align ethical practice with methodological integrity (Karnieli-Miller et al. 2009).

Notably, power struggles and trust-building are not mutually exclusive in collaboration; they are intertwined. A high-trust environment can buffer power differences, allowing teams to address tensions transparently and constructively (Nooteboom & Stam, 2008). When partners trust each other's goodwill, disagreements over methods or authorship are more likely to be discussed in terms of the project's best interest rather than devolve into personal or political battles (Kerasidou, 2019). In such cases, conflict can even bolster mutual understanding, with each side learning from the other's perspective, creating a dynamic of constructive contention (Leversque et al., 2017). Thus, trust acts as a moderating force on power. Building trust through transparency, reliability, and mutual respect is therefore a crucial strategy for managing power: it encourages those with power to listen and those lacking it to speak up, moving the collaboration toward a more equitable footing.

Therefore, negotiation in international collaboration is inseparable from power, as disparities in institutional prestige, resource control, disciplinary authority, and social

hierarchies shape how roles are defined and whose contributions are legitimised. While strategies such as inclusive governance, equitable data access, and rotating leadership can mitigate some imbalances, deeper structural asymmetries often persist. This study seeks to examine how these dynamics unfold in the context of China's international collaboration: how China-based researchers and their collaborators navigate and negotiate power relations within globally asymmetrical research environments, and how such negotiations shape the formation, functioning, and perceived legitimacy of collaborative knowledge production.

3.4.2 Leadership and Inclusion

Guiding a diverse international team through these power complexities requires nuanced leadership. Leadership in international research collaboration is not just a matter of administrative authority or individual charisma; it is fundamentally about navigating diversities of knowledge systems, cultural practices, and asymmetries to enable the team's collective success (Chinchilla-Rodriguez et al., 2019).

Traditional command-and-control leadership models have been shown to have limited effectiveness in academia, especially in collaborations that are often voluntary and horizontally organised (Carvalho et al., 2023). Instead, contemporary thinking emphasises distributed or shared leadership, where different team members take the lead on different aspects, and leadership 'emerges' through collaboration rather than residing in one designated individual (Goksoy, 2016, p. 298). This does not mean formal leader roles like principal investigators or project directors disappear; rather, their role shifts from simply exercising power to empowering others (Muethel & Hoegl, 2010).

Principal investigators (PI) in international projects often control the budget and are accountable to funders. Effective PIs use this power strategically and ethically. Research on scientific teams suggested that the best leaders act as ‘team enablers’; they facilitate sense-making, coordinate tasks, resolve conflicts, and motivate members, while intentionally creating space for others to contribute and lead in their domains of expertise (Nordback & Espinosa, 2019, p. 329). Other PIs tried to rotate the chair of meetings or make final decisions only after obtaining genuine input from all partners (Bolden, 2011). Such an approach helps diffuse power throughout the team rather than concentrating it (Bolden, 2011). This is crucial when collaborators come from different hierarchy cultures. In a survey of 357 team members across North-South and East-West contexts, researchers found that while participants may hold different communication norms about how decisions should be made (e.g. deference, formality), they can effectively negotiate shared leadership when they possess a relatively high level of intercultural competence (Herbet et al., 2014).

Formal structures in large collaborations help distribute leadership roles. Many projects have steering committees, work package leaders, or regional coordinators to ensure that leadership is multi-nodal, spreading across institutions or disciplines, and overseen from both top-down and bottom-up (Tallberg, 2010). For instance, a steering committee that includes representatives from each country in a large-scale international project was found to enhance check balance within the team and bring diverse perspectives to the table (Diaz & Rees, 2020). Formal governance can institutionalise norms of equity. Mechanisms such as project agreements, ethical codes, and co-authorship rules were found crucial for embedding equity into collaborative practices and provide a foundation for fairer power sharing between Global North and Global South partners (Faure et al., 2021). Meanwhile, informal leadership is just as important. Often certain individuals become the glue in a team through their actions as mentors, boundary spanners, or conflict mediators even if they are not the official leader

(Potluka, 2021). Senior researchers often informally mentor younger members within a collaboration team and build their capacity, a quiet form of empowering leadership (Marion et al., 2016). Team members with high cultural competence can take on the role of translating between different cultural expectations and prevent misunderstandings (Marion et al., 2016). These informal contributions enhance trust and coherence, leveraging personal influence rather than formal authority (He et al., 2022).

Leadership in a cross-border context also demands cultural intelligence and reflexivity. Successful leaders learn to code-switch, adjusting their style to different cultural settings; some can be more directive in a context that expects strong guidance, but more consensus-seeking in a context that values egalitarian input (Zakaria et al., 2022). They are mindful of their own positionality: a PI from an elite Western university needs to be aware of how others may perceive them and can counterbalance that by showing humility and active listening (Vigier & Spencer-Oatey, 2017). Culturally intelligent leadership involves small gestures like learning a few phrases in a partner's language, or observing local etiquette during visits, showing respect and helping bridge power distances (Ahmad & Barner-Rasmussen, 2019). Ethically, leaders need to guard against using budget control to unilaterally alter project scope, and need to ensure credit is fairly allocated (Eisenbeiss, 2012). In essence, the leader's task is to manage the team's power dynamics so that no part of the team consistently dominates or is silenced (Jones & Millar, 2010). This often means sharing power, delegating decisions, rotating responsibilities, and being transparent about how and why choices are made (Jones & Millar, 2010).

It is important to note that styles of leadership can differ markedly by discipline and this also influences power relations too. Fields like biomedicine often favour directive approaches based on coordination, goal-setting, and performance accountability, reflecting

the discipline's value on productivity, competition, and standardisation (Griffin & Hamberg, 2013). In social sciences and humanities in general, evidence based on SSHRC-funded collaborative research projects found that researchers tended to favour leadership styles that were collaborative, functional, and facilitative, rather than directive or hierarchical (Chandler, 2011). Collaboration projects in the education discipline were found to develop a rich tradition of 'functional collaborative expert', someone who supports coordination, values input, and enables collective problem-solving within the academic team (Chandler, 2011). Comparatively, empirical work within economics or organisational studies suggests a stronger alignment with directive and incentive-oriented leadership. Economists emphasise contracts, control rights, and incentive structures as central to leadership effectiveness, approaches that sync with economics' affinity for formal coordination and accountability mechanisms (Li et al., 2018). Interdisciplinary research teams face unique challenges due to distinct disciplinary cultures, in relation to elements such as unique jargon, methodologies, epistemologies, and professional norms. The problem regulates the leadership strategies required for effective collaboration (Griffin & Hamberg, 2013). When teams span such different disciplinary cultures, leadership strategies need to adapt to manage epistemic diversity and reconcile competing logics of legitimacy.

Leadership and management practices in international collaboration play a critical role in navigating structural inequalities and disciplinary diversity. Through distributed leadership, inclusive decision-making, and cultural reflexivity, leaders can enable more equitable knowledge production and enhance team cohesion.

In summary, section 3.4 illustrates that power in international research collaboration is pervasive but manageable. It plays out in everyday negotiations over meanings and methods, in formal agreements and tacit assumptions, and through broader structures of

inequality spanning North–South divides, institutional status, seniority, gender, and disciplinary prestige. The key to productive and equitable collaboration lies in making these power relations explicit and subject to deliberate management: building trust to counteract fear, negotiating rules of engagement that give all partners a voice, and practicing inclusive leadership that distributes authority. When power is negotiated openly, collaborations can transform power from a zero-sum game into a shared asset. In such high-trust, well-led partnerships, diverse teams are not just managed despite their differences, but are empowered to leverage those differences creatively, leading to richer, more robust scientific knowledge that truly transcends borders.

This study examines how power dynamics unfold in the context of China’s international research collaborations, exploring how China-based researchers and their international collaborators navigate vulnerability, exercise agency, and engage with power in ways that shape the quality, equity, and legitimacy of collaborative knowledge production.

3.5 Summary

Building on the structural insights of Chapter 2, which discussed materiality, epistemology, and values and imaginaries, Chapter 3 shifts focus to the interpersonal and experiential dynamics within international scientific collaboration. It investigates how researchers enact, negotiate, and sometimes resist systemic asymmetries through practices, how trust evolves amid vulnerability and difference, and how power inflects roles, leadership, and inclusion.

The chapter opens by tracing how scientific production has become both globally standardised and deeply networked. Core routines such as peer review, shared ethical protocols, journal publication norms, and English as the lingua franca bind researchers into

an interconnected planetary system. Yet local, institutional, and individual variations persist: national policies, resource capacities, and disciplinary traditions filter how global norms are locally enacted. Institutions in wealthier nations serve as hubs, while researchers from less-resourced settings navigate these structures strategically, often engaging in epistemic brokerage to align their work with both global and local expectations. The chapter then explores the initiation, sustainability, and evaluation of collaboration, highlighting how personal ambition, professional networks, and team capacity guide initial pairing; how balancing global and local priorities becomes a constant negotiation; and how collaboration outcomes from citation impact to career visibility manifest unevenly across global, national, and individual levels.

Trust is shown not merely as a precondition for collaboration but as a continuously performed practice. Personal bonds and low-risk pilot engagements build interpersonal trust over time, especially in culturally or epistemically diverse teams. Clear communication norms and shared behavioural expectations reinforce this relational fabric. However, in unequal partnerships, reliance on goodwill alone can exacerbate vulnerability. Trust thus needs institutional anchoring in the form of agreements, ethical codes, and transparent authorship protocols to protect more vulnerable partners. Through such combined interpersonal and structural trust mechanisms, collaborations are more likely to evolve from transactional exchanges into transformative spaces of mutual learning and co-creation.

Power dynamics are embedded throughout collaboration. Negotiation takes shape through trading zones and boundary objects, tools, datasets, or methodologies that enable partial translation across epistemic divides without full homogenisation. Institutional prestige, control of key resources, and disciplinary authority often skew influence toward elite partners, yet strategies like rotating meeting leadership or equitable governance can mitigate dominance. Cross-cultural collaborations introduce additional layers, with differences in

hierarchy norms, seniority, linguistic fluency, and gender representation affecting voice and recognition. Effective leadership in this context is distributed, culturally reflexive, and inclusive, balancing formal authority with the enabling of others and promoting shared ownership. Leadership modes differ by discipline: education research tends to favour facilitative, collaborative leadership. while economics aligns more with structured, incentive-driven models.

Chapter 3 highlights that collaboration is not merely enabled by systemic structures, but dynamically shaped by how researchers live within them. Successful collaboration depends on how participants practice knowledge production, cultivate trust amid uncertainty, and navigate power, transforming asymmetries into opportunities for equitable innovation. These insights set the stage for empirical investigation into how these dynamics play out specifically in China's international collaborations across economics and education.

Chapter 4

Methodology

The overarching research question of this study is: ‘What do researchers’ experiences in international collaborations between China and four partner countries, the US, France, South Korea, and Pakistan, tell us about global and national research systems?’ Given the open and exploratory nature of this inquiry, an exploratory emergent methodology is considered appropriate for addressing this question. This choice is justified by the complexities inherent in international research collaborations, which are influenced by multiple layers of institutional, national, and global science systems, as well as varying epistemic cultures. Built on the theoretical backdrop portrayed by the previous two chapters, there is a need for inductive exploration to capture the nuances of international research collaboration in real-world contexts. An exploratory methodology involves an iterative process of narrowing down broad inquiries to specific, actionable questions that guide the research (Reiter, 2013). As the study progressed, three sub-questions were posed. They are:

1. How do researchers negotiate and experience materiality, epistemologies, values and imaginaries in international collaboration? *[Findings Chapter 5 focuses on this question]*
2. How do researchers negotiate and experience practices around trust and relations of power in international collaboration? *[Findings Chapter 6 focuses on this question]*
3. What are the similar and different negotiation and experiences of researchers in the same international collaboration? *[Findings Chapter 7 focuses on this question]*

To answer these questions, semi-structured interviews were applied as the primary research method, facilitated by the use of bibliometric methods. Both are detailed in this chapter. I also discuss my approach to data analysis, and how my own positionality and ethical considerations influenced the design and implementation of the study.

4.1 Rationale: Exploratory Emergent Methodology

Exploratory methodology facilitates the development of new theoretical insights based on the data collected, rather than testing predefined hypotheses (Reiter, 2013). It supports an iterative and recursive process of theory generation through inductive reasoning, aligning well with the broader objectives of this study. This approach is particularly valuable in contexts where existing theories may not fully capture complex social phenomena, such as the challenges faced by Chinese social scientists in international research collaborations.

Unlike confirmatory or experimental research, which aims to validate or support hypotheses and theories using quantitative and qualitative methods, exploratory research offers a more flexible approach (Reiter, 2017). Many confirmatory and experimental studies have been criticised for failing to critically assess the origins of the theories and hypotheses they examine, often neglecting the biases inherent in the research process (Reiter, 2013). As a result, these approaches may overlook the normative, historical, and power-laden dimensions of social reality, limiting their ability to fully grasp intricate social phenomena (Reiter, 2013). In contrast, exploratory research provides an alternative by explicitly recognising that ‘all research is provisional; that reality is partly a social construction; that researchers are part of the reality they analyse; and that the words and categories we use to explain reality arise from our own minds and not from reality’ (Reiter, 2017, p. 135). While the findings of exploratory

research may be less generalisable compared to those from more structured approaches, its value lies in its ability to uncover new variables, relationships, and areas of interest that more rigid methodologies may overlook (Reiter, 2017).

At the level of research methods, emergent methods offer a framework to focus on innovative and context-driven techniques that can adapt to evolving and complex social realities (Hesse-Biber & Leavy, 2006). The emergent nature is manifested in two aspects. First, I established the participant pool for interviews based on a series of bibliometric analysis. The selection of China's collaborating countries was guided by both a literature review of diverse country profiles in relation to China and bibliometric data from two major databases (SSCI and CSSCI). Four countries (US, France, South Korea, and Pakistan) were ultimately chosen for their distinctive political, cultural, and academic relationships with China. While the US was irreplaceable as China's biggest collaborator, there could be alternatives in each of the other three countries. I acknowledge that the purposive selection was partly arbitrary.

Second, during the participant recruitment phase, I successfully recruited participants who had collaborated on the same publication, in addition to unlinked interviewees. I conducted individual interviews with these linked participants, exploring their experiences and perspectives regarding the collaborative process on the joint publication. Interviews built on this approach, known as 'dyadic interviews,' enabled me to interpret the contrasts and overlaps in their accounts, leading to a deeper understanding of the social relations within the collaboration (Eisikovits & Koren, 2010). Ultimately, I recruited 11 dyadic participants and 32 unlinked participants. The decision of selecting collaborating countries and using dyadic interviews was informed by the evolving research context, rather than being predetermined

(Hesse-Biber & Leavy, 2006). I could not have foreseen the size of the participant pool or the feasibility of recruiting dyadic participants prior to commencing data collection.

4.1.1 Philosophical Underpinnings

Exploring the philosophical underpinnings of the methodological approach can help clarify assumptions about the nature of reality (ontology), and the way to know about reality (epistemology) (Pring, 2004). The methodology in this study entails a subjectivist ontology and a constructivist epistemology. These assumptions can address how I as the researcher view the social issue under study and what kind of knowledge I aim to generate in this study. They also help justify why the exploratory methodology is appropriate for this study.

The exploratory methodology used in this study builds on a pluralistic and constructivist understanding of social ontology, acknowledging social reality as complex and multifaceted rather than there being one single, objective world that exists independently of human interpretation (Reiter, 2017). Social phenomena are seen as constructed through human interactions, institutions, and discourses (Reiter, 2017). Different levels of reality coexist; individual actions, institutional norms, and broader social structures interact and shape each other (Reiter, 2017). Exploratory research highlights the uncertainty and openness of social realities rather than adopting a rigid and deterministic ontological model (Reiter, 2013). This ontological belief aligns well with the theoretical lens of the study. International research collaboration is situated in the open and ever-evolving interaction of global and national science systems, where diverse research cultures shape the practices and values of individual researchers.

At an epistemological level, exploratory studies obtain knowledge about the complex social reality through broad and tentative questions rather than specific hypotheses. It is a dialectical and iterative process, moving between theory and data, reflection and observation, and critique and discovery (Reiter, 2013). Exploratory research is open to revision and falsification; findings are not taken as final or conclusive. The researcher plays a critical and active role in exploratory research. In the process of this study, I engaged in self-reflection and critically evaluated my methods while remaining flexible, adaptable, and able to interpret complex social contexts (Reiter, 2013). I constantly questioned my assumptions and refined theories based on new discoveries to generate more nuanced findings. Additionally, exploratory research aligns with Marcuse's (1960) call for emancipation in questioning established power structures and to create a more just and equitable society (Reiter, 2013). It entails a critical lens through which to explore the power dynamics and asymmetries inherent in the international research collaborations examined in this study. It also resonates with the theoretical discussion earlier on the power relations among national and global science systems, as well as the tensions between dominant epistemic culture and the marginalised voices. This critical approach is relevant for understanding how Chinese researchers navigate diverse research spaces and how knowledge production is shaped by both global and national science systems.

4.1.2 Research Process

The overall research process is detailed below. I started by identifying a broad research question and generating one broad research question and three sub questions based on the theoretical discussion and literature review. The application of semi-structured interviews as the primary research method reflected the nature of the research question. Bibliometric

analysis was conducted to facilitate the recruitment of interview participants as well as portray overarching trends about productivity and co-authorship. This study involves an iterative process among analysing interview data, refining interview questions and research questions, and collecting more focused data. The findings were tentative and constantly evolving as more data were collected until the research questions were refined and a more systematic model could be developed. Eventually 43 interviews were conducted, including 27 China-affiliated participants and 15 non-China-affiliated participants. Three research questions were finalised. More details of the research process are illustrated in the Table 3.

Table 3. Research process overview.

	Steps	Descriptions
1	Identifying the research topic and research questions	A broad research area of ‘China’s international research collaboration’ was identified. A broad research question and three sub-questions were gradually narrowed down and refined based on literature review.
2	Applying bibliometric methods	A scoping search was tested to adjust and finalise search strings before the formal search was conducted. Bibliometric data from the formal search were then downloaded, cleaned, and curated into datasets.
3	Recruiting participants	Based on the bibliometric datasets, email invitations were sent to potential interview participants.
4	Analysing bibliometric data	Descriptive bibliometric analysis was conducted on the productivity and co-authorship of internationally collaborative publications to portray broad patterns and trends.
5	Conducting semi-structured interviews	Received some responses from participants. Consent forms were collected. Online and in-person interviews were conducted with participants.

6	Analysing interview data	An initial round of open coding and theme development was conducted based on initial interviews.
7	Generating reflective memos	Based on tentative themes and patterns, reflective memos were noted down throughout the interview and analysis process.
8	Refining research questions and interview questions	Research questions and interview questions were narrowed down and refined to focus more specifically on emerging themes and findings.
9	Conducting further semi-structured interviews	Further semi-structured interviews were conducted based on the refined research questions and interview questions.
10	Further refining findings	After conducting all the interviews, a second round of coding on all interviews was conducted based on a more refined coding scheme and themes to capture data that may have been overlooked in the initial round.
11	Reporting findings	Findings on the dyadic interviews were first written up, followed by the general synthesising writing of findings based on all the interviews.

4.2 Bibliometric Methods

While semi-structured interview is a well-positioned method to answer the broad research questions due to its flexibility and is the primary research method of this study, bibliometric methods were applied to help recruit interview participants. Information on publication details, institution affiliations, and authors' email addresses has been digitally documented in mainstream science platforms, which are downloadable for users. Bibliometric methods not only helped identify participants who co-published with international colleagues, but also

portrayed the quantitative trends of publication productivity. As such, this study combined qualitative and quantitative methods to explore the social phenomena of international research collaboration from multiple angles, leading to more comprehensive insights.

To help identify participants who have collaborated with international colleagues, this study used international co-authorship as the proxy of international research collaboration at the operational level. This proxy has been extensively applied in previous studies with discussions on its advantages and limitations (Khor & Yu, 2016; Choi et al., 2021). While the fact that co-authorship data are readily available in bibliometric databases such as Web of Science and Scopus makes it a convenient and measurable indicator of international collaboration, international co-authorship does not capture all forms of international research collaboration. Scholars may collaborate internationally through shared research facilities, data sharing, or informal intellectual exchanges without co-authoring papers; using co-authorship as the proxy may overlook informal or less-visible collaborations (Khor & Yu, 2016). In this study, I tried to mitigate that limitation by asking questions specifically about interviewees' international collaboration that did not result in co-publications and how the experiences were different from those that led to joint publishing.

The application of bibliometric methods helped identify participants and portray productivity trends of international research collaborations from a macro perspective. The integration of bibliometric results and interview results helped in gaining a more holistic understanding of the topic under study.

4.2.1 Sources

Bibliometric data were sourced from two databases, the Social Sciences Citation Index (SSCI) in Web of Science and the Chinese Social Sciences Citation Index (CSSCI).

The SSCI is one of the specialised indexes within Web of Science, focusing specifically on academic research and scholarly articles within the social sciences. While Web of Science and Scopus are both internationally recognised science platforms that document a large volume of publications worldwide, this study selected SSCI in Web of Science because it is easier to collect publication data in the field of education. As discussed earlier, this study selected Economics and Education as the two social disciplines to focus on. Web of Science and Scopus follow different systems to classify research disciplines and subject areas. In Scopus, while there is a subject area named ‘Economics, Econometrics, and Finance’, there is no separate subject area of ‘Education’. Education is included under the broad category of ‘Social Sciences’. Education-related publications can only be searched through titles, abstracts or keywords, making it difficult to squarely collect all the publication data in education. Comparatively, SSCI in Web of Science has ‘Education & Educational Research’ and ‘Business & Economics’ as two individual categories, which is easier for data collection.

The Chinese Social Sciences Citation Index (CSSCI) is a specialised academic citation index of research publications within the social sciences in China. It is similar to SSCI but focuses specifically on Chinese-language academic journals. CSSCI allows scholars to track citations of articles, identify influential papers, and assess the impact of research in the social sciences. CSSCI indexes 615 high-quality, peer-reviewed academic journals (30 from Taiwan) in the social sciences published in China, covering a range of disciplines such as ‘Economics’ and ‘Education’. CSSCI is highly regarded in the Chinese academic system and is often used to evaluate the research output of individual scholars, universities, and research institutions, as well as for assessing academic promotions (Gong & Cheng, 2022). While CSSCI focused primarily on Chinese-language journals and social sciences research conducted within China, it also contains publications authored or co-authored by non-China-

affiliated researchers. The combination of SSCI and CSSCI helps present a comparison of social researchers' activities between the international and Chinese science systems.

While the naming of disciplines and the criteria to classify journals into certain disciplines are different in the two databases, it is comparatively the most suitable way to achieve the purpose of this study, which is to explore the international research collaborations in Economics and Education studies.

4.2.2 Scoping Search

The scoping search took place in August and September in 2022, aimed to test accurate search strings in the two databases. Based on the primary focus of Mainland China in this study, academic systems in Taiwan, Hong Kong SAR, and Macau are thus not included. The scope search in SSCI found that using search strings alone cannot exclude publications that are affiliated with both Mainland China and not Hong Kong SAR or Macau. The selection of Mainland China-affiliated participants was therefore conducted with an additional round of cleaning using Python. Publications affiliated with Taiwan can be excluded using advanced search string, which was applied in this study. After addressing the issue related to Mainland China affiliation, I used the advanced search string to try collect data of co-publications in Economics and Education between China and four collaborating countries. For example, I searched for China-US economics publications in SSCI in 2016-2021 using 'CU=((PEOPLES R CHINA) NOT TAIWAN AND USA) AND WC=(BUSINESS & ECONOMICS) AND PY=(2016 OR 2017 OR 2018 OR 2019 OR 2020 OR 2021)'.

In CSSCI, the issue of Mainland China affiliation was more straightforward to address. I used the search bar function to select publications with at least one author with the

area of ‘Mainland China except Hong Kong SAR or Macau or Taiwan’ and at least one author with the area of ‘the US’, ‘France’, ‘South Korea’, and ‘Pakistan’ respectively. I then used the drop-down discipline menu to select ‘Education’ (教育学) and ‘Economics’ (经济学), choosing the timeframe of 2016-2021 in the ‘Publication year’ section.

4.2.3 Formal Search

The formal search in SSCI and CSSCI took place in January 2023 after the revisions and adjustments in search strings and scopes. The timing of the formal search allows for the data collection of the full year of 2022 so I changed the timeframe from 2016-2021 to 2017-2022. The formal search strings are similar to those in the scoping search except changes in publication year. For example, to search for China-US economics publications in SSCI in 2017-2022, I used ‘CU=((PEOPLES R CHINA) NOT TAIWAN AND USA) AND WC=(BUSINESS & ECONOMICS) AND PY=(2017 OR 2018 OR 2019 OR 2020 OR 2021 OR 2022)’. The way to search in CSSCI was also similar to the scoping search. For instance, I used the drop-down discipline menu to select ‘education’ (教育学) and used the search bar function to select publications with at least one author with the area of ‘China’ and at least one author with the area of ‘France’ (法国). I chose the timeframe of 2017-2022 in the ‘Publication year’ section to obtain data on China-France education publications in CSSCI in 2017-2022. The result of the formal search is detailed in Table 4.

Table 4. Number of co-authored publications in SSCI and CSSCI from 2017-2022.

	SSCI		CSSCI	
	Business & Economics	Education & educational research	Economics	Education
China - US	1167	2076	562	330
China - France	65	80	33	24
China - SK	83	142	38	17
China- Pakistan	78	68	15	8

The full records of selected publications were downloaded from SSCI and CSSCI for analysis and for recruiting interview participants. Analysis was mainly descriptive to illustrate the productivity scale and trajectory in Economics and Education of different country pairs, which has been presented in the introduction chapter.

4.3 Semi-structured Interviews

The semi-structured interview is an adaptable and generative method that yields rich and nuanced data. It allows the researcher to follow a guiding framework of questions while remaining flexible to explore emerging themes. It is a blend of closed and open-ended questions, balancing both consistency in data collection across participants and openness to new insights (Adams, 2015). It is suitable for exploratory research where unexpected insights may arise, requiring the interviewer to adjust their focus and probe deeper into specific areas. The role of the interviewer in semi-structured interviews is as both a guide and a listener. In this study, while I steered the conversation toward the key topics I wanted to cover, I regarded it equally important to be an active listener, allowing my participant to express their views freely. The interviewer's ability to probe or ask follow-up questions is essential to

achieve rich and nuanced data (Longhurst, 2003). During the interviews, I asked follow-up questions to help clarify vague answers, encourage elaboration, and explore unplanned issues that emerged during the conversation. The probing was enabled by extensive research on the content of the co-publications, as well as the open information about the interviewees' research interests and education background that was available on the internet.

The primary interview mode in this study was in-person interview, as face-to-face experiences can facilitate rapport building between the researcher and the participants, thus enhancing the authenticity of interview data (Bryman, 2008). Online interviews were conducted when participants encountered unforeseeable emergencies, or they explicitly expressed their preference of online interviews. Both in-person and online interviews are regarded as able to provide high quality data; digital-based interviews possess similar synchronous communication experiences with fewer geographical, time, and financial constraints (Janghorban et al., 2014).

As noted, in this study, I interviewed both China-affiliated researchers and their non-China-affiliated international colleagues to gain a more comprehensive and comparative understanding of the issue through a two-way perspective. These data provide valuable insights that can complement the primary focus on the Chinese researchers themselves, including the cultural, organisational, or communication differences that international colleagues experienced when working with Chinese researchers. Potential misalignments or overlaps from both sides can help cross-validate the experiences between international collaborators.

However, while interviews can offer rich insights, they sometimes face limitations related to fragmentation and the influence of personal interest on responses. Fragmentation can occur due to participants' inability to articulate their thoughts clearly or the unnatural

flow of the interviewer's questioning style (Adams, 2015). Moreover, the interests of both the interviewer and the participant can affect the outcomes of interviews. Participants may tailor their responses based on what they believe the interviewer wants to hear or what they perceive as socially acceptable, leading to biased or misleading information (Adams, 2015). Similarly, an interviewer's personal biases, expectations, or agenda can influence the direction of the conversation, potentially steering participants away from their authentic views. This dynamic can result in a lack of genuine expression, where participants prioritise appeasing the interviewer over sharing their true perspectives.

4.3.1 Participants

In interview participant recruitment I used the email addresses of corresponding authors of the publications included in the bibliometric dataset. I first compiled all the publication data chronologically. Then I started to send interview invitations through emails. I tried to contact all the mainland China-affiliated authors, and the authors affiliated with the US, France, South Korea, or Pakistan. When the relevant author did not list their email address in the publication, I searched public information on the internet. When I could not find the email address of that author, I moved on to the next author of the publication.

I sent invitations to potential participants from the four collaboration pairs (China-US, China-France, China-South Korea, China-Pakistan) and both disciplines (economics and education) at the same time. For instance, in the first week, I sent invitations to relevant authors (whose email addresses were available) of the first ten China-US publications in economics and first ten China-US publications in education in the list. I also sent invitations to authors in the first ten publications in the China-France, and China-South Korea, China-

Pakistan pairs in economics and education. In the next week I moved on to the next ten publications in each collaborator pair and in both disciplines.

As I wanted to explore primarily the perspectives of Chinese researchers and complemented by their international colleagues about the experiences of their collaboration, I sought to recruit more China-affiliated than non-China affiliated researchers. My original plan of participant recruitment is listed below in Table 5. I used the two-digit country code to represent the participants' affiliated countries. As the number of China-US publications are proportionally bigger than the other three groups in both databases, a larger recruitment quota is assigned to the China-US collaborations. In total I planned to recruit 48 participants.

Table 5. Original plan of the number of participants in each collaboration group and discipline.

	SSCI		CSSCI	
	Business & Economics	Education & educational research	Economics	Education
China - US	4 CN + 2 US	4 CN + 2 US	2 CN + 1 US	2 CN + 1 US
China - France	2 CN + 1 FR	2 CN + 1 FR	1 CN + 1 FR	1 CN + 1 FR
China - SK	2 CN + 1 KR	2 CN + 1 KR	1 CN + 1 KR	1 CN + 1 KR
China- Pakistan	2 CN + 1 PK	2 CN + 1 PK	1 CN + 1 PK	1 CN + 1 PK
Total	15	15	9	9

In reality, due to the lack of contact information of some authors, the unpredictability of acceptance by potential interviewees, and sometimes the time gap between sending invitation and receiving acceptance, the eventual recruitment result is detailed in Table 6. In total I sent more than 900 emails; eventually 43 participants were recruited. Among them, 27 were China-based, seven US-based, three France-based, three South Korea-based, and two Pakistan-based.

Table 6. The actual number of participants in each collaboration group and discipline.

	SSCI		CSSCI	
	Business & Economics	Education & educational research	Economics	Education
China - US	4 CN + 2 US	4 CN + 2 US	2 CN + 2 US	2 CN + 1 US
China - France	1 CN + 1 FR	3 CN + 1 FR	1 CN + 1 FR	1 CN + 0 FR
China - SK	2 CN + 1 KR	1 CN + 1 KR	1 CN + 1 KR	1 CN + 0 KR
China - Pakistan	2 CN + 1 PK	2 CN + 1 PK	0 CN + 0 PK	0 CN + 0 PK
Total	14	15	8	5

4.3.2 Dyadic Interviews

This study included 11 dyads of participants who had collaborated on the same co-publications. I interviewed them separately to ensure they could freely express their thoughts without worrying about the presence of their collaborators (Eisikovits & Koren, 2010). There is another type of dyadic interview in literature where two linked participants (usually as married couples or family members) are interviewed together and each contribute to answering the questions with interactions between the two interviewees (Morgan et al., 2013). Each type of dyadic interviews has their respective strengths and limitations. Interviewing each participant separately can encourage them to speak freely, without fear of judgment or influence from the other party, which is especially beneficial in sensitive or complex topics such as international research collaboration where participants may hold differing or even conflicting perspectives and views (Eisikovits & Koren, 2010). Additionally, separate interviews often capture the raw, personal interpretations and emotions

of each individual, which can reveal hidden dimensions in social relations and individual motivations, which is one of the foci of this study (Eisikovits & Koren, 2010).

Therefore, separate interviews allowed me to uncover contrasting narratives or unique insights that might be subdued in a joint setting, providing a comprehensive, multi-faceted view of the topic. I was also aware that without direct interaction, I might miss the opportunity to observe the dynamic, real-time interplay between participants, which could potentially offer clues about their relational dynamics, communication styles, or implicit hierarchies (Eisikovits & Koren, 2010). On the other hand, while the joint dyadic interview excels in revealing the interactional dynamics, shared meaning-making processes, and relational negotiations, it may obscure personal truths due to social desirability or power imbalances (Morgan et al., 2013). In this study I prioritised personal perspective over shared meaning-making.

Information on the dyadic interview participants and their relations is detailed in Table 7. To present the collaboration relations of the dyadic participants but still keep them anonymous, the naming system I used is to name Chinese-affiliated participants by the colours in Chinese *pinyin* (for example, ‘Cheng’ is the *pinyin* for the colour ‘orange’ in Chinese). Their international collaborators were given a common English name starting with the same letter to indicate the same group. I also include gender, affiliation, discipline, and the nature of the collaboration to provide more context of each group.

Table 7. Information on the dyadic interview participants.

	Name of China-based collaborator	Gender	Affiliation	Name of non-China-based collaborator	Gender	Affiliation	Discipline	Nature of collaboration
G1	Cheng	F	China	Chris	M	US	Economic	Visiting scholar, co-publishing in SSCI and CSSCI
G2	Zi	M	China	Zach	M	France	Economics	PhD supervising; co-publishing in SSCI
G3	Lan	F	China	Leo	M	Previously China currently Australia	Education	Ex-colleagues, informal supervising, co-publishing in SSCI
G4	Hong	M	China	Henry	M	US	Education	Visiting student, co-publishing in CSSCI
G5	Bai	F	China	Betty	F	France	Education	Colleagues in an international organisation, co-publishing in SSCI and CSSCI, co-editor
				Ben	M	Previously France currently Canada		Shared one PhD supervisor, co-publishing in SSCI, co-editor

4.3.3 Interview Questions

Aligning with the exploratory methodology, the interview questions were kept open-ended, adaptive, and generative, to explore new insights and allow themes and ideas to emerge naturally. Exploratory questions often focus on processes, motivations, and perceptions. I asked questions such as ‘What led you to make that choice?’ and ‘How did that experience impact your perspective?’ to invite participants to share more profound insights about their decisions and attitudes in international collaborations. Interview questions were refined as more data were collected to capture the emerging thoughts and themes. In addition, to test the validity of my interview questions, three pilot interviews were conducted with researchers

around me who had experience of international collaboration. Based on the pilot interview feedback, the initial version of the interview questions is detailed in Table 8.

Table 8. The initial version of the interview questions.

	Questions
1	Could you share a general picture of your collaboration on this publication?
2	Why did you participate in this collaboration?
3	How did you describe the collaboration process? Was it pleasant or difficult?
4	How did you and your collaborators decide on the research topic?
5	How did you and your collaborators decide on the theoretical framework?
6	How did you and your collaborators decide on the research methodology?
7	What were the biggest challenges in your international collaboration?
8	What were the biggest rewards in your international collaboration?
9	How do you compare and reflect on the experiences of international collaboration with other research modes such as individual research or domestic collaboration?
10	Have you engaged in other international research collaborations that did not lead to co-writing papers? (For instance, co-editing a journal with international colleagues?)

With more interviews being done, participants mentioned some aspects that could be explored further through more targeted questions. For instance, the writing up of the publication was a crucial phase where challenges emerged, additional to the challenges in key stages like choosing topics, theories, and methods. Additionally, many participants discussed the influences of research evaluation systems and promotion system on the collaboration dynamics, as well as how different systems and norms could lead to frictions. Eventually the interview questions expanded to the version in Table 9. Details on interview data analysis are presented below.

Table 9. More refined interview questions.

	Questions
1	Could you share a general picture of your collaboration on this publication?
2	Why did you participate in this collaboration?
3	How did you describe the social relations among colleagues in the collaboration?
4	How did you and your collaborators decide on the research topic?
5	How did you and your collaborators decide on the theoretical framework?
6	How did you and your collaborators decide on the research methodology?
7	How was the implementation and analysis process among you and your collaborators?
8	How was the write-up process among you and your collaborators?
9	How did you perceive the influences from your department and university on your experiences in international collaboration?
10	What resources and support did you get to facilitate your experiences in international collaboration?
11	How do you perceive the influences of international collaboration in the way you understand research and researchers?
12	How do you compare and reflect on the experiences of international collaboration with other research modes such as individual research or domestic collaboration?
13	Have you engaged in other international research collaborations that did not lead to co-writing papers? (For instance, co-editing a journal with international colleagues?)

Interviews lasted from 45 to 100 minutes. The interviews with Chinese speaking participants were conducted in Chinese and others were conducted in English. Before the start of each interview, I asked the participants to sign the consent form about issues around audio-recording and data storage to ensure that they were aware of the stakes involved. In the cases when participants did not wish to be audio recorded, I took notes during the interview to try to capture most of our conversation.

4.4 Data Analysis

Data analysis includes three parts, descriptive bibliometric data analysis, dyadic interview data analysis, and unlinked interview data analysis. Bibliometric data were analysed before conducting interviews to identify the broad trends of productivity, providing some reference for developing interview questions. A first round of analysis of initial interviews was conducted before conducting further interviews. After all interviews were conducted, a second round of analysis started with dyadic interviews followed by the rest.

4.4.1 Bibliometric Data Analysis

Bibliometric data were analysed in Excel and presented in the form of tables and line charts. I compiled the year-on-year publication productivity data from 2017 to 2022 for Economics and Education publications from the two databases in an Excel spreadsheet. I then put the data into two tables to present the productivity scales of the four collaborating pairs in Economics and Education in SSCI and CSSCI respectively. I also generated line charts to present a trajectory of change in the productivity of each collaborating pair over the six-year period. The tables and figures have been synthesised and presented in Chapter 1.

4.4.2 Transcription and Translation of Interviews

Interviews in English were transcribed in an intelligent verbatim way. I excluded unnecessary fillers and redundancies, focusing on a cleaner transcript that maintains the essence of what was said as linguistic nuances were not the focus of this study (Halcomb & Davidson, 2006). Minor grammatical adjustments were made for readability, but the original meaning was kept

(Halcomb & Davidson, 2006). I manually typed each segment based on my audio recordings and labelled 'interviewer' and 'participants' along the process (Halcomb & Davidson, 2006). I transcribed and analysed each interview within two days after it was done to keep the memories and thoughts fresh. Transcription was done in NVivo (v12).

Translating interviews in Chinese into English involves additional layers of complexity compared to standard transcription, as it requires not only accurately transcribing the original language but also effectively translating cultural nuances, meanings, and subtleties from Chinese to English (Temple & Young, 2004). I first transcribed the interview in Chinese in an intelligent verbatim way to ensure that the original conversation was captured before translation began. I then began with a literal translation of the transcripts into English, focusing on preserving the structure and original wording (Temple & Young, 2004). I tried not to interpret beyond what was said directly said to avoid prematurely adding any bias or altering meaning. As Chinese language is often embedded with idioms, cultural references, and indirect expressions that do not translate directly into English, I made explanatory footnotes or in-text clarifications where necessary in the second round of refined translation.

I applied 'backward translation' to ensure the rigor and reliability of my translation. I invited colleagues from the Department of Education at the University of Oxford who are fluent in both English and Chinese to translate the long quotes that were originally said in Chinese but later translated in English by me. I invited them to translate these English quotes back to Chinese and see whether the two Chinese versions vary hugely. By doing so I could identify discrepancies in meaning that may have emerged during the initial translation. This helped ensure that the original nuances and meanings in the interviews were preserved. In the findings chapters of this thesis I conducted backward translation on all the block quotes above 40 words. I present one example below.

Step 1: Original interview transcripts in Chinese:

其实就是没有方法的办事，就是我读的书足够多，然后我自己建立的理论的框架体系，然后我去说，我说的有道理就可以，没有说完全的去规范去严谨，甚至有理论基础和理论框架，就是说还是经验主导吧，经验主义，结合我的工作实际，然后再结合我们的，甚至我们的本土文化，结合马克思主义的哲学观。

Step 2: My translation from the original transcript:

It actually means doing research with no methodology. They [the 'sibian' researchers in China] think if they have read enough and established their own theoretical framework, making it sound logical and persuasive, it is good research. They do not fully follow the rigorous procedures or methodologies. They are more experience oriented. They make their arguments based on work practices, Chinese local culture, and Marxist philosophy.

Step 3: Backward translation to Chinese by colleague based on my English translation:

这意味着进行没有方法论的研究。他们[中国的“思辩”研究者]认为，他们已经有足够的阅读量来构建自己的理论框架，使之兼具有逻辑性和说服力，那么就是优秀的研究。他们更注重基于经验，而不是遵循严格的程序或方法论。他们的论点基于工作经验、本地文化和马克思主义哲学。

The backward translation showed that about 90 per cent of the author's translation was similar to the colleague's translation, suggesting adequate quality for interview analysis.

4.4.3 Thematic Analysis

The analysis of interview data in this exploratory study aims to uncover patterns, themes, and insights into international research collaboration in China. The data analysis process was designed to remain open to new interpretations and grounded in participants' perspectives.

This section outlines the thematic analysis approach taken to analyse interview data, detailing each step from initial familiarisation to theme development.

Step 1: Data Familiarisation

The first stage of the analysis involved deep familiarisation with the interview data.

Transcribed interviews were read multiple times, and audio recordings were reviewed alongside transcripts to capture subtle nuances. During this process, initial notes were taken to capture emerging insights, recurring phrases, and initial reactions. This groundwork helped establish a foundation for a systematic coding process and identified early patterns that would later evolve into key themes (Punch & Oancea, 2014).

Step 2: The First Round of Open Coding

An open coding approach was conducted as the first round of analysis. It is a flexible process allowing for the development of codes directly from the data without any preconceived categories (Punch & Oancea, 2014). Each interview was transcribed and analysed within two days after it was done to capture the freshest memory. In this stage, data segments were broken down into discrete units and assigned descriptive codes. Open coding was particularly suited to the exploratory nature of this research, allowing for the emergence of unexpected concepts and minimising researcher bias. Broad codes include ‘academic cultures’, ‘discipline paradigm’, and ‘structures of IRC’.

Step 3: Categorising and Grouping Codes

After initial coding, the codes were reviewed and organised into broader categories to begin identifying patterns within the data. This stage involved grouping similar codes together under common categories, such as 'Empirical and conceptual' and 'Theory application and innovation', based on their similar meanings and relevance to the research questions. This grouping allowed for an iterative refinement, where codes were continuously revisited to ensure their fit within categories, enabling a clearer organisation of the data. An early version of codes is presented in Figure 6.



Figure 6. An early version of categorising and grouping codes.

Step 4: Theme Development

With categories established, broader themes were identified from the data. Thematic analysis enabled the transformation of specific codes and categories into overarching themes that

captured the central ideas within the data (Punch & Oancea, 2014). Themes like ‘Social dynamics of collaboration, conflicts, inequalities’ and ‘Expectations, norms and values’ surfaced as repeated ideas that encompassed multiple categories and reflected participants’ collective experiences and insights. Thematic analysis provided the flexibility necessary to capture both recurring patterns and unique variations across interviews. By engaging in a constant comparative approach, each theme was reviewed against the original data to verify that it accurately represented participants’ perspectives and did not merely reflect my own interpretations. A more refined version of the themes is presented in Figure 7.

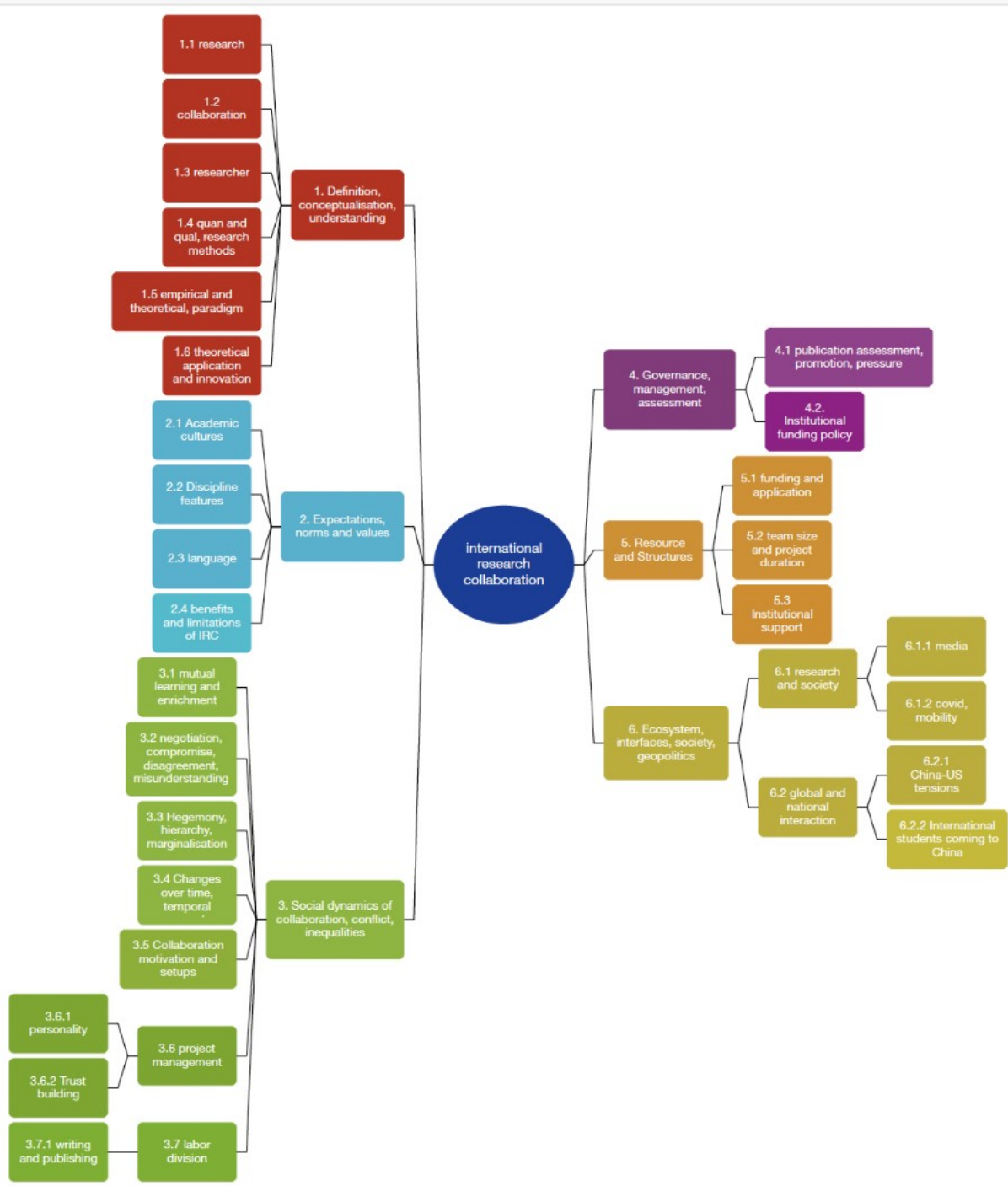


Figure 7. The refined version of themes.

Step 5: Interpretive Refinement and Memo Writing

Interpretation involved moving beyond themes to understand the underlying meaning and implications. To capture these insights, analytic memos were noted down throughout the analysis to document fleeting reflections on emerging themes, connections, and my interpretations. Memo writing was integral to maintaining a reflexive approach, which helped mitigate biases and provided a transparent record of the analytical decisions made during the process.

Step 6: The Second Round of Coding on Dyadic Interview

On the second round of coding based on the more refined codes and themes, I started by coding the dyadic interviews. I comparatively analysed where participants' stories align or diverge while focusing on both shared experiences and individual perceptions (Morgan et al., 2013). I looked for unique and overlapping themes to provide a nuanced view of individual versus shared perspectives (Morgan et al., 2013). I also analysed why discrepancies sometimes exist between two accounts, which yields insights into relationship dynamics, individual roles, and personal biases in their collaboration experiences (Morgan et al., 2013). I then wrote up the findings about the dyadic interviews.

Step 7: The Second Round of Coding on Non-dyadic Interview

I conducted a second round of coding of the non-dyadic interviews with the more refined codes and themes to capture the data that may have been overlooked in the first round. I then

used the codes, themes, and the reflective memos of all the 43 interviews including the dyadic interviews to write up the remaining three chapters of findings. They are summarised in the 'Introduction' chapter of this report.

The thematic analysis of interview data in this study adhered to a rigorous, iterative, and inductive approach characteristic of exploratory research. Through open coding, thematic analysis, and interpretive refinement, the process yielded rich insights into researchers' experiences in international research collaborations, and highlighted commonalities and unique aspects of participant perspectives. The presentation of interview findings is included in three chapters. Chapter 5 and 6 present findings based on all participants and Chapter 7 presents findings based on dyadic participants. The discussion in Chapter 8 integrates findings from both bibliometric data and interview data.

4.5 Reflexivity and Positionality

As briefly noted in the introduction, my approach as a researcher to knowledge and understanding of social realities is inherently situated, shaped by my background, identity, and experiences (Reiter, 2017). What I can perceive about the social reality is determined by who I am and where I stand. In this section I critically reflect on how my own motivation and positionality may have influenced the research design, implementation, and analysis. My positions may have also affected how I was perceived by my participants and what type of information they chose to share or withhold (Reiter, 2017). Reflecting explicitly on my potential biases, limitations, and partial views as a researcher can help ensure that the analysis remains largely grounded in the participants' perspectives, rather than being excessively filtered through my own lens.

My motivation for undertaking this study was deeply tied to my own learning experiences within Chinese and the UK academic systems. I did my undergraduate education in Guangzhou, Mainland China and subsequently came to the University of Oxford for the master's. I am currently a PhD student supervised by two distinguished professors. My learning experiences have been transformative in every aspect of my personality and worldviews, shaping my interest in exploring how individuals navigate educational and academic environments across borders. My own education journey has informed my understanding of the nuances in the research collaboration experiences of my participants. I acknowledge that this study not only contributes to scientific advancement with more understanding about the issue of international research collaborations but also fulfils my own personal curiosity.

Moreover, my position as an emerging researcher within the global science system adds another layer of complexity. I am both an insider and an outsider within the academic community: as someone navigating the same global structures as my participants, but also a researcher critically examining these structures. This dual role may have introduced tensions, as I simultaneously benefit from and critique the systems I am embedded within. Understanding and addressing these tensions is crucial in maintaining the integrity and authenticity of the research findings.

In the phase of interviews, my identity as a Chinese PhD student at Oxford University under the supervision of two prominent professors may have influenced the openness and depth of the information they share with me. On the one hand, my affiliation provided me with a certain level of credibility and legitimacy in the academic community. This may have influenced participants' responses and willingness to engage. They may have shared more favourable or agreeable perspectives during the interviews. On the other hand, my identity as an early-career researcher placed me with less power relative to my participants, many of

whom were established or influential academics within their fields. They may have thought it was not worth the time to talk to me or may have withheld insights that were deemed sensitive or inappropriate for someone at my academic stage.

In terms of cultural understanding and context, my identity as a Chinese citizen born and raised in Mainland China may have influenced the dynamic of interviews with Chinese and non-Chinese participants differently. For my Chinese participants, they may have felt a sense of comfort and relatability knowing I share a similar cultural background. This shared context may have fostered open dialogue and trust, encouraging them to express their thoughts more freely. They may have navigated topics such as hierarchy, face-saving, and indirect communication with me more effectively than someone from a different cultural background. They may also have viewed me as an insider and thus were more willing to share insights or critical opinions about the Chinese institutions and academic environment. Additionally, I conducted interviews with Chinese participants in the Chinese language. The fluency may have created a more relaxed environment, reducing language barriers and allowing participants to articulate their thoughts more clearly. For my non-Chinese participants, there may have been a lower level of comfort stemming from different cultural norms and language barriers. I was conscious of these contextual nuances and tried to approach them in a sensitive way so that the overall validity of my findings was not hugely affected.

In summary, I approach this research with a keen awareness of my positionality and the interplay of power dynamics. By critically engaging with my biases and limitations, I aim to provide a more nuanced understanding of the experiences of researchers engaged in international collaborations.

4.6 Ethical Considerations

Ethics in social research involve the consideration of a set of principles that embody or exemplify what is good or right and serve as a guidance to identify what is bad and wrong (Hammersley & Traianou, 2012). For instance, as the researcher of this study, I was concerned for the interests, feelings, and rights of my participants rather than merely following my own interests (Hammersley & Traianou, 2012). I acted thoughtfully in addressing emergencies in fieldwork. Below I discuss issues of the risk of harm, the autonomy and informed consent relevant in this study.

Firstly, I respected the autonomy of my participants and believed that they had the freedom, capacity and perspectives to decide what is best for them (Faden & Beauchamp, 1986). I obtained informed consent from my participants before interviews, which included the right to withdrawal from the study at any point (Boulton & Parker, 2007). A consent form was used in this study to keep a written record of what was agreed. An information sheet was sent to participants detailing the purpose and summary of the study (e.g. research objectives, rationale of participant selection, potential benefits and harms), the form and features of interviews (e.g. time duration, interview place, online or in-person, how sensitive the questions can be), the storage and use of interview data (e.g. audio recording, storage place and time, use for dissertation or publication). Obtaining consent helped me establish and sustain trust with my participants. I also strove to foster an environment of trust and openness during interviews, allowing for a more authentic representation of their experiences and insights. Participants were assured of the confidentiality of their responses in reporting my findings, and pseudonyms were used to protect their identities.

The second ethical consideration touches upon the risk of harm to participants, which can be defined as the ‘thwarting, setting back, or defeating of’ one’s well-being (Feinberg,

1984). In my study, some participants underwent emotional distress when talking about their traumatic experiences in collaboration; I checked if they would like to continue with the interview or withdraw from the interview. A week after our interview I checked with them again if they were still willing to engage in the research. Similar to what is illustrated in the university's 'Best Practice Guidance 06 Version 7.1' on the issue of 'Internet-mediated research', I found that conducting interviews online made it more difficult to tell whether the participants needed a break or were feeling upset. I paid extra attention to participants' mental status in online interviews.

Regarding researcher virtues, I consciously upheld a sense of dedication and independence during the research process. I was aware that my single task was to produce knowledge about the patterns and dynamics of international research collaborations rather than acting as an activist for certain policies, or as an entrepreneur pursuing profits (Hammersley & Traianou, 2012). I did not privilege certain database or certain universities because they had a good reputation or high status. I was committed to defending my research against outside pressures that threatened effective research implementation, especially when my research questions can be sensitive to political ideologies (Hammersley & Traianou, 2012). I tried my best to exercise my independent judgement throughout the research project. More specific ethical considerations were reviewed and approved by the Central University Research Ethics Committee (CUREC).

4.7 Limitations

This study, while aiming to provide insights into researchers' experiences with international research collaborations in Economics and Education studies in China, has several limitations that need to be acknowledged.

The exploratory nature of this research means that the findings may not be broadly generalisable beyond the specific contexts of the participants involved. The study focuses on a select group of researchers from China and four collaborating countries, which may limit the applicability of the insights to other regions or fields of study. As the sample size was constrained to 43 participants, primarily drawn from specific disciplinary backgrounds, the experiences and perspectives captured may not represent the full diversity of international collaborations in the broader research community. Future studies can expand the disciplinary scope to other social sciences or natural sciences.

The reliance on bibliometric methods for participant recruitment introduced potential selection bias. The use of co-authorship as a proxy for international collaboration may overlook other forms of collaboration, such as informal exchanges or research partnerships that do not result in co-publications. This reliance may have skewed the findings towards those with formalised research outputs, potentially neglecting the experiences of researchers engaged in less visible collaborative efforts. To mitigate this limitation, interview questions have explicitly included researchers' experiences of international collaboration that did not result in co-publication, to capture as much as I could of collaborations that were not based on co-publications.

For participants who were interviewed in Chinese, the process of transcription and translation into English presents inherent challenges. Nuances and culturally specific expressions may have been lost or misinterpreted during translation, which may have affected the authenticity and accuracy of the participants' accounts in the final analysis. To address this issue I have applied backward translation for block quotes over 40 words used in the findings chapters, as noted. I will follow similar procedure for the remaining three findings chapters. In cases where the backward translation and my own translation varied hugely, I

critically compared the two versions and made careful adjustments to ensure I have captured the nuances of the interview data.

The experiences of researchers in international collaborations can be highly contextual, shaped by specific institutional, political, and cultural factors. While this study aims to explore the nuances of such experiences, the dynamic nature of international relations, particularly in the current geopolitical climate, relative to the chosen timeframe of 2017-2022 means that findings may have reflected only a snapshot in time. The rapid evolution of academic collaboration and shifting global power dynamics may further complicate the relevance of these findings in future contexts, which need to be further enriched by future studies.

In summary, while this study contributes valuable insights into the experiences of researchers in international collaborations, these limitations underscore the importance of contextualising findings and exercising caution in generalising the results beyond the studied sample and timeframe. More future studies are needed to further the understanding of the issues of international research collaboration.

Chapter 5

Collaboration Structures: Materiality, Epistemology, Values and Imaginaries

5.1 Introduction

This chapter examines the material, epistemic, and normative foundations that shape how researchers conceive, approach, and imagine international research collaboration before and during their lived experiences within collaboration practices. Drawing on the accounts of participants from a range of national, disciplinary, and career backgrounds, the analysis foregrounds how interacting systems of science, entrenched knowledge hierarchies, and inherited intellectual traditions inform researchers' collaborative orientations. These orientations encompass not only pragmatic considerations such as funding availability, institutional support, and language capacity but also deeply rooted beliefs about the purpose of scholarship, the legitimacy of different epistemic traditions, and the criteria by which academic value is assigned. This chapter seeks to address the first research question:

How do researchers negotiate and experience materiality, epistemologies, values and imaginaries in international collaboration?

The chapter is organised into three thematic sections. The first examines material structures, showing how disparities in funding access, administrative capacity, and research infrastructure create uneven starting points for international engagement. The second

considers epistemic traditions, exploring how disciplinary conventions, methodological preferences, and intellectual lineages prevalent in different countries shape what counts as credible or valuable knowledge. The final section turns to values and imaginaries, analysing how participants' visions of collaboration are informed by scientific ideals, educational backgrounds, and notions of innovation and global positioning. Taken together, these sections illustrate the asymmetrical terrain on which international collaborations are established and practiced. The terrain is shaped by historical differences, cultural predispositions, and normative frameworks that often precede the first act of joint research.

5.2 Material Structures

Section 5.2 examines the material and institutional structures that shape the terrain on which international collaborations are situated. These conditions from access to funding and administrative flexibility to evaluation systems and geopolitical alignments form the structural backdrop that researchers need to navigate often before the project begins. Rather than operating on a level playing field, participants described entering collaborations from markedly unequal positions, with disparities between countries, universities, and even departments influencing who can participate, on what terms, and with what resources. While some scholars benefit from generous state support, streamlined mobility frameworks, or well-resourced research environments, others encounter bureaucratic hurdles, minimal institutional backing, or limited opportunities for professional development. Publishing norms and performance metrics further shape the strategic choices researchers make, as they negotiate between national priorities and the expectations of international peers. These dynamics are further inflected by geopolitical tensions and pandemic-related restrictions, which have deepened pre-existing inequalities and introduced new forms of structural constraint. At the

same time, participants' accounts also reveal adaptive strategies and the creative use of regional or alternative networks, hinting at possibilities for more equitable and less politically vulnerable forms of collaboration.

5.2.1 Institutional Infrastructures and Uneven Capacities

Participants consistently highlighted how material infrastructure and institutional support both enable and constrain every stage of international collaborative research. From access to funding and data to administrative flexibility and language training, institutional infrastructures profoundly shape who can collaborate, under what conditions, and to what extent.

Participant US-3 found that large-scale international projects are far more accessible to faculty at research-intensive universities, which have better administrative infrastructure to support international collaboration.

These include systems to release faculty from teaching, funding to support international travel, and admin staff to facilitate bilateral communication. But institutional disparities often create tensions. Funding differences between institutions can cause envy and awkwardness in international teams. If that conflict isn't managed, collaborations can fall apart. (US-3)

While research-intensive universities were found to have better infrastructure to support international collaboration, US-1 believed that university researchers in the US generally have a heavy workload of teaching and student advising compared to other countries – 'Some of my international collaborators can have more of a full-on research environment'.

SK-1 felt under-supported by his South Korean university, especially in comparison to his China-based collaborators. He noted that Chinese researchers often received substantial

funding from the government to attend international events and host foreign visitors. 'Korean universities in general provide limited financial support for either international communication or domestic infrastructure. Even these two monitors, I had to buy them myself.' (SK-1)

By contrast, participant SK-2 reflected on her involvement in a 17-country collaborative project. Her university in South Korea provided essential administrative and financial support, without which she would not have been able to participate, as the project itself offered no funding. She said,

For large-scale international projects, institutional support in terms of funding and access to data is crucial, especially for early-career researchers who do not have as many personal connections or funding resources as more established researchers do. But institutional support can sometimes add to workload when there is an excessive amount of paperwork. (SK-2)

US-2, a scholar of Turkish nationality, also noted the importance of funding support for international travel and communication,

In Turkey there's no institutional or national policy that support or encourage international collaboration. But if they want something like that from us, they need to provide separate grants and incentives. I found my international collaboration with my own effort. Nobody did anything for that and it's very difficult. (US-2)

Comparatively, US-2 had more institutional support when she was affiliated with a US university in terms of finding international collaborators and accessing a certain dataset and participant groups. Institutional support varies hugely across countries from her perspective. Nonetheless, CN-8, a senior economics researcher, held a critical view of research funding allocation in China:

I personally think China has given too much money to research per se but overlooked the more fundamental elements in the broader system. We still haven't created an environment where researchers can truly focus on science. They're pulled in all directions by policies and commercial pressures... Little of the funding targets basic science that can drive real innovation. (CN-8)

Lack of facilitative policies for resource sharing was reported to have obstructed international work. CN-15 highlighted that it was more difficult to obtain official approval for certain types of data collection in China when foreign funding agencies or international research partners are involved. CN-15 encountered an instance where his China-based colleague, a senior researcher, abandoned a promising UK-China project because of institutional hurdles. CN-15 eventually overtook the work:

He was interested in the topic, but the administrative procedures were too complicated. UK funding couldn't be transferred to individual Chinese accounts—it had to be routed through university accounts. And it wasn't even recognised in the evaluation system. Eventually, he dropped out. I took over because I wanted to build my international visibility as an early-career researcher and was willing to endure the hassle. (CN-15)

Difficulties in initiating international collaboration due to policy barriers were also reflected in this study's participant recruitment: some potential participants declined my interview invitation because of the complex paperwork required to engage with researchers from overseas institutions.

Several early-career-researchers mentioned the lack of professional support at the institutional level as a major barrier to advancing their work at an early stage. US-2 argued that universities should set more structured mentorship program pairing early-career-researchers with senior researchers to better share resources and experiences:

I wish professors could spare more time for new researchers. Maybe they can allocate one day or a few hours to help develop novice researchers' projects. I personally see it as a duty to help younger researchers when they reach out to me because not everything is written in books – experiences are also important. It will help them at least to boost their confidence. (US-2)

Additionally, several participants noted a lack of institutional support for English language training. Participants did not regard publishing English-language journals as 'better'

but noted that English had become the default lingua franca in international settings, posing an implicit structural barrier to non-Anglophone researchers. As Ben said, ‘I am personally committed to promoting French academic writing, but I acknowledge that, pragmatically, most international collaborations still default to English.’ While China and South Korea-based scholars are often praised for their methodological skills, SK-1 emphasised that greater English proficiency could facilitate researchers from both countries in international collaboration.

Participants reported that China-Pakistan collaboration can benefit from various institutional support such as language training, admission reform, and scholarship provision. The collaboration primarily takes the form of China-based researchers collaborating with former Pakistan students studying in China. CN-1, who supervised several Pakistani students, believed Chinese language training was needed for international students to foster two-way communication and potential collaboration.

I collaborated with my students from Pakistan to co-publish English articles because they are better at English writing. But our weekly group meetings are in Chinese and many Pakistani students struggle to follow what’s going on. They can’t convey well their ideas and sometimes feel isolated in the group. I think the university should do more to cultivate international students’ Chinese proficiency. (CN-1)

PK-3 echoed these frustrations, saying that language barrier was the biggest difficulty during his study in China. Additionally, international students have varied levels of academic preparedness as the institutional admissions process does not have a standard criterion to screen for academic ability (CN-22). Some China-based researchers struggled to supervise Pakistani students with limited academic or social skills:

I helped one of my Pakistani students secure a government scholarship, but he didn’t seem to be very grateful for it... He needs the help of me and my other students with many little things, but our good intention to help out often seems to hurt his self-

esteem. He was like a little hedgehog. There were quite some cultural conflicts. It was tough. (CN-13)

Academically, she added: 'He attended seminars, but his ability was limited. I lowered the bar, and he still struggled.' Additionally, CN-22 explained, the disadvantages of admitting underprepared students were even more severe for collaborating supervisors in fields like the natural sciences:

If the students can't run experiments properly, it drags the whole team down. We have strict quotas on how many students we can supervise—so if some student can't contribute, it's a big loss. That's why nobody actively wants international students, but we have international student quotas to fill. (CN-22)

Still, CN-13 noted that not all international students posed difficulties: 'I've had great experiences with students from Malaysia, South Korea, and Russia. It depends on preparation and mindset.' These comments suggest that a lack of academic screening and cultural preparation, not nationality per se, was at the root of many difficulties when establishing collaboration with international students from Pakistan and beyond. Participants believed that more institutional efforts were needed to transform international students into long-term international collaborators in China.

Similarly, PK-2 proposed to her departmental leaders that they should establish more structured programmes to facilitate in-person academic exchanges and collaboration:

I wanted to work with this scholar in London but he said he was too busy. I know it's partially because I'm a nobody from a non-elite university in Pakistan. But maybe if we had met in person, things would have been different. Trust is built through face-to-face contact. We need more faculty exchange programmes—both domestic and international. (PK-2)

Despite Pakistan's positive policies on international research, PK-2 noted that the financial constraints in Pakistan continued to strain the implementation of more institutional infrastructure. She said that material support, access to infrastructure, and structured

communication projects remained essential preconditions to cultivate trust and establish collaboration across borders.

Participants' experiences reveal that disparities in infrastructure capacity and institutional support across national contexts and university types directly influence the feasibility and quality of international collaboration. They found that when infrastructural, administrative, or linguistic support is lacking, researchers face structural barriers that not only constrain participation but also complicate the trust and reciprocity foundational to meaningful scholarly partnerships.

5.2.2 Publishing Regimes and Academic Incentives

In addition to institutional infrastructure, participants observed that publishing norms and evaluation systems encode national epistemic traditions, disciplinary hierarchies, and institutional priorities that shape how scholars engage in international collaboration. These regulations were found to affect everything from methodological choices and journal preferences to perceptions of academic value and career risk.

As discussed in Chapters 2 and 3, Chinese social science research is characterised by distinctive thematic priorities and paradigmatic orientations, which, according to participants, give rise to publishing expectations that often diverge significantly from those of Euro-American journals.

Participant CN-7, whose work bridges economics and media studies, was encouraged by senior colleagues in China to produce more experiment-based research that leveraged her methodological training in the US. She explained:

Experimental studies are less common in China. I could publish a single-experiment study in a Chinese journal, but it would be considered too simplistic for an American one... English-language journals usually require longer, more in-depth discussion sections, whereas Chinese papers tend to be more concise, often linking findings directly to broader policy implications. I'm still adapting to that. (CN-7)

Nonetheless, some China-based researchers like CN-23 are not trained to conduct experiment-based studies, limiting their capacity to publish in English language journals. Meanwhile, 'Playing the national game to publish in Chinese language journals requires much academic capital and connections, which we don't have.' CN-23 described how his team situated in a non-elite university in western China broke through their publishing quandary by collaborating with international scholars and sometimes even hiring them as part-time staff:

We later found it a good collaboration: we have the data and research ideas but lack knowledge about conducting experiments and international publishing norms. Collaborating with these international scholars means we can now play the international game rather than only the domestic game. And we have been learning to conduct experiments ourselves. (CN-23)

Several participants highlighted the centrality of academic capital and *guanxi* (connections) in navigating the Chinese publishing regime. CN-8 asserted that 'editors of top journals have absolute discourse power', while CN-4 noted, 'You need connections to publish in top journals. I think there's quite some academic corruption in China.' Additionally, certain sensitive topics are restricted. PK-1, for example, described the difficulty of publishing research on Muslim students in China due to religious sensitivities.

CN-15 offered a scathing critique of some unethical behaviour in the Chinese publishing system:

China's publishing system just isn't healthy, caused primarily by some senior professors. A lot of them have distorted research values. Honestly, this problem is way worse in China than elsewhere. Some skip ethical approval or cut methodological corners for fast results. Some use students as cheap labour. It's more about publication counts and practical applications, not rigour. (CN-15)

In other countries, 'you have to pay your students to make them work for you' (Ben). CN-15 listed two types of problematic scholars: 'One type pretends to care about ideals while chasing fame; the other openly exploits students and trashes academic standards. Both are poison.' Despite these critiques, CN-15 acknowledged the theoretical and technical competence of those being criticised: 'You don't become a paper-pumping machine without mastering the system. But they're soul-dead—just grinding. Comparatively, European scholars often romanticise research over coffee, but half of them don't understand the grind.' (CN-15)

He articulated a strategy to survive the system:

A scholar needs both the Buddha heart (菩萨心肠) and the warrior hand (金刚手段) – upholding research principles in the heart and training research skills in the hands. Many European scholars have the research ideals but lack the execution muscle. Meanwhile, some Chinese scholars wield exceptional technical prowess, but their initial idealism has been eroded in academia's ruthless competition – they've become experts at slaying dragons but forgotten why they picked up the sword in the first place. (CN-15)

China-based researchers' emphasis on publication volume is also evident in how they introduce themselves.

When Chinese researchers introduce themselves, they often emphasise the number of top funding projects they have led and the quantity of articles they have published in prestigious journals. Rarely do they highlight the theoretical contributions of their work. There is a focus on quantity over substantive content. (CN-8)

The strict hierarchy and ranking of both English language and Chinese language journals also seem to be a hallmark of the Chinese publishing system. While US-1 acknowledged that journal rankings can lead to excessive competition, he also noted the positive effects of such emphasis on rankings.

I think there are benefits in how heavily the decision makers in China prioritise journal rankings. There's not nearly that emphasis in many other countries. I think it puts pressure on researchers in China to make sure that they get things right and the quality of collaboration is enhanced by the felt pressure to do good work. (US-1)

Participants based in South Korea reported a similar emphasis on productivity and efficiency in their publishing system, creating common ground for China-South Korea collaboration (SK-1). SK-1 described how authorship credit is allocated in South Korea's system: single authorship counts as 100 per cent, first or corresponding authorship earns 66 per cent, and other co-authors receive 33 per cent. Researchers often alternate primary roles to maximise outputs. SK-1 noted that these norms were closely aligned with prevailing academic practices in China, which facilitated the success of over five collaborative projects with his China-based partner.

Comparatively, the US system places less emphasis on publication metrics and more on methodological rigour, as US-1 explained:

I sometimes need to remind my Chinese collaborators to slow down and prioritise the credibility and robustness of our results before rushing to publish. In the area of economics, the ability to find things is not rare, but you always need to put the brakes on and say, look, let's make sure that we have this right before publishing it. (US-1)

The Japanese publishing system seems to be different from that in China or in South Korea, as CN-8 noted:

Japanese researchers enjoy significant academic freedom in selecting research topics of their own interest, coupled with less pressure on publication volumes. Japanese researchers don't care about top-tier journals as Chinese researchers do—they prefer to publish in their own universities' journals. (CN-8)

Closely intertwined with the publishing system, the institutional promotion system plays a pivotal role in shaping researchers' imaginaries and practices surrounding scholarly work and international collaboration.

CN-8 noted the dilemma faced by junior scholars in balancing productivity and theoretical depth:

Only senior professors can propose new theories. For the rest of us, applying some existing theories is safer. The system won't wait five years for a risky breakthrough... The empirical approach is easier to operationalise than crafting abstract concepts along the *sibian* tradition. (CN-8)

CN-1 echoed the risks:

I would take a massive risk if I put all my efforts into making theoretical breakthroughs over three to five years. If my work isn't recognised, all my time and energy is wasted, and I might lose my job because I don't meet the annual evaluation requirements. Only a small handful of brave men dare to embark on such an uncertain journey. (CN-1)

US-4 made a similar point based his perspective: 'Compared to other international scholars I have worked with, Chinese researchers are much more likely to use routine statistical methods than to try new ones.'

For some early-career researchers, international collaboration offers reputational benefits despite limited institutional reward. CN-15 said: 'It's like losing money to build hype (赔本赚个吆喝). It doesn't pay off now but builds global visibility for the future.'

Several interviewees described changing their views on international collaboration after tenure. CN-9 explained: 'Co-writing with international colleagues takes a lot of time and effort. When I was early-career, I needed the outputs. Now, post-tenure, I don't need to chase productivity as much.'

CN-16 stressed the importance of choosing collaborators at the right stage:

You need someone who's active themselves and can also push you to work. Those who are associate professors and aspire to become professors are the best choice. After they become professor, they are much more relaxed. I have a collaborator who just became professor – he hasn't responded to my emails in months. (CN-16)

Participants also reported a broader policy shift in international co-publishing beyond individual career stage. CN-11 recalled that ten years ago, China's policies strongly encouraged international co-publishing, driving extensive partnerships. Recent shifts favour domestic publishing, reducing support for international publishing and leaving researchers to rely on personal networks: 'I think the level of international collaboration has declined compared to 2015 and it's not enough.' (CN-11)

Participants in South Korea did not seem to find the publishing systems supportive to international co-authorship. While SK-2 obtained her master's and PhD degrees in the UK and maintained connections with international colleagues, she did not initiate any international collaborations by herself but was invited to most collaboration projects. She explained:

My university in South Korea invited a lot of foreign experts in various fields at every level, but publication-oriented international collaboration remains scarce. I have been working very locally for three or four years after coming back. I think the policies encourage us to focus more on local issues. It seems very open and international, but it's very closed at the same time. (SK-2)

By contrast, Pakistan's publishing regulations was reported to actively promotes international co-authorship. PK-2 noted: 'Government policies actively encourage researchers to collaborate internationally to improve the quality of publications in the rapidly developing Pakistan. Researchers are offered various rewards for their efforts in international collaborations.' French education and the French publishing system are regarded as 'stiff and hierarchical' by Betty, with many scholars reluctant to embrace English journals and collaborating with international researchers.

This section shows that publishing and evaluation systems were perceived to have deep influences on researchers' capacities and motivations to engage internationally, with some systems such as in China and South Korea privileging speed and quantity over theoretical innovation. While some participants found ways to navigate these constraints through strategic selection of participants and timing, others described how publishing policies can inhibit scholarly creativity and international collaboration.

5.2.3 Geopolitics, Pandemic, and Regional Collaboration

Participants identified diplomatic relations and geopolitical uncertainties as broad structural impediments to international research collaboration. From disputes over language and representation to the collapse of institutional partnerships, these factors reveal how entangled research cooperation has become with geopolitics and global emergencies.

Participants found politically sensitive research topics a significant challenge for international collaboration. CN-6 reported disagreements with his South Korean collaborators when interpreting nationalist sentiment in consumer behaviour, as each side approached the topic from their own national perspective. Similarly, SK-1 described difficulties surrounding

the framing of ‘Taiwan’ in a study on China’s Belt and Road (B&R) trade activities. To avoid diplomatic disputes, they changed the phrasing from ‘countries’ to ‘economies’:

As a Korean, I can totally understand this ambivalent situation, as South Korea has a similar issue where we do not officially recognise North Korea as a country. But sometimes collaborators from some Western countries may not fully understand or approve what we think. (SK-1)

Differences in ideological positioning, amplified by media narratives, were also found to have made cross-border academic cooperation more fragile. CN-4 noted a decline in foreign researchers' willingness to collaborate with China-based scholars since the intensification of geopolitical tensions around 2016:

When I discussed this observation with some foreign friends, they explained to me what they saw in the news and how it made them feel insecure and unethical to collaborate with an authoritarian country. Geopolitics can get in the way of international collaboration and communication in research. (CN-4)

The effects of geopolitical turbulence were particularly evident in the experience shared by CN-21. A three-year collaboration between his Chinese university and a US professor’s team was abruptly terminated following the closure of the Confucius Institute at the US institution. CN-21 recounted:

The university leaders (in CN-21’s Chinese university) explicitly told us not to maintain contact with the US side. I felt so frustrated that it has come to an end. It was difficult to establish international relationships, particularly for universities in western regions of China like us. We have limited resources. (CN-21)

CN-21 reflected that, the deterioration in China–US relations had a stronger impact on academic collaboration compared to COVID-19; many bilateral programmes were suspended

or defunded. Nonetheless, CN-8 observed that despite institutional barriers, some individual researchers had striven to maintain personal ties through creative means, demonstrating resilience in sustaining international networks.

From CN-6's perspective, international collaboration prior to 2014 was rare. A surge in cross-border activities was observed around 2016, especially in first- and second-tier Chinese cities. However, after COVID-19 and amidst persistent geopolitical uncertainties, the administrative paperwork required for international cooperation had become increasingly complicated.

The pandemic seemed to impose more influence on international students coming to China as scholarship support were reduced due to financial pressure (PK-1). PK-1 said,

China used to recruit large numbers of international students. But after reaching their target by 2018, they have slowed down the process. Restrictions on admitting foreign students were tightened, especially after COVID. I had to apply three times in 2013 but now it is even more difficult. (PK-1)

Recognising these constraints, some participants called for the establishment of more regional collaboration networks as a way forward. PK-1 suggested that China–Pakistan partnerships should move beyond student supervision to wider institutional exchanges, including faculty exchange programmes and jointly established universities. He envisioned that broader strategic initiatives, such as the Belt and Road Initiative (BRI), could foster deeper research collaborations across countries, linking academic, economic, and political interests. PK-1 acknowledged that Pakistani universities were increasingly forming other international partnerships, such as with Lancaster University in the UK, Illinois University in the US, and Tokyo University in Japan.

US-2 also underscored the importance of more regional research networks. She pointed to the European Union's frameworks as examples where there were websites,

platforms, and conferences that facilitated international partnerships, assisting researchers to choose partners or projects, and comment on other's projects. In her experience: 'The EU structure is really good. It is very difficult to establish international collaborations with countries that do not have structured collaboration networks.' (US-2)

Therefore, participants accounts show that international collaboration is increasingly shaped and at times derailed by differing ideologies and geopolitical turbulences. They shared experiences of diplomatic sensitivities, pandemic disruptions, and institutional bans on communication, revealing the vulnerability of academic partnerships to national and global political agendas. Yet despite these challenges, some participants demonstrated resilience and agency by maintaining informal ties and advocating for regionalised, structurally supported networks as more stable alternatives. As participants suggested, regional collaboration frameworks may offer a more politically insulated and sustainable path for cross-border academic exchange.

The findings in this section show how material structures condition the opportunities, constraints, and strategic calculations that researchers bring into cross-border projects. Well-resourced institutions offer funding, administrative support, and mobility opportunities that many counterparts cannot match, reinforcing asymmetries in who can access and sustain international partnerships. Publishing systems embed national priorities and disciplinary traditions, influencing methodological choices, target journals, and career risks. Political sensitivities, strained diplomatic relations, and pandemic-era travel restrictions have disrupted established collaborations, added bureaucratic burdens, and limited new opportunities. Nevertheless, some researchers have leveraged personal networks, regional alliances, or multilateral platforms to maintain and even expand their collaborative work, suggesting pathways toward more resilient arrangements despite structural asymmetries.

5.3 Epistemology and Disciplines

Building on the preceding discussion of material and institutional infrastructures in Section 5.2, this section turns to the epistemological orientations and disciplinary norms that shape the terrain of international research collaboration that exists largely before collaboration begins. Researchers bring to the table inherited ways of defining legitimate knowledge, assessing methodological rigour, and framing the purpose of academic work, patterns that are grounded in national traditions, disciplinary training, and broader intellectual cultures. These orientations often prefigure the scope, design, and evaluative standards of collaboration, influencing not only whether partnerships are initiated but also how their goals are set and pursued. While the next chapter will explore how such orientations can evolve through ongoing interaction and practices, the focus here is on the more stable and structural differences that researchers described in their accounts, offering a revealing snapshot of the epistemic and disciplinary landscape in which collaborations take shape.

5.3.1 Research Orientation and Policy Engagement

Participants reported varied understanding about the scope and purpose of research and what constitutes as legitimate knowledge production. These understanding were shown to lead to different choices of what to research and how to design the research in international collaborations.

Different countries and regions seem to have distinctive preferences of research topics and scope. For instance, CN-7 compared Chinese and US academia:

The two worlds have very different topics. Chinese researchers prefer broader research scope with a focus on policy relevance. They often regard the US topics as too narrowly focused and trivial. I guess you can say China's academic discourses favour scale over specificity and the US is the opposite. (CN-7)

South Korean academia, heavily influenced by US scholarly paradigms, often mirrors the latter's preference for narrowly focused studies (CN-23). CN-23 noted that collaborative work with her South Korean supervisor exploring a certain mechanism of learning motivation in a specific age group was considered 'too narrow' by some Chinese journal editors.

Alongside this preference for broader scope, participants observed that China-based researchers tend to incorporate national or local policy discussions into their research, including in international collaboration. In some cases, China-based researchers foreground policy benefits while minimising critiques. For example, SK-1 shared that his China-based collaborator suggested adding discussion on the Belt and Road (B&R) initiative, but he 'primarily highlighted the advantages of B&R while avoiding discussing much of its drawbacks.' SK-1's experiences showed that discussions around national policies can introduce perspectives that may be perceived as biased by collaborators who do not share the same political or cultural positions, potentially creating disagreement in the knowledge production process.

US-4 offered a potential explanation of the policy focus in Chinese scholarship based on his observation.

Chinese colleagues are a bit more interested in policy as there is a culturally rooted commitment to societal welfare. They work very well with local government and officials. Some researchers like X [US-4's China-based collaborator] genuinely has the interests of the people at heart and has been trying to improve living conditions. I think that's very admirable. (US-4)

US-4 appreciated how China's unique approach to policy-oriented research could deepen its social relevance and provide a distinctive perspective on governance and human behaviour. It provides an alternative approach of social organisation where the public are in a closer relationship to the state and government compared to the Western society (US-4). He raised an example:

I learned about the incidences where the state mandated farmers to be relocated when they found certain places are prone to natural disasters. This kind of phenomenon does not exist in the West - there's no state organisation that tells you to move. The way people react to the government's advice and how they deal with the trauma after being relocated add a new dimension to human behaviour... Those kinds of things are all really interesting and different from what you'd expect in the West. (US-4)

Yet, he acknowledged the limits of his understanding: 'I may never understand it properly even when collaborating with China-based researchers.' US-4 explained: 'When something doesn't make sense to me, I send lots of emails to try and get the answers – but it's difficult because there's a very big cultural difference.' CN-11 also highlighted the distinctive value of Chinese scholarship in addressing real-life issues through social inquiry and policy recommendations. 'It makes you feel that your research can really make some impact when it is referenced in policymaking,' said CN-11.

However, CN-12, who completed her PhD in South Korea, was critical of the policy focus in Chinese academia. She argued that it often leads to superficial scholarly output:

For a long time, I was not willing to attend Chinese conferences or collaborating with Chinese researchers – it feels a bit superficial and ostentatious. Some scholars conduct research that touch on so many policy issues but when you look at them closely, they are not that methodologically solid. But they gain so much prestige and reputation. (CN-12)

For CN-12, the purpose of research lies in the ‘pure exploration of knowledge for the sake of knowledge’. ‘Academic rigor would always be more important to me than policy implications and practical values. Although I get a lot of revision request to incorporate those when publishing in Chinese journals.’ CN-12 said. Other participants, including CN-19 and US-1, shared CN-12’s view that focused, academically rigorous research aligned more closely with their values than broader, policy-driven studies.

Yet, some researchers advocated for a more integrative perspective. As CN-22 put it:

It’s a continuum between people who value highly the policy relevance and practical usefulness of research and those who defend for the pure scientific aspects of research. I happen to stand in the middle and can see some benefits in both sides. We need people who follow the government agenda to address social issues and propose policy recommendations, as well as those dedicated to delving deeply into specialised domains to advance nuanced scientific understanding. (CN-22)

Participants held differing views on the purpose and scope of research, often shaped by national academic traditions; Chinese scholars tended to favour broader, policy-oriented studies, while US and South Korean collaborators leaned toward narrowly focused, methodologically rigorous work. These contrasting orientations influenced topic selection, research design, and the dynamics of collaboration, sometimes fostering complementary perspectives and other times generating tension over perceived bias, depth, and relevance.

5.3.2 Empiricism, *Sibian* tradition, and Theories

Based on differing understanding of the purpose of research, methodological expectations and standards also vary significantly across research communities, often shaping how researchers define rigour, credibility, and validity in international collaborations. This section explores the distinctive methodological understanding among China-based and non-China-based researchers in international collaboration, including tensions between the more mainstream empiricism and the *sibian* (思辨) tradition in Chinese scholarship.

CN-21, a mid-career education researcher at a non-elite Chinese university, critiqued what he saw as a lack of rigour in Chinese scholarship. He reflected on how working with international collaborators had influenced his methodological values:

I don't think many Chinese education researchers are using rigorous methodology when they conduct research. They don't talk much about methodology in the papers. I gradually pick up how to apply more rigorous methodology after I collaborated with Australian and US researchers, particularly with quantitative techniques. I think it definitely made my team more 'scientific' and aligned better with the international standards now. (CN-21)

In contrast, CN-9 argued that Chinese research traditions are not unscientific, but rather rooted in different epistemological traditions and less explicitly codified. He recalled that Chinese scholars used to go to the US to access more 'scientific' methodologies and large volumes of publications in the 1990s, but even then, he thought that his own university (a top-tier university in China) had already nurtured the tradition of producing solid research. He explained that solid academic work existed in China, albeit without formal methodological jargon:

I don't think the research we did in China was false or wrong - we also followed the fundamental logic that you need to research relevant literature and go deep into social realities to obtain authentic data. It was also rigorous research, I think. It's just we

didn't label methodological techniques with formal terms such as 'triangulation'. I later learned a lot of these jargons in the US. (CN-9)

These divergent views may reflect broader differences in institutional environments. CN-9 and CN-21 came from different tiers of Chinese universities, possibly influencing their exposure to research training. US-4 observed a broader problem related to Chinese researchers' methodological learning:

Chinese teams excelled in technical execution but struggled to elevate empirical findings to theoretical frameworks. There isn't a big body of teachers in China who can impart to the students what good theory looks like, and how you begin to formulate it. Chinese academia rewards publication volume, not conceptual risk-taking. In my university, I trained my students to do theoretical work since year one of undergrad. (US-4)

CN-22 compared research training between China and Euro-American countries and offered a caution against encouraging purely theoretical work too early:

I observed that many Euro-American scholars started their training by doing empirical research and propose some simple findings in an inductive manner. They then progressed to more deductive and theoretical work. But in many Chinese universities, I saw students at their master's or even undergraduate levels already conducting deductive theoretical discussion. I personally think it's too early to skip the empirical part and jump to write theoretical papers at that stage. (CN-22)

CN-9 did not think there is a sequence of deductive and inductive, or empirical and theoretical research training. He advocated for grounded theory as a way to bridge empirical depth with conceptual development. However, he also warned against overly rigid applications of the approach:

Grounded theory demands the iterative process of collecting new data and generating more refined theory until no new findings can be achieved... I personally think the later revisions of grounded theory which argued for more detailed coding procedures

made the approach become rather rigid, dogmatism, and mechanic. I think researchers should have more flexibility when applying grounded theory. (CN-9)

These discussions foreground a unique distinction between empirical approaches and the *sibian* (思辨) traditions. *Sibian*, literally translated as ‘thinking and arguing,’ is defined by participants as a longstanding tradition in Chinese humanities and social sciences that emphasises theoretical reflection and philosophical reasoning in scientific inquiry (Hong, CN-15, CN-19, CN-21). It is common in fields such as education and media studies (CN-7).

As Hong explained:

Sibian scholars construct their own theoretical frameworks based on extensive reading, making arguments that sound logical and persuasive. There’s no strict data collection process—arguments more often build on work experience, local culture, and Marxist philosophy. There’s not much methodological discussion on the procedure to apply *sibian* and the quality criteria is quite fluid. (Hong)

Several China-based participants who had their PhD training in Euro-American countries and later came back to work in China expressed lack of familiarity with *sibian* traditions or doubts over its academic rigor. CN-23 held a critical view:

Sibian papers are a bit close to the critical and cultural studies in English papers. I’m sure there are good *sibian* papers, but I personally think most of them are disorganised theoretical rambling that lack rigour or logic. Comparatively, empirical studies align better with principles of falsifiability and reproducibility and can make evidence-based arguments, which is more solid to me. (CN-23)

While CN-14 acknowledged the lack of empirical verification in some *sibian* research, she also recognised its value:

The crucial question is not that *sibian* papers are not conceptual sophisticated – I find some very hermeneutically refreshing – but in its translational capacity. How effective

can these *sibian* theories illuminate empirical realities or inform practical applications is often unclear and I think requires more systematic explorations. (CN-14)

However, CN-7 argued that the value of *sibian* tradition cannot be judged based on whether it can be empirically verified or applied to realities. The nature of *sibian* studies is a type of philosophical mindset, a unique perspective or understanding of certain social issue – it is dialectical and speculative by nature (CN-7).

It's not that either empiricism or *sibian* does not care about theoretical depth it's just they apply different standards. Empirical studies reify its depth by refining conditions and boundaries; it evolved from a concept to a model that elaborates the relations between several concepts, to a theory that explains the mechanism of such model. They aim to describe, explain, and predict the world. *Sibian* study aims towards a unique angle of understanding to perceive the world. Some distinctive philosophical mindsets cannot be falsified. (CN-7)

CN-9 similarly questioned whether empiricism is the only approach to producing good research:

Having empirically verified data does not necessarily mean good research. Some research follow meticulously standard procedures but proposed trivial and superficial conclusions. You can't say there are any faults with it but it's just average research. (CN-9)

For CN-7, the speculative and dialectical nature of *sibian* provides more flexibility for exploring conceptual ambiguity:

Sibian studies offer non-falsifiable insights that challenge the pure Western empiricism. They aim not to predict or explain but to provide distinctive angles of understanding—like reinterpreting AI ethics through Confucian *ren* (仁, benevolence). I'm not saying you can't quantify Confucian ethics with Likert scales but you can work around with some qualitative methods. (CN-7)

CN-23 also recognised that certain research topics are more amenable to *sibian* approaches:

Topics such as cross-cultural interactions are difficult to investigate with experiment design as too long a time period would risk being tempered by other factors, but too short a time period cannot foreground the nuances. At most you can do qualitative research on it. But the kind of *sibian* style theoretical writing provides you with more imaginary space to propose wild ideas and thinking frameworks. (CN-23)

While *sibian* scholarship has historically held a significant position in Chinese social science research, some participants raised concern over the increasing marginalisation of it against the dominance of empirical methods in contemporary Chinese academia. CN-14 warned of a rising ‘empirical fetish’:

We now have many conferences and seminars in China titled ‘empirical research’ as the central theme. But I fear this growing attention to empirical methodology may turn into an empirical fetish. I think it should always be the research questions that decide the methodological design, not the other way around. (CN-14)

This section highlights the diverse and sometimes conflicting understandings of methodological rigour across Chinese and international academic communities. While some researchers embrace empiricism approaches—often influenced by Euro-American training—others defend the validity of *sibian* tradition in China, which values speculative reflections and philosophical reasoning over empirical verification. These tensions reflect broader institutional differences and epistemological assumptions embedded in China’s international research collaboration.

5.3.3 Disciplines Features and Shared Consensus

Disciplinary norms play a significant role in shaping how researchers conceptualise knowledge production, methodological rigour, and the purpose of academic inquiry. This section examines how disciplinary features in Economics and Education are manifested differently in international collaboration. While economics has more shared analytical frameworks and global consensus, education is more deeply embedded in national values and cultural contexts.

Many participants from economics emphasised mathematical formulation and computational models as central to their disciplinary identity. As US-1 explained, ‘Economists speak one universal language – that is the mathematical formulation. And in the world of mathematics, there’s only one truth. There are different formulations, but they usually mean that the questions are different.’

CN-2 added that the ideological alignment among economists also plays a role in building common ground for international collaboration:

Within economists there are not much disagreement about the basic concepts and methods in the discipline. Additionally, the ideologies of most economists and social scientists tend to lean more ‘left’ on controversial issues such as immigration policy, which made communication and international collaboration easier for researchers with similar academic and political expectations. (CN-2)

Nonetheless, CN-2 warned that the growing dominance of mathematical techniques may have narrowed the field’s intellectual diversity.

Economics used to include a greater diversity of schools of thought, such as the once influential Austrian School, but it is rarely taught in classrooms now. I think it’s because the development of mathematical and statistical techniques has empowered a more standardised and shared framework. (CN-2)

CN-11 also acknowledged divergent theoretical approaches within economics. ‘While microeconomics operates more within a shared analytical lexicon, macroeconomic theories vary depending on the underlying assumptions and temporal emphases, for example, the

short-term impacts versus long-term equilibria, and Lucas's rational expectations hypothesis versus Keynesian demand-side interventions.' CN-11 noted how such theoretical divides rooted in differing epistemological assumptions shape different research design and scholarly dialogue, which may influence whether two international researchers can collaborate in the first place.

Some participants highlighted the need to consider institutional and cultural variations when applying generally coherent economics models in different contexts:

Institutions and decision-making processes vary across cultures and countries. While simplified models, such as those in neoclassical economics, can be easily adapted to different contexts, considering institutional and cultural factors is key to enhance the explanatory power of simplified models and theories (US-1).

Comparatively, cultural orientation and local embeddedness are more pronounced in how education researchers conceive the methodology and purpose of research. As argued by participant Henry,

Education reflects national values, and they can be so different and sometimes incompatible. When we do education research, we get into the question of what does a country value and how does a country's values become perpetuated through the education system. And that's a very local conversation and sometimes it translates well and a lot of times it doesn't. (Henry)

Henry compared education research to economics:

Economics is more structural than cultural. Economic studies tend to have a tighter control of variables and overarching philosophical stances to place a country as a capitalist country or something else in the spectrum. The market-based principles are similar in all capitalist countries, leading to less communication and collaboration cost in international collaborations. (Henry)

Some participants had experience with more complex configurations of international collaboration, particularly when working on interdisciplinary topics. SK-3 reflected on her time in a research group that brought together researchers from both the social sciences and the natural sciences:

I worked with two physicists trying to make sense of some data and solve a practical issue. It was good collaboration as I would draw a line for myself to only make sense of the basic logic in physics rather than figuring out every technical detail. That would be too time consuming and lose the real focus of the study. It was a successful attempt to combine different disciplinary perspectives to solve real-world issues. (SK-3)

Disciplinary norms strongly influence how researchers frame knowledge, apply methods, and define the purpose of academic work, with economics tending toward globally shared analytical frameworks and education being more embedded in national values. Economist participants described mathematical modelling and ideological alignment as fostering cross-border collaboration, while also noting that theoretical divides and cultural contexts can still shape research compatibility. In contrast, education scholars highlighted the deeply local nature of educational values, which can raise translation challenges in international settings, though interdisciplinary projects such as combining social and natural sciences demonstrated the potential to bridge these differences.

In summary, participants' accounts highlight three interrelated domains in which pre-existing epistemic and disciplinary orientations shape international collaboration. In 5.3.1, contrasts emerged between Chinese scholars' tendency toward broader, policy-engaged studies and the narrower, methodologically precise focus prevalent in US and South Korean academia—differences that could foster complementary perspectives but also generate friction over depth, scope, and perceived bias. In 5.3.2, discussions of empiricism and the *sibian* tradition reflected deeper epistemological divides: some participants defended the

speculative and dialectical value of *sibian*, while others questioned its rigour and called for stronger empirical grounding, underscoring the varying criteria by which quality is judged. In 5.3.3, disciplinary conventions proved equally decisive: economics offered a relatively unified analytical language that eased cross-border collaboration, whereas education was more deeply embedded in national value systems, making translation across contexts more challenging; interdisciplinary work sometimes offered a productive bridge between these worlds. Together, these accounts reveal the enduring epistemological and cultural influences that underpin collaborative practice, setting the stage for later examination of how such orientations can be reshaped and transformed in the lived experience of collaboration.

5.4 Values and Imaginaries

Participants' orientations toward international research collaboration were underpinned by enduring academic values and intellectual imaginaries that had been shaped before the project commenced. These normative frameworks encompassed both globally circulating ideals such as meritocracy, epistemic inclusivity, and the pursuit of innovation and locally embedded traditions arising from distinct educational systems, disciplinary histories, and socio-political contexts. While such values often operated as aspirational reference points, they also encoded implicit hierarchies and exclusions that informed how credibility, authority, and scholarly merit were differentially assigned. The ensuing analysis examines how these pre-formed dispositions and evaluative criteria influenced participants' understandings of collaboration, focusing on three interrelated domains: (1) the interplay between hegemonic knowledge structures and calls for inclusivity, (2) the formative role of national education systems in

shaping dispositions toward critical inquiry, and (3) divergent conceptualisations and benchmarks of research innovation within global academic landscape.

5.4.1 Hegemony, Inclusivity, and Diversity

This section reveals tensions between participants' normative ideals of scientific inquiry such as those outlined in Merton's CUDOS framework and the realities of academic hierarchies, biases, and power imbalances. Participants described persistent instances where nationality, institutional prestige, or disciplinary dominance shaped credibility and access. Such accounts highlight that assumptions about whose knowledge counts, and under what terms, often predate actual collaborative encounters, shaping the possibilities and constraints of partnership from the outset.

For example, while universalism holds that the validity of scientific knowledge should be assessed independently of the researcher's personal or social attributes such as nationality, race, gender, religion, or institutional affiliation some participants reported feeling that their work was devalued or their credibility questioned by international collaborators.

SK-2 recalled feeling like the 'token Korean' in a project where the lead author tightly controlled the research process, leaving little room for team members to question interpretations or contribute their own ideas. 'I think the Australian interpretation was prioritised and other contexts were more like verification tools to build their Asia-Pacific theoretical framework,' said SK-2.

More widely on the publishing system, US-2 remarked on the persistent undervaluation of knowledge originating beyond mainstream Anglo-American contexts. Reflecting on a collaboration with a Chinese researcher on a comparative education study, she shared:

We encountered desk rejections from several American journals despite the topic aligning well with the journal scope. We had some reviewers saying that the results can't possibly be that positive in the Chinese contexts. You need to add more data on this. In the end, we had to publish in an Asian Pacific journal. (US-2)

US-2 expressed her indignance,

I didn't have comments saying 'your data is too positive' when I report on the US or Europe. I think the job of the reviewer is to evaluate whether the evidence is collected and analysed rigorously. I don't think reviewers should question the results being too positive based on their own assumptions. (US-2)

She noted that comments like this were more likely to appear when reviewers noticed the Chinese or Turkish contexts. 'Unfortunately, prejudice against researchers' background is still common even for senior academics who had spent years in US academia' (US-2). These experiences potentially challenged the ideal that academia is largely merit-based and biased rather than status-driven. Many participants called for more inclusivity and equality of diverse perspectives in international collaboration. US-1 described the ideal of international collaboration as a process akin to 'many blind people feeling and describing an elephant', 'It should be a collective effort to construct more holistic understanding through the integration of varied perspectives', said US-1.

US-1 expanded on the unique comparative rigor enabled through international collaboration.

I like to explore how Chinese policies manifest in China, and how they compare with similar policies in the US. It's easy to explain things from a US perspective, but that explanation is often inadequate. Every country has cultural, institutional, and historical reasons for why things happen, and you can't uncover those without collaborating with a local research partner. (US-1)

CN-6 shared similar aspiration of diversity and inclusivity. She developed five versions of a questionnaire for a five-country comparative study to address contextual specificity without losing comparability. She said that she needed to adjust context-sensitive items such as political ideology while keeping shared-value questions consistent across sites.

Some participants saw international collaboration as a way to foster greater cross-cultural exposure, with the potential to gradually challenge hegemonic mindsets. As CN-18 reflected:

My US collaborator will list our papers on his CV, and they will become part of his intellectual identity. He may reference them at conferences, in lectures, or even in casual hallway conversations. Each retelling has the potential to spark further cross-cultural reflexivity. I hope this will help circulate our collaborative work more widely within US-centric academic networks that I might not otherwise be able to access.
(CN-18)

International collaboration can both reproduce and resist global knowledge hierarchies. While some researchers encounter conservative gatekeeping and biases in publishing and authorship, others see emerging shifts toward greater epistemic inclusion and mutual learning. Collaborative work not only offers opportunities for theoretical innovation but also serves as a space for reflexivity and long-term intercultural exchange. Ultimately, moving toward equitable knowledge production requires not just methodological rigour but epistemic humility, openness to multiple perspectives, and structural changes in how academic value is assigned.

In sum, participants' accounts illustrate how the ideals of merit-based, inclusive science are often undermined by entrenched academic hierarchies and the privileging of dominant, often Anglo-American, perspectives. Experiences ranged from subtle marginalisation such as being

included only symbolically in a project to overt prejudice in publishing, where findings from certain contexts were met with scepticism. Yet, several participants actively pursued inclusive practices, designing context-sensitive research tools and viewing collaboration as a long-term pathway to challenge hegemonic mindsets and expand the diversity of perspectives in global academic discourse.

5.4.2 Education System and Critical Inquiry

Participants also observed that the how they engage in international collaboration was profoundly shaped by the education systems in their countries and the ways in which criticality is framed and cultivated. They found that education systems can play a decisive role in shaping researchers' epistemic orientations—either nurturing critical inquiry or reinforcing conformity and credentialism. This section explores how participants reflected on the education system that shaped how academic labour was imagined, valued, and enacted.

Participant CN-8 offered a critical reflection on what he saw as the rigidity and formalism that permeate both the education and research systems in China, which has limited students' capacity for critical thinking and innovation.

The education system in China tends to select relatively good and balanced students, but not the very best. From primary school exams to PhD entrance exams, students only receive good grades if their answers match exactly those expected by the teachers. Alternative answers, even if equally valid, often go unacknowledged. The system discourages divergent or critical thinking. (CN-8)

As he saw it, this rigidity extended beyond basic education into university life. CN-8 observed: ‘If a teacher is five minutes late to class, it is classified as a ‘teaching accident’ and punished. Yet there are no comparable penalties for the quality or content of the teaching itself.’ (CN-8) In international academic exchanges, CN-8 remarked that foreign scholars often noted with a wry smile that some university delegations from China travel long distances mainly to take photographs and perform ceremonial gestures, rather than to engage in substantive academic exchange.

CN-22 similarly observed that while some Chinese scholars boasted about inviting foreign experts, they often failed to achieve genuine intellectual engagement. However, she also pointed to some inspiring cases where resilience and agency are observed against limited resources and the rigid system:

There is not enough international communication and exchange at the moment. But I’ve seen some researchers in their 50s at my university working really hard to fix this gap. Even though they struggle with English proficiency and little funding, they try to share their work globally and learn about what international colleagues are working on. (CN-22)

CN-19 believed that the curriculum design in Chinese education system has restricted the cultivation of critical thinking. US-4 echoed this concern, pointing to the lack of theorising courses in Chinese universities:

It might be philosophical – the belief that it's not very helpful and you can make any progress with just data. Or it may represent something political – schools are not allowed to teach students to theorise. They don’t want students asking interesting questions. (US-4)

CN-15 reflected on broader orientation on uniformity and individuality across educational systems:

The education soil is what breeds people who created the rigid evaluation systems and enforce them. In China various regulations and rules either whip you into shape or break your spirit. But they would never fly in France. Imagine telling Parisian academics ‘Publish 10 papers in 5 years or get fired’ – they’d laugh and quit on the spot.

CN-15 argued that Chinese educational values are deeply shaped by Confucian traditions that prioritise textual authority over critical questioning, and social harmony over disruptive innovation.

Confucian influences have also shaped the close interconnection between academic career trajectories in China and roles within administrative or governmental institutions. CN-8 commented that a significant number of China-based researchers aspire to transition into politics.

In some cases, pursuing dual roles in academia and politics is a strategic move to gain access to internal data and behind-the-scenes knowledge. But more often it is driven by the pursuit of political power and influence historically rooted in Chinese intellectuals. But it drains scientific manpower and undermines an environment of real innovation. (CN-8)

Many researchers who obtain PhDs overseas seek to combine academic, political, and commercial roles upon returning to China, leading to a diffusion of focus and undermining deep specialisation. This is partially why Chinese researchers in international collaborations often focus on technical and applied work rather than time-consuming theoretical work. (CN-8)

CN-8 cited the example of China's attempt to produce the first synthetic crystalline bovine insulin in the 1960s to illustrate the political influence on Chinese academia.

Thousands of researchers and vast funding and resources were mobilised to solve the issue, aiming to win the Nobel Prize and demonstrate ‘the great success of Mao’s thoughts and the wisdom and perseverance of the Chinese people’. But ultimately it didn’t get the prize due to lack of methodological innovation or application potential. The pursuit was politically motivated, not aimed at the advancement of knowledge itself. (CN-8)

CN-23 offered her observation of the South Korean education system as a combination of Confucian reverence for teachers and political influence and an emphasis on critical thinking and theoretical innovation. Advanced degrees were pursued not only for career advancement but also for personal interest and pursuit of pure knowledge (CN-23).

Professors occupy expansive offices lined with floor-to-ceiling bookshelves. They are really treating academic work as an honour. It’s common even for a housewife to have a PhD degree. I saw people in their 60s attending their master’s or doctoral viva. In such a culture, it’s impossible for their theoretical understanding to be shallow. Whereas in my university in China we don’t have such respect for professors or such atmosphere to chase for PhDs. The result of such collective intellectual ambition is while there are promotion incentives to publish efficiently in South Korea, there is also space for slow-paced theoretically rigorous work (CN-23).

Nonetheless, SK-2 pointed out that the recent decline of university enrolment rates pushed South Korean universities to recruit more international postgraduate students to sustain academic development, potentially opening more space for international research collaboration.

This section reveals that education systems play a foundational role in shaping how scholars imagine international collaboration. Participants portrayed national systems particularly in China as deeply embedded in broader socio-political structures that often privilege conformity, credentialism, and instrumentalisation over critical inquiry and theoretical experimentation. Participants reported that such environments can constrain scholarly autonomy and limit the depth of cross-border intellectual engagement, especially

when international collaboration is pursued for strategic rather than epistemic purposes. Yet, participants also pointed to spaces of agency, where researchers such as those in South Korea nurture a blending academic ethos of authority-based adherence and independent critical thinking.

5.4.3 Research Innovation and Global Positioning

This section explores how participants defined and evaluated innovation in research, highlighting the entrenched standards and cultural traditions that shape its recognition across contexts. These perspectives were informed by longstanding academic traditions, structural conditions, and national research agendas, which in turn influence how novelty is identified and rewarded. The accounts reveal how such pre-formed criteria frame collaborative expectations and shape the kinds of contributions that gain visibility in international scholarship.

PK-2 described innovation as the identification of new causal relationships: ‘Innovation involves constructing a robust and comprehensive logical framework that clearly identifies causal relationships, and to confirm that no similar framework has been previously developed.’ CN-9 offered a more demanding view, stating that innovation must go beyond refining existing relationships to also explaining the mechanisms behind them. ‘I wouldn’t say incremental changes like refining causal relationships are innovation,’ he said.

Similarly, CN-2 understood innovation as an intellectual challenge to consensus and highlighted the value of interdisciplinarity and practical resonance:

Research innovation means challenging an established idea or consensus with evidence or lending weight to one side of a controversy. For economics studies, integrating insights from disciplines like sociology and politics usually enhances the

novelty and appeal of economics theories... My colleague once said, 'it's innovative research if the reviewer wants to share the study with colleagues over lunch.' (CN-2)

CN-12 echoed CN-2's emphasis on interdisciplinary synthesis. In her field of physical education, innovation emerged from integrating insights from psychology and medical sciences to drive breakthroughs. She also outlined her own criteria of how expectations of innovation vary by academic level:

I expect my undergraduate students to identify meaningful topics, but they can rely on me for theoretical and methodological guidance. Master's students must comprehensively grasp theories and methodologies to independently execute scientifically rigorous studies. Doctoral candidates need to be innovative. Building on existing knowledge, they should contribute at least 2 per cent of original theoretical insights. (CN-12)

CN-12 acknowledged the importance of cultivating the ability to identify innovative research topics early in one's career but noted that this was still uncommon in China. CN-1 shared her frustration:

Some of my students struggled for so long to find a good topic. I eventually had to give them some suggestion topics. What I do is already rare in China as more often supervisors would give students topics at the beginning. I personally think this would constrain students' independence and innovation. (CN-1)

CN-18, an early-career researcher in education, reflected on disciplinary differences in the criteria of innovation. She seemed to propose stricter criteria for innovation on social sciences compared to STEM subjects.

Innovation feels harder to pin down in fields like education and other social sciences compared to STEM. In hard sciences, even minor tweaks – like discovering a new reaction pathway – count as novelty. (CN-18)

The bar feels higher for education researchers. Some researchers would apply an existing theory to unexplored data, or interpreting phenomena through a fresh lens. But does that actually generate new knowledge, or just a repackaging of known ideas? As an early-career researcher, I'm realising true innovation is still beyond my reach. At best, I'm recontextualising observed patterns and proposing tentative solutions – it's groundwork, not innovations. (CN-18)

Reflecting on the field of economics, CN-2 observed a general decline in theoretical innovation and an increase of 'groundwork' (CN-18) and 'incremental changes' (CN-9).

In the 20th century, about one-third of all published papers were theoretical, but now maybe only one in seven or eight. You can run some robust micro-level analysis on Kenyan and Ghana and publish some articles. But you still need theoretical innovation at a macro level to integrate the evidence –you can hardly say the field is progressing without broader theoretical synthesis. To some degree the rise of mathematic and computational techniques has come at the cost of theoretical innovation. (CN-2)

The positioning of China in global research innovation was frequently mentioned, with participants highlighting both systemic challenges and emerging opportunities.

CN-8, an established economics professor in China, drew on Schumpeter's idea of 'creative destruction' to articulate a three-stage model of innovative research:

Innovative research starts from a deep understanding of the historical trends of an issue, then using statistical techniques to represent and analyse the trends, and finally systematically theorising the trends to propose new frameworks of understanding the issue. The key is creative destruction. (CN-8)

Benchmarking this criterion, he identified two main obstacles in China's research landscape:

The younger generation cannot fully understand how society works because much of the information is not accessible to the public or they don't have the time for solid fieldwork. The older generation have accumulated a deep understanding but relies

more on anecdotal examples rather than statistical techniques to make coherent and overarching arguments. There is a gap here. Very few scholars in China possess all the three elements necessary to conduct robust and innovative research. (CN-8)

He shared an example in which a statistical study found a causal relationship between city-level GDP growth and local officials' promotion likelihood. Based on his extensive experience in government, CN-8 believed the mechanisms behind such promotions were far more complex and politically nuanced, yet such information remains largely inaccessible to scholars.

Despite these limitations, CN-8 cited two Chinese economists who achieved significant theoretical breakthroughs. The first was Professor Yifu Lin, internationally trained and government-affiliated, who proposed a 'new structural economics' framework that provides innovative explanation of China's economic development. While academically innovative and rigorous, CN-8 hinted that Lin has not received wider recognition in China or globally due to political reasons. The second was Professor Xiaokai Yang, a former political prisoner who later earned his PhD at Princeton and developed influential theories in inframarginal analysis while based at Monash University. CN-8 noted Yang's Nobel Prize nominations in 2002 and 2003, although he passed away in 2004.

Reflecting more broadly, CN-8 argued that the lack of theoretical innovation in China can be traced to the close affiliation between academia and state agendas.

During the planned economy era, some scholars praise planned economies, only to later extol the virtues of market economies when policy shifted. Scholars in China tend not to follow a consistent set of academic standards and are heavily influenced by changes in the policy. And they generally have the aspiration to become high-level government officials rather than excellent researchers. And as a result, we don't speak the same academic language as researchers in other countries and we struggle to achieve international innovation and recognition. (CN-8)

From an external perspective, US-1 agreed that Chinese researchers often excel in technical execution but lag in conceptual innovation.

Chinese researchers are technically really good, but they are maybe a little bit less prepared in the context part of things—how to use the context to help explain why you are doing this and what you're finding. The intense pressure on Chinese researchers to publish frequently appears to limit their ability to focus on conceptual depth and identifying innovative research topics. (US-1)

CN-9 noted that in his US PhD programme, theoretical innovation was deeply embedded in academic culture.

I was very impressed that in X [the US university where CN-9 did his PhD], every scholar has their own theories. They never compete for publications number; they care more about innovation and depth. When I think about their names, I think about their respective theories. I know one scholar even established a new field from scratch that is completely different from his background in computer science. That kind of innovative spirit is what influenced me most after I left. (CN-9)

Despite these critiques, CN-15 believed that combining the strengths of different systems in international collaboration could enhance research innovation.

A researcher might possess genuine passion, innovative ideas, and sharp scientific intuition – essential qualities for identifying ground-breaking questions. But transforming those ideas into meaningful innovation requires something equally crucial: meticulous execution. This is where many Chinese researchers shine, bringing technical precision to operational excellence. Euro-American researchers often excel at conceptual leaps and making paradigm-shifting hypotheses. When these strengths combine, the synergy can elevate collaboration to innovation. (CN-15)

However, CN-11 warned of path dependence in Chinese academia, particularly the overemphasis on technical expertise at the expense of theoretical innovation.

Chinese people are very diligent and excellent at math and computational techniques—that's why many foreign professors value them as assistants for number crunching. However, path dependence has led them to pay less attention to theoretical innovation. And this is not sustainable. (CN-11)

Reflecting through a historical perspective, CN-11 believed that China has 'a natural disadvantage' in theoretical innovation as Chinese social sciences was developed later than Anglo-American countries, inevitably susceptible to overseas influences. CN-11 believed the key to overcoming this 'latecomer disadvantage' is not simply adopting Western theories but innovating through locally grounded inquiry using scientific methods.

SK-3 agreed that current power imbalances are historically rooted.

We are not the world leader because we are later in the academic game. Things that are important to Euro-American researchers get investigated much more and much earlier than other countries. For instance, in cognitive psychology, many theories and models were historically developed in the context of English language and Euro-American population. But this is beginning to change. (SK-3)

SK-3 also emphasised the need to develop theories grounded in underrepresented contexts as a way to foster innovation and diversity.

US-4 acknowledged the late comer disadvantage for non-Anglo-American countries but also pointed to emerging strengths in China's global research profile.

But that's [theoretical innovation] something that will come eventually. I mean it has come in physics. I think another area where China has made good progress is environmental issues. I know there are really eminent scholars in these fields that look at sustainability and climate change and making predictions based on new theory. (US-4)

CN-4 cited another emerging contribution: the concept of ‘digital reverse mentoring (数字反哺)’, where younger generations support older adults in navigating digital tools. Rooted in Chinese social dynamics, this concept offers theoretical insights that are now gaining international recognition (CN-7).

There has also been growing interest among Chinese scholars in developing theoretical innovations based on traditional Chinese wisdom. For example, one team designed a questionnaire assessing student development based on the Five Rituals from Confucian texts—benevolence, righteousness, propriety, wisdom, and integrity (仁义礼智信). Though not yet widely adopted, CN-14 viewed this as a promising attempt at autonomous theoretical development.

Participants’ accounts underscore that innovation is not a fixed standard but a situated and contested idea. While Euro-American researchers were often described by participants as more focused on conceptual breakthroughs, China-based researchers were seen to excel in technical precision and methodological execution. Structural pressures, including late development of Chinese social sciences, publication-driven evaluation systems, and restricted access to sensitive information, were cited by participants as key constraints to innovation. Nevertheless, some researchers pointed to emerging contributions from theories rooted in traditional Chinese values to novel constructs embedded in local realities. Ultimately, participants’ accounts illustrate that innovation in international research requires not only creativity and rigour, but also the agency to define knowledge and research on one’s own terms.

To summarise, the accounts in section 5.4 show that international collaboration is always embedded in a dense web of inherited ideas about scholarly value, legitimacy, and purpose. Participants’ reflections on hegemony, inclusivity, and diversity reveal how entrenched academic hierarchies and cultural biases can undermine the meritocratic ideals

they ostensibly support, while also pointing to opportunities for greater epistemic plurality. Participants' discussions of education systems illustrate how national pedagogical traditions, regulatory regimes, and cultural values influence researchers' intellectual habits either fostering independent critical thinking or reinforcing conformity and credentialism before they enter collaborative spaces. Perspectives on research innovation further demonstrate that criteria for novelty and significance are unevenly distributed and historically situated, shaped by disciplinary cultures, national research agendas, and global landscape. Across these themes, participants' narratives underscore that the terms of collaboration are not set only by immediate partners or project designs; they are framed by long-standing imaginaries that define what counts as valuable knowledge, who is positioned to produce it, and how it should circulate in the world. These imaginaries can be both constraining, reinforcing established power relations, and enabling, providing a foundation for more equitable, diverse, and mutually enriching forms of international research engagement.

5.5 Conclusion

Across its three sections, Chapter 5 presents a composite picture of the pre-existing landscape in which international collaborations take shape. Material and infrastructural disparities whether in research funding, administrative capacity, or technological access create asymmetrical conditions that influence who can participate, on what terms, and at what scale. Institutional logics, including performance-based evaluation systems, promotion criteria, and national policy priorities, further shape the calculus of whether and how to engage in international collaboration, sometimes aligning with and sometimes undermining the pursuit of substantive intellectual exchange. Disciplinary and organisational cultures bring another

layer of differentiation, as hierarchies of method, theory, and institutional prestige mediate the recognition of contributions and the allocation of authority within collaborative settings.

Participants' reflections on values and imaginaries reveal the coexistence of aspirational and critical perspectives. While many upheld ideals akin to Merton's CUDOS norms, universalism, organised scepticism, and disinterestedness, they also described encountering entrenched biases, epistemic gatekeeping, and the privileging of Anglo-American perspectives in publishing and co-authorship. Education systems emerged as formative influences, with some national contexts fostering conformity, credentialism, and instrumentalism, while others allowed greater space for critical inquiry and theoretical experimentation. Likewise, participants' understandings of research innovation were shaped by both local academic traditions and global competitiveness narratives, producing varied and sometimes conflicting benchmarks for novelty.

These accounts underscore that international collaborations are not initiated on a level playing field but are embedded within structural asymmetries and historically rooted epistemic hierarchies. Yet, the narratives also point to a persistent orientation toward mutual learning, comparative insight, and the possibility of redefining knowledge on more inclusive and pluralistic terms. This chapter thereby establishes the structural and cultural 'baseline' against which the following Chapter 6 will examine how such orientations are enacted, challenged, and transformed through the lived, relational dynamics of international collaboration.

Chapter 6

Collaboration Relations: Practices, Trust and Power

6.1 Introduction

Where Chapter 5 mapped the relatively stable frameworks of material structures, epistemic traditions, and normative imaginaries that prefigure international collaboration, this chapter turns to the lived practices and relational experiences through which such collaborations are enacted. If the preceding analysis highlighted the asymmetrical terrain on which researchers approach collaboration, here the focus is on how researchers themselves navigate, negotiate, and sometimes transform these conditions in practice. The research question this chapter seeks to address is:

How do researchers negotiate and experience practices around trust and relations of power in international collaboration?

In foregrounding practice, this chapter emphasises the role of agency, the capacity of researchers to act within, against, or beyond structural constraints. Agency is not understood as unconstrained freedom but as a series of situated manoeuvres, through which individuals mobilise resources, cultivate trust, manage leadership dynamics, and resist or reshape

hierarchies of power. Through their accounts, participants illuminate how collaborations unfold not as pre-determined outcomes of structural disparities, but as dynamic processes shaped by conscious strategies, relational labour, and interpretive creativity.

The chapter is organised into three interlinked sections. Section 6.2 examines the practical enactment of collaboration through capital mobilising, resource sharing, methodological exchange, and style negotiation, highlighting how differences became sites of hybridisation as much as sources of friction. Section 6.3 turns to the relational work of trust-building, showing how credibility and authority were cultivated or undermined through respect, reciprocity, and responsibility, and how cultural, age, and gender hierarchies complicated but did not preclude the growth of mutual reliance. Finally, Section 6.4 investigates how power is crystallised and contested, focusing first on leadership and team management, and then on acts of agentic negotiation, resistance, and reconceptualisation by which researchers carved out intellectual authority and reshaped dominant frameworks.

These sections highlight the dynamic interplay of structure and agency in international collaboration. It expands on Chapter 5 by showing how structural asymmetries are lived, negotiated, and sometimes subverted in practice. In doing so, it foregrounds collaboration as an ongoing accomplishment: fragile, contingent, and profoundly relational, yet continually remade through the everyday agency of those who participate in it.

6.2 Balancing Priorities, Resources and Preferences

This section examines how researchers mobilise personal initiative, professional networks, and complementary expertise to initiate and sustain international research collaborations, often in ways that work strategically with structural constraints. Drawing on cases from diverse career stages, national contexts, and disciplinary traditions, participants described

how they leveraged mentorship and academic capital (6.2.1), pooled resources and distinct specialisations (6.2.2), and negotiated culturally inflected approaches to efficiency and critique (6.2.3). While structural asymmetries in funding, institutional standing, and geopolitical climate inevitably shaped the possibilities for collaboration, these accounts foreground the agency of researchers in creating opportunities, sustaining exchanges, and crafting adaptive working arrangements. These collaboration practices often reflected an evolving interplay between accumulated capital, emergent networks, and the pragmatic demands of scholarly production.

6.2.1 Leveraging and Mobilising Mentorship and Academic Capital

This section examines how researchers mobilised mentorship networks and academic capital from doctoral training, visiting fellowships or mentorship to build and sustain international collaborations. By actively cultivating ties and strategically engaging senior scholars, participants sought to access advanced expertise, reputational legitimacy, and methodological resources. These efforts often represented thoughtful attempt to navigate structural barriers such as institutional hierarchies, limited local networks, and geopolitical constraints.

Some China-based participants who obtained their PhDs abroad demonstrated strong initiative to collaborate with their supervisors after returning to China, leveraging shared intellectual frameworks and accumulated academic capital.

CN-9, an economics researcher who completed his PhD at a US university more than two decades ago, now collaborates more often than before with his US supervisors and other professors in the department. He explained that ‘As China’s industries develop rapidly, Chinese researchers are focusing on the field of technology innovation, which is an academic area still dominated by the US. Collaboration with my US colleagues helped me learn the

most cutting-edge theories and practices.’ CN-2, CN-10, and CN-19 also mentioned similar motivation of post-graduation collaboration with their US supervisor as they wanted to leverage the ‘advanced research methods and global reputation of US universities for further career development’ (CN-2).

The US emerged as a prominent source of academic capital according to many participants. Cheng, Hong, CN-8, CN-21, and US-2 all reported seeking to cultivate collaborations with US-based scholars through visiting experiences. While Hong, CN-8, and US-2 have continued to co-publish and maintain active communication with their US hosts, Cheng and CN-21 were unable to sustain collaborative ties beyond an initial period of joint work. Cheng reflected that a six-month visit was insufficient to establish lasting channels of exchange with her host researcher and acknowledged that her own lack of proactivity further limited opportunities for continued collaboration.

I wouldn’t call myself one of the first-tier economic researchers in my field. I still feel there is a distance between me and my host US researcher. We did not have more collaborations after I came back to China – it was a pity. Maybe I was lazy as well.
(Cheng)

In CN-21’s case, geopolitical tensions terminated his long-standing international collaboration, despite his proactive commitment. Affiliated with a non-elite university in China’s less developed north-western region, CN-21 put much effort to establish an exchange program with a US university, inviting US professors to deliver lecture series for Chinese undergraduate students, and sending Chinese postgraduate students to the US for academic training during summers. This initiative catalysed a series of research papers rooted in the US scholar’s technical expertise. CN-21 felt ‘honoured’ for a non-elite university like his to be able to collaborate with an institution that possess advanced technological knowledge.

Unfortunately, recent China-US tensions ended the partnership after running for six years. ‘My university explicitly told us not to make any contact with the US university’, he said. CN-21 was forced to pivot and sought alternative collaborators, such as in Australia, New Zealand, Sweden, and Japan.

China-based participants also shared collaborating experiences drawing on the theoretical depth and reputation of France-based researchers. CN-14 established extensive academic connections with professors and international organisations during her PhD in France and continued to work with her supervisor and OECD researchers on reports of China’s social issues after graduation. Bai appreciated the distinctive element of ‘debating and critique’ in French researchers and continue to co-publish with French supervisors after returning to China to enhance her theoretical grasp.

While some China-based participants perceived South Korean universities as a second-tier collaborator option, less prestigious than institutions in the US, France, or other Euro-American countries, some nonetheless praised South Korea’s strong tradition of empirical research and its relative ease in fostering regional academic networks. For instance, CN-12 chose to pursue a PhD in South Korea after not receiving her preferred offer from the US. Reflecting on her experience, she remarked:

The empiricism-driven, problem-solving research culture in South Korea is actually very similar to the US - many professors in the university indeed had their degrees from the US. I got the chance to develop my ability to formulate empirical research questions and conduct scientific methods, which is very different from the more theoretical learning that I had in China. (CN-12)

Her doctoral thesis later was turned into multiple co-authored publications with her South Korean supervisor (CN-12). She also leveraged her connections in South Korea to establish an East-Asian research exchange platform between her Chinese university, her former South Korean university, and a Japanese university (CN-12). In some cases, South Korean professors leveraged their academic capital to establish joint doctoral supervision

programmes between their institutions and partner universities in China, thereby fostering structured channels for knowledge exchange (CN-23). A parallel institutional-level initiative was also noted: South Korean universities have been actively recruiting international students as a response to declining domestic enrolment driven by falling birth rates (CN-23).

Comparatively, China–Pakistan collaborations were often embedded within supervisory relationships that typically involved former Pakistani students actively maintained research connection with their Chinese supervisors after graduation (CN-1, CN-12, CN-17, CN-22, PK-1). For instance, PK-1 co-authored an empirically grounded policy report with her former Chinese supervisor, which contributed to revisions in China’s religious governance framework. Similarly, CN-12 reflected that, ‘When Pakistani students return home, they bring fresh perspectives and new research questions they learned in China to the social realities in their local contexts. We collaborate on those issues, and that’s where new collaborations emerge.’

Nonetheless, participants noted that the quality and sustainability of these China–Pakistan collaborations often hinge on the academic preparedness of the former students. CN-22 described supervising international students as akin to ‘unboxing an unknown package.’ In her words, ‘When you win the big prize,’ the result is a highly capable student—such as a Pakistani supervisee who successfully completed a PhD in China and later secured a faculty position (CN-22). More often, however, the outcomes are less favourable, said CN-22. She recounted that her Cambodian student struggled to complete his thesis, making post-graduation collaboration unlikely.

Regarding collaboration practices at diverse career stages, some early-career researchers (ECRs) and mid-career researchers (MCRs), such as CN-4 and CN-19, shared experiences of actively seeking international collaboration with more senior scholars outside

their existing institutional networks, often adopting a learner's posture to expand mentorship and support. However, participants noted that initiating such new mentorship-style collaboration can be challenging. For instance, CN-4, an early-career economist, reflected on his strategies:

I presented a meticulously crafted research proposal and some preliminary findings to capture the attention of this foreign senior researcher I want to work with. I notice that established researchers prioritise intellectual impact over publication quotas. So in order to engage them, I need to bring rigorous ideas to prove my values, not with superficial thoughts or transactional incentives. Successful collaboration hinges on aligning my proposal with their academic motivations. I have to always keep their interest in mind. (CN-4)

He also reflected on the different strategies he employed to engage senior researchers in China and abroad. In his experience, senior scholars in China were often less approachable outside their own student networks, whereas in several Euro-American contexts, senior academics tended to be more accessible and more willing to provide substantive feedback once a foundation of mutual respect had been established (CN-4).

While it can be difficult to secure collaboration opportunities with more senior international researchers, having these 'big' names on the co-publication can potentially mitigate systemic biases against ECRs in China and elsewhere, as observed by several participants. CN-19 highlighted how partnerships with established international researchers can enhance credibility in Chinese publishing: 'Including a renowned scholar like a US professor signals legitimacy to journal editors. It reduces desk rejections and accelerates the review cycles. A big-name co-author isn't just beneficial—it's often essential to bypass gatekeeping.'

Leveraging the academic capital of established scholars was found to be especially helpful in theory-challenging work where ECRs might struggle to publish independently, participants said. CN-6 mentioned his experiences where his findings went against the

mainstream theoretical argument and was rejected for insufficient empirical evidence. ‘But I see similar cases being accepted when they have an established name in the author lists,’ he said.

Yet the opportunity to mobilise academic capital may not be equally desirable for researchers at all stages. CN-5 reflected on her reducing motivation for international collaboration compared to her experiences working with a senior French scholar ten years ago,

I remember being so excited about the collaboration opportunity and it went very well. But if another foreign professor approaches me today, I don’t think I will take it again — the time and energy costs of an international collaboration are just too high. I have a lot more responsibilities than I did ten years ago. (CN-5)

Participants demonstrated considerable agency in turning mentorship into a platform for ongoing exchange, securing publication opportunities, and pursuing theory-challenging work despite systemic gatekeeping. Early- and mid-career researchers often initiated collaborations through carefully crafted proposals aligned with senior scholars’ interests, while others tried to build regional networks or joint programmes to sustain cooperation. Although sustaining such ties demanded significant time and resources, these accounts show how researchers leverage personal initiative to offset structural disadvantages in global academic competition.

6.2.2 Pooling Resource and Complementary Expertise

This section examines how participants mobilised complementary expertise, resources, and networks to forge mutually beneficial international collaborations, extending well beyond joint publications. Such partnerships often drew on the distinct methodological skills, cultural perspectives, and institutional connections of each party, enabling them to address shared

research interests with greater depth and scope. These efforts ranged from sustained personal rapport that matured into long-term institutional exchanges, to the co-design of cross-national studies, the establishment of academic associations, and the creation of regional research platforms. By strategically pooling resources, participants not only overcame geographic and disciplinary boundaries but also amplified the visibility and impact of their work in global academia.

US-2, a postdoctoral researcher in the US, collaborated with a Chinese colleague during their work in the US and sustained the partnership after both returned to their home countries. They drew on their respective education systems to co-design a cross-national comparative study, which was later turned into several papers. US-2 described how their framework was not predefined but inductively co-constructed through an iterative process of comparison and selection.

In order to develop this comparative framework, we discussed for so many rounds—I can barely remember the number of online meetings we had. The way we do it is I first write down the things and areas I found relevant to our topic in my higher education system. I give very detailed examples. And she does the same. Then we come together to look at the nature of those examples—whether what she has given can match with mine. We then leave out the incompatible ones, and brainstorm more compatible ones. (US-2)

US-2 also reflected on both the frustrations and the unique value of this method: ‘It was particularly challenging because in many areas I could list numerous examples, while my collaborator had none to match. We had to give up many strong examples in order to build a solid analytical framework.’

Similarly, CN-18 initiated a data workshop based on shared research interests and compatible work habits during her PhD studies with fellow doctoral students at a US university. After returning to China for her academic position, she continued the workshop

remotely, which eventually led to several co-authored papers among the original group. As she reflected: ‘I really appreciate that we are able to challenge each other’s assumptions and offer thoughtful feedback. Communication is easy for us—we’ve known each other for a long time and speak the same academic language.’

Other participants reported how shared publication goals and complementary academic resources can enable international collaboration. SK-1 often reached out to Chinese researchers in international conferences and proposed for co-publication, highlighting his strategic motivations:

I know China and South Korea both have very demanding requirements of publication volumes in research evaluation – we all want to publish more. In my field, integrating Chinese datasets with South Korean metrics creates unique analytical value and aligns with the popularity of China-related studies in top economics journals. Our collaboration benefit both sides. (SK-1)

Similarly, US-4 described how he and his China-based collaborator combined their distinct methodological expertise and cultural perspectives to pursue their shared interest in economic issues in rural China. He emphasised the stimulating intellectual reciprocity of working with the Chinese scholar–official, noting how their exchanges on the historical and social contexts of both the US and China enriched and informed their research praxis.

US-4 said

I introduced how things are in the US. And he curated readings for me on China’s 3,000-year history, from the Shang dynasty to contemporary reforms. I got to understand a little bit about the attitudes and beliefs in China, and how they've changed. (US-4)

Notably, the Chinese scholar's decades-long dedication to Chinese farmers' welfare, rooted in post-Cultural Revolution commitments, reshaped US-4's view of scholarly responsibility:

I learned how research can merge with public service. He was always interested in improving the situation of the farmers. And why he did that? I mean he had been doing that ever since the Cultural Revolution and he was very admired because of his dedication to ordinary people. I introduced him to the president of my university, and he said that he [the Chinese intellectual] was one of the greatest men he's ever met. (US-4)

Their individual rapport eventually formalised into a sustained departmental partnership, facilitated by intergenerational continuity: the Chinese scholar's student later assumed leadership of the Chinese university, becoming a 'linchpin' for the institutional collaboration (US-4). Over decades, the partnership fostered bidirectional scholarly exchange, with over 20 Chinese PhD graduates completing postdoctoral fellowships at the US university. 'Many returned to secure faculty positions across China,' US-4 emphasised, 'fulfilling our shared goal of nurturing globally engaged academic leaders' (US-4).

Participant CN-10 also observed a recent surge in unsolicited collaboration invitations from international researchers seeking his access to, and expertise with, data rooted in the Chinese context. He said,

I regularly receive cold-contact invitations via email, often from assistant professors like myself. They typically become interested in my data or methods through my publications and then propose a potential collaboration topic. If I find the idea compelling, we move quickly into the design and implementation phase. (CN-10)

Some participants pooled complementary resources not only to produce international co-publications but also to establish academic associations, co-convene international courses, and develop collaborative platforms. Participant CN-4 shared his experiences of establishing a special issue for an academic journal where he invited a group of international scholars as editors and reviewers. He believed undertaking such international communicative work can

‘enhance the social impact of regional research and benefit the overall development of the discipline, despite huge efforts in coordination’ (CN-4).

Several participants in senior academic positions shared similar experiences managing international associations and conferences. CN-9 said,

I believe my real international collaboration is not based on co-writing papers but organising international academic associations and conferences. They bring together the most excellent professors and emerging researchers to share cutting-edge ideas and promote innovations... I also co-develop a course with an international researcher for ten years now. He gave me tremendous help and I gain lots of insights from discussing the development of the course. (CN-9)

CN-8 described his role as the president of an international association based in the US, where he organised annual conferences and merit-based research awards in which top researchers worldwide participated. He also led the writing of annual reports synthesising emerging topics of the year, underscoring the value of ‘drawing on diverse country cases to address global themes.’ (CN-8). Some researchers aim to build regional research networks.

CN-10 detailed his university’s ‘proactive efforts to foster international ties through joint seminars with universities in Japan and Singapore, creating structured platforms for faculties and students to share research updates and promote regional communication.’

Participants also reported that international collaboration was established between researchers and other stakeholders such as industry and government. CN-17 founded an international association linking AI with higher education leveraging dual expertise in academia and applied technology: ‘We collect data from the industry side to facilitate innovative research at the global level; industries generate revenue based on the application of innovative research. It’s a win-win game.’ CN-9 collaborated with some UK and US industrial partners to investigate to what extent privatisation can help the development of some Chinese enterprises. CN-21 joined a Chinese government-led project collaborating with

French government officials on the French education systems, providing practical implications on the education collaboration between the two systems.

Across cases, participants demonstrated considerable agency in combining their unique strengths and networks to co-produce knowledge and sustain international collaboration. Many cited the intellectual enrichment that came from contrasting educational traditions and socio-historical contexts, as well as the practical advantages of integrating complementary datasets, methodologies, and institutional resources. In several instances, sustained personal relationships evolved into enduring institutional linkages that nurtured new generations of globally connected scholars. Others extended collaboration into the realm of academic governance, industry partnerships, and regional research networks, positioning themselves as convenors and facilitators of knowledge exchange. These examples illustrate that when complementary resources and expertise is pooled consciously, international collaboration can foster long-term communication and innovation.

6.2.3 Negotiating Asian Efficiency and Euro-American Criticality

Participants' accounts revealed that contrasting cultural norms around efficiency and critique shape collaborative practices in international research, yet these differences also create space for adaptive strategies and evolving relations. In many Asian research settings, efficiency is equated with respect, cohesion, and deference to authority, while Euro-American contexts often privilege critical debate as a driver of intellectual progress, as observed by participants in this study. Rather than fixed cultural binaries, these encounters became sites where researchers actively negotiated styles, rebalanced authority, and blended approaches in pursuit of both productivity and mutual enrichment.

Participants shared that in many Asian research contexts, resolving disagreement quickly and preserving group harmony are often viewed as effective and respectful practices. This often means hierarchical clarity and deference to authority are highly valued, with fast-paced deadlines for deliverables, according to participants. For instance, SK-1 confessed that he in fact preferred the efficiency approach and actively avoided collaborators who did not share similar working styles: ‘Disagreements in Asian teams are resolved quickly—members defer to the leader. But many of my European collaborators think the more you argue, the more contribution you are making.’ SK-1 said that deference was not necessarily a sign of passivity, but a mechanism for maintaining interpersonal trust and ensuring group cohesion.

SK-1 acknowledged that critical discussions can potentially produce innovative outcomes, but found them to be time-consuming and emotionally draining, especially when compounded by language barriers. Reflecting on his PhD experience in the UK, he recalled the frustration of watching his two British supervisors regularly disagree, which he felt significantly slowed his academic progress. In contrast, he noted that the Asian approach to decision-making was more practical and less confrontational, often involving a quiet withholding of alternative opinions until necessary. ‘Deferring to the leader does not mean other team members do not have opinions. If the initial decision was rejected or requested revision, alternative options and routes would be brought up again. (SK-1)’ This style of indirect negotiation relies on the team leader’s judgment and a collective understanding that team members will contribute strategically when needed, rather than through constant critique, said SK-1.

Participant SK-3 resonated with SK-1’s preference of efficiency and practicality, saying:

It’s easier when all the international colleagues share this consensus that the goal is to write something good enough for publication before the deadline. Whoever’s idea got

implemented does not necessarily mean their approach is better or others' are of less quality. More often the decision reflects practical constraints, such as a lack of time or other resources. (SK-3)

CN-18 reflected on her discomfort when she and her US collaborators do not share the same orientation and approach towards overt confrontation during a disagreement:

As a Chinese I tend to resort to action over words when there is a disagreement. It is really difficult for me to start a debate or make a critique in public. But I would always put serious thoughts to the disagreement... A lot of times consensus among Chinese is reached through subtle adjustments rather than explicit debates. (CN-18)

Participants such as US-3 expressed confusion towards such subtle negotiation: 'I raised an issue in the team meeting but my Chinese collaborators did not respond much. I'm not sure if they understand what I was trying to convey. Do they agree with it or disagree with it?' US-3 observed that different communication styles can lead to potential misunderstanding.

Participants noted that differing cultural assumptions and work styles influence how authorship is understood, allocated, and sometimes negotiated in international collaborations. CN-18 compared Chinese and US practices, noting that in China, labour and authority are often centralised in the lead author—a convention rooted in respect for seniority and the perceived efficiency of streamlined decision-making. She said:

In the US, as a second author, you're expected to pull real weight, at least 30–40 per cent of the work. But I notice that in China, leading authors usually do 90 per cent of the work. The underlying values are both efficiency and gesture of respect: if I don't get the first authorship, I won't devote as much effort. And I respect your authority as the first author to make decisions. (CN-18)

In contrast, participants observed that many Euro-American researchers seemed to favour a communication style characterised by open critique and robust debate. CN-14, a Chinese scholar who collaborated with French researchers, admired their willingness to engage in

what she called ‘intellectual negotiations.’ She eventually endured the emotional toll of such debates as a process of exchange of intellectual enrichment, saying: ‘French colleagues dissect every assumption. It’s exhausting, but it pushes your thinking.’ Yet CN-14 also noted variations across Euro-American contexts. ‘Unlike French scholars who are direct and critical, some British scholars tend to be more polite and reserved when making comments,’ she observed.

CN-16 observed that research methodologies can shape the extent of debate and negotiation in international collaborations.

I think qualitative research offers more space for debate. Researchers can contribute different perspectives and ideas to address the same topic. In quantitative research, we usually encourage team members to test various analyses until we find statistically significant results. The clearer criteria for determining quality mean that negotiations are often less necessary. (CN-16)

Across diverse collaborations, participants navigated tensions between Asian efficiency and Euro-American criticality by strategically adapting to team norms while preserving their own working preferences. Some valued the speed and harmony of hierarchical decision-making, while others embraced or gradually accommodated the intellectual stimulation—and emotional strain—of sustained critique. These negotiations highlight how researchers exercise agency within structural and cultural constraints, forging hybrid modes of collaboration that evolve over time through mutual respect and an awareness of practical constraints.

Across its three sub-sections, 6.2 shows that international collaboration is the result of thoughtful practices of capital mobilisation, resource sharing, and style negotiation by individual researchers. Mentorship ties forged through doctoral study or visiting fellowships could be extended into durable partnerships, enabling access to advanced methodologies, reputational legitimacy, and publishing opportunities that might otherwise be out of reach. Pooling complementary datasets, cultural insights, and institutional linkages allowed

participants to address shared questions more expansively, sometimes scaling personal rapport into long-term institutional relationships. Differences in cultural norms such as Asian efficiency and Euro-American criticality were not simply barriers, but sites of negotiation where hybrid practices emerged over time. Together, these accounts depict collaboration as a dynamic process shaped both by inherited structures and by the adaptive strategies through which researchers expand their scope of action.

6.3 Trust Building

Section 6.2 showed that international collaboration emerges through the adaptive strategies of individual researchers, mobilising mentorship ties, pooling resources, and negotiating divergent styles. These practices enabled access to advanced methodologies, reputational legitimacy, and publishing opportunities, while also transforming cultural differences into spaces for hybrid ways of working. Yet, as participants stressed, the effectiveness of such efforts ultimately hinged on one underlying condition: trust. Trust surfaced across participants' accounts as both a precondition and a continuous practice in international collaboration. Participants shared practices where trust is actively constructed through respect, openness, and reciprocity. While cultural familiarity, seniority, or gender sometimes shaped who was initially perceived as credible, participants stressed that enduring trust depended on how collaborators related to one another, whether through inclusive leadership, mutual recognition, or reliable everyday practices. In this sense, trust was perceived by participants as both relational and ethical, built through intellectual generosity as much as through consistent responsibility.

6.3.1 Respect, Credibility, and Authority

Participants' accounts revealed that trust in international collaborations was practised and negotiated through everyday interactions. While cultural familiarity could ease initial rapport, sustaining trust depended on how researchers related to one another, whether through inclusive leadership, reciprocal recognition, or careful navigation of age and gender hierarchies. These experiences highlight how credibility and authority were relationally constructed, with researchers actively shaping conditions of trust across uneven contexts.

A recurring theme in participants' accounts was that cultural familiarity often serves as an implicit foundation for building trust in international teams. CN-10 observed that Chinese researchers without overseas study or exchange experience frequently encounter higher barriers to collaboration, not necessarily because of their academic merit, but because they and international colleagues lack shared cultural reference points. He noted his experiences working with US-based researchers:

It almost feels like a cultural icebreaker to talk about NBA games or baseball leagues. I think some Chinese researchers may find themselves at a loss in an international team with US colleagues if they haven't spent some time in the US. (CN-10)

While such cultural references may serve as informal gateways to interpersonal ease, they can also operate as subtle filters of inclusion, reinforcing hierarchies over who is readily perceived as approachable or reliable, as CN-10 reflected. CN-7 recounted experiences in which these cultural hierarchies were deliberately mitigated by the team leader to foster more balanced trust relations. In her multinational project, she observed that the lead researcher consistently checked with members on contextually sensitive interpretations and deliberately

avoided culture-loaded remarks that might alienate some team members. For CN-7, this climate of mutual respect was what sustained the interpersonal trust in the team across multiple outputs.

I mean language may be an issue, but I don't find cultural differences in any way discredit me more than others. The leading author respected every member's approach—she always asked us whether her interpretation was okay when she encountered contextually sensitive issues. Eventually we produced three research articles and a book, and no team members dropped out during the entire process. (CN-7)

Beyond cultural hierarchies, participants also emphasised how age and gender shaped the negotiation of authority and, crucially, the practices through which trust was cultivated. SK-3 highlighted the significant weight seniority carries in South Korean academic culture, where younger researchers are often expected to defer to senior colleagues, even when holding different views. She said this dynamic not only created emotional and professional strain but also limited the possibility of building trust on equal terms. By contrast, she found international collaborations offered more balanced partnerships:

When I collaborate with senior South Korean colleagues, I have to take on more work and follow their opinions. But when I collaborate with European researchers who are also more established than me, they trust my ability and treat my thoughts as equally valuable. (SK-3)

Gender hierarchies were found to further complicate trust relations. China-based female researchers like CN-9 and CN-14 noted that early-career female researchers often struggle to gain the same recognition, respect, or access to resources as their male counterparts. 'My expertise may be doubted, and my ideas sometimes overlooked. Building trust and credibility just takes more efforts for females than males,' said CN-9. 'In some cases, I had to earn the trust and prove myself again and again, which is both exhausting and professionally limiting. But in a group of female researchers, I instantly feel more trusted and respected,' CN-14 said.

Participants from other countries described similar experiences. PK-2 recounted collaborating with her dean from the same Pakistan institutional and several senior male China-based researchers. She noted her insights were silenced or overlooked, ‘Honestly, my opinions were not taken seriously as they were all senior males.’ However, with peers closer to her own age, the collaboration relations were markedly different: ‘If I collaborate with colleagues at my age group, then it carries more weight if I say this is wrong and I want to change it.’

Interestingly, some participants offered a different perspective on distrust shaped by age or gender, describing how they strategically transformed experiences of indignance into opportunities for personal and professional development. CN-16, who initially felt frustrated by the lack of trust senior researchers placed in junior colleagues, later came to see such underestimation as a catalyst for growth:

At first, I thought it was unfair. But over time, I realised that many of my earlier ideas that were rejected were indeed immature. Staying humble and focusing on improvement helped me grow faster than my peers. If you constantly feel undervalued or exploited, you stay stuck in complaint and don’t grow as quickly. In the end, it’s a personal choice. (CN-16)

Similarly, while CN-18 recalled that her senior collaborator did not fully trust her capability or accord her sufficient respect through authorship, she nevertheless valued the very existence of their feedback—even when it felt unfair—as a source of guidance. Without such input, she reflected, she would have felt entirely without direction.

It may seem that I took on more work than I was credited for, but there are benefits that cannot be easily measured. Early in my career, I often felt isolated and unsupported, so even the smallest piece of feedback—whether positive or critical—from a more experienced researcher offered me a reference point to adjust my path. That guidance gave me a sense of direction I would not have had working alone. As a result, I eventually published six papers within two years of my postdoc, and my citation counts increased significantly. (CN-18)

In participants' reflections, trust emerged as something actively built through recognition, humility, and negotiation. While some encountered exclusion rooted in cultural, age, or gender hierarchies, many either transformed these experiences into growth opportunities or relied on inclusive leadership to foster respect. Credibility and authority, in this sense, were shown to be relational achievements sustained through everyday practices of building trust.

6.3.2 Receptiveness, Responsibility, and Reciprocity

Participants consistently emphasised that trust in international collaboration is cultivated through openness, responsibility, and relational care. Staying receptive to new ideas and perspectives was seen as a necessary foundation for communication across cultural and disciplinary divides. Trust was further reinforced through embodied experiences such as in-person visits, the presence of cultural 'brokers,' and everyday practices of reliability in meeting deadlines and maintaining reciprocity.

Staying receptive to new ideas and different perspectives was frequently emphasised as the foundation for the participants' building of trusted and sustainable international collaborations. 'Without open-mindedness, you can't have an effective communication with someone from a different cultural and academic background,' said CN-14.

Several participants mentioned in-person visits to other countries as a practical approach to enhancing an open mindset. CN-16 said that 'These visits provide access to authentic knowledge of other societies, enable face-to-face rapport, and help reduce assumptions.' CN-19 found researchers who have not visited China in person more biased and less flexible to communicate with compared to those who have: 'First-hand experience in China tend to help international researchers develop more nuanced understanding when

interpreting the Chinese realities. Secondary sources and media coverage can be misleading sometimes.’

Trust can also be supported by the presence of a ‘diplomatic’ or ‘cultural broker’ figure in the research group—someone who is deeply familiar with multiple contexts and can mediate across them. CN-15 remarked that, ‘a group of researchers can all speak very good English but still be difficult to collaborate if they are not familiar with each other’s culture and research policy.’ He recalled where a UK researcher with extensive in-person visits and collaboration experience with China was essential in his international team involving Chinese, UK, South Korean and Chilean colleagues: ‘He mediated trust-building by interpreting cultural concepts and institutional differences so that all parties can communicate smoothly.’ CN-15 further drew on a historic anecdote to describe this trust-brokering function:

It’s like when Eastern Wu Kingdom and Shu Han Kingdom engaged in a diplomatic negotiation in the Three Kingdoms Period, the presence of Lu Su (鲁肃), Eastern Wu's judicious diplomat who is familiar with and trusted by Shu Han, can significantly facilitate the discussion, transforming complex negotiations into collaboration against other enemies. (CN-15)

CN-15 elaborated the key role of a trust mediator with more examples. One of their collaborative studies involved data collection from museums and galleries in each team member’s country. Museums in the UK and US were generally cooperative with research requests, but Chinese museums are less inclined institutionally or culturally to participate in academic research.

Other colleagues thought we were slacking and slowed down the group progress. But they were too polite to point it out. They later communicated with the UK researcher who understands China’s situation and found out what was really going on. (CN-15)

Beyond cultural understanding, participants highlighted being responsible and reliable with replies and deadlines as essential practice for building and maintaining trust in international

teams. CN-19 emphasised that in the face of logistical barriers, trust in international teams is cultivated through consistent work ethics and a commitment to collective effort.

It may happen that the researcher themselves are outstanding on their own, but they may not be good team players. I'm usually very cautious about choosing a collaborator – I would observe what they are like personally and professionally for some time before deciding whether to collaborate with them. (CN-19)

CN-3 observed that some China-based researchers are not always perceived as trusted team players in international collaborations, attributing this to limited training in teamwork and concerns about collaboration ethics.

I think Chinese people, or East Asians in general, are not sufficiently accustomed or trained for collaboration. We often prefer to spend time solving a problem individually rather than coordinating within a team. We lack systematic education in teamwork. In addition, the awareness of intellectual property is weaker compared to some Western countries. Some international researchers may consider collaborating with China-based researchers risky particularly regarding ethics and data security. (CN-3)

SK-3 described trust as something cultivated through repeated and reciprocal interactions, which not only helped overcome logistical challenges but also fostered both professional development and personal friendship:

Despite early morning or late-night calls, I appreciated the professional and personal growth I gained through in international collaborations. The kind of reciprocal sharing and trust building process is magical and refreshing. I've learned so much about how things work in other families and other countries, about life, about everything. I become close friends with some collaborators. (SK-3)

Accounts in this section highlight trust-building as both an intellectual stance and a relational practice. Open-mindedness, face-to-face encounters, and cultural mediation were described as

key to dismantling bias and sustaining cross-border partnerships. At the same time, participants stressed that trust depended on consistent work ethics and ethical collaboration, with lapses in responsibility or teamwork risking reputational damage. For others, trust deepened over time through reciprocal exchanges that transformed logistical challenges into opportunities for professional growth and even personal friendship. Together, these reflections underscore that sustainable international collaborations are anchored in relational trust, cultivated through everyday practices as much as through intellectual exchange.

To summarise, participants' reflections reveal that trust-building in international collaboration extends beyond technical competence into the terrain of respect, responsibility, and relational care. Cultural and social hierarchies could at times undermine credibility or silence contributions, yet trust was often restored through inclusive leadership or transformed into opportunities for growth. Equally, open-mindedness, face-to-face engagement, and cultural mediation were described as vital in reducing bias and fostering understanding across contexts. Trust was also seen as inseparable from everyday responsibility, meeting deadlines, reciprocating effort, and safeguarding ethical integrity. Over time, participants argued that these practices allowed trust to grow into deeper forms of reciprocity, generating not only professional outcomes but also personal friendships. In this way, trust-building appeared as the fragile but essential glue that sustains international collaboration.

At the same time, the very practices that built trust also revealed underlying relations of power, shaping who was heard, who set the terms of collaboration, and whose knowledge counted. Participants' accounts suggested that trust could not be fully disentangled from questions of authority, hierarchy, and agency. In some cases, inclusive leadership enabled trust to flourish; in others, weak management or entrenched hierarchies undermined it.

Moving from the theme of trust, the following section examines more directly how power is enacted, negotiated, and resisted in international collaboration, focusing on leadership and team management and on the agentic strategies through which individual researchers resist, renegotiate, or reconceptualise established hierarchies.

6.4 Negotiating Relations of Power

Power in international collaboration does not manifest only in formal hierarchies of authorship or institutional rank but is woven into everyday practices of coordination, interpretation, and knowledge production. Participants' accounts revealed how relations of power are both enacted and contested through leadership and management on the one hand, and through the agentic strategies of individual researchers on the other. While strong leadership could sustain trust, dialogue, and productivity, poor management often deepened misunderstandings or derailed projects. At the same time, researchers at different career stages demonstrated how they could resist, negotiate, and even reconceptualise established hierarchies, transforming unequal structures into spaces of intellectual agency.

6.4.1 Leadership and Team Management

Within the broader dynamics of power that shape international collaboration, participants drew particular attention to the role of leadership and team management. Authority is not only negotiated through authorship or interpretive control but also enacted in everyday

practices of coordinating people, ideas, and resources. Accounts showed how project leaders, through their ability to balance intellectual vision, interpersonal sensitivity, and organisational capacity, often determine whether collaborations become productive partnerships or fall apart.

Participants shared experiences of resisting the authority of team leaders and strategically navigating interpretive power within international collaborations. CN-14's recalled moments when her European project leader proposed interpretations of data that rested on stereotypical assumptions about Asia. Rather than accepting these views passively, she challenged the team leader with alternative, evidence-based explanations grounded in local teacher training data. 'We eventually turned the disagreement into an opportunity of critical cross-cultural dialogue,' said CN-14.

Similarly, CN-23 described ongoing conflict with her South Korean project leader over research design quality and described how she coped by quietly taking on additional work herself:

He tended to rush into flooding surveys with questions that lacked theoretical grounding to maximise productivity. I had to quietly refine his questionnaire, taking on the additional workload of literature review and item development. I couldn't allow semi-satisfactory work to be published under my name. (CN-23)

Participants defined good team leadership from various aspects. CN-5 likened leadership to emotional and motivational stewardship: 'You need someone to keep the momentum and push you forward.' Bai praised her French team leader for balancing intellectual guidance with interpersonal sensibility: 'He can identify compelling research topics, write good grants, and inspire intellectual curiosity—not just diligence.'

US-4, a senior US-based researcher with longstanding collaborations in China, described his leadership approach where he delegated fieldwork and preliminary analysis to his Chinese collaborators:

I hire Chinese PhD students, lots of them by now, as fieldworkers... Then my collaborator team at X university in China and the leading Chinese researchers run the data analysis. I sort of look at their draft and write the final version... I manage things at the top level. (US-4)

He found such clearly defined responsibilities effective for his team, but also reflected on his difficulty in engaging Chinese collaborators at a more conceptual level:

My Chinese collaborators are not used to thinking theoretically. There's not the body of teachers in China who can impart to the students what good theory looks like... But I think that's something that will come eventually. I mean it has come in physics... And in environmental issues, there are eminent scholars who know how to make predictions based on theory. (US-4)

Some participants noted how researchers of different cultures and genders enact leadership power. CN-15 observed: 'My South Korean PI was meticulous but emotionally unstable. British PIs were more reserved. European collaborators are more straightforward... Sometimes what's understood by a Chinese colleague might confuse a German one.' CN-17 added on the gender aspect: 'Female PIs tend to be more polarised. Gentle female leaders tend to be more inclusive, while assertive female PIs show more assertiveness than male counterparts. Male PIs usually keep a middle ground.'

Participants also shared experiences where leadership responsibilities are assumed differently in different countries. For instance, CN-2 compared being the team leader in international collaboration and in domestic collaborations:

As the leading researcher in international collaborations, I tend to decide on the broad research scope, and my collaborators and I work together to refine and implement the design. But when I initiate collaboration with Chinese researchers, there is sometimes the assumption that team leader would take on 80 per cent of the work, while other members just take on more supportive roles when you need them. (CN-2)

The key dilemma team leaders need to navigate is the balance between assertiveness and efficiency, reflected CN-22. ‘An overly receptive leader risks chaos; an overly assertive one may stifle collaboration. Ideally, leaders balance both. But if I had to choose, I’d prefer assertiveness—it gets things done.’

Several participants emphasised that leadership can often decide whether an international collaboration makes or breaks. Bai shared a failed attempt of a China-US collaboration:

The Chinese colleagues felt the US researcher’s proposal was too narrow and wanted to incorporate policy-oriented elements. I don’t remember the team leader putting in much effort to strike meaningful conversation between both sides. The disagreement was left unresolved after a while. (Bai)

CN-22 also described her observation of a failed international collaboration which she attributed to the weak leadership:

It was basically a mess. The China-based team leader invited a US researcher to co-author a policy report but abruptly shortened the deadline just a week before completion. The materials he provided were written in a *sibian*-style format, difficult for non-Chinese scholars to interpret, and when the US collaborator requested supplementary explanations, the leader was unable to provide them. (CN-22)

CN-5 described a slow-moving collaboration that was eventually abolished: ‘The leading US scholar was just too busy. Communication was hard. The team had to revisit past decisions again and again. At some point I got too frustrated and left.’

Even with solid leadership, participants noted that collaboration can still fail because efforts were often disrupted or rendered obsolete as circumstances shifted. CN-2 reflected on her experiences convening several international collaboration projects:

People have their own agenda. Early-career-researchers are more willing to grasp all the opportunities and compromise some personal life. But more senior researchers

don't accept just any collaboration because they have more responsibilities. And particularly for female researchers, international collaboration means they need to negotiate family commitment with mobility, which can be very complicated. (CN-2)

These accounts demonstrate that participants see leadership as a key site where relations of power are crystallised and contested in international collaboration. Effective leadership can create the conditions for trust, dialogue, and sustained output, while poor management can amplify cultural misunderstandings, silence alternative voices, or derail projects altogether. Participants also highlighted how leadership styles are shaped by cultural and gendered expectations, producing different patterns of authority and inclusivity. Ultimately, leadership emerged as central practice to navigate the fragility of collaborations and reveal how power operates within them.

6.4.2 Agentic Negotiation, Resistance and Reconceptualisation

Participants' accounts revealed that relations of power in international collaboration are not pre-determined by structural hierarchies. Through the everyday practices researchers resist, negotiate, and reshape hierarchies. Rather than remaining confined to technical or supporting roles, many described scenarios where they actively redefined their positions, asserted interpretive authority, or pursued new conceptual directions. These practices highlight how agency is exercised within, and sometimes against, unequal power relations.

CN-4 noted the subtle compromises Chinese researchers often make to accommodate the schedules of international collaborators, while emphasising his own conscious resistance to this practice:

I've noticed that Chinese researchers frequently adjust to the time zones of their international collaborators. This partly reflects our cultural traditions of deference, the fact that we work longer hours, and perhaps our more limited discursive power in the global scientific system. But I don't think this kind of courtesy is necessary. Personally, I usually alternate with my collaborators so that we share the burden of time differences. (CN-4)

More broadly, he reflected on the influence of international collaboration on his epistemic growth which led to his decision to potentially leave Chinese academia:

I think collaborating with international colleagues helps me sort out some messy ideas in my mind and identify where I can build theoretical innovation. My international collaborators have a very nuanced grasp of theoretical issues—maybe because many social theories originated from their countries. (CN-4)

I think comparatively many of my Chinese colleagues are a bit utilitarian focused. I'm thinking about returning to the UK to work because I consider myself an authentic scholar and would align better with the UK environment. It's very hard to do authentic research in China. The culture is not very good for knowledge production. (CN-4)

CN-11, currently a senior professor in economics, stayed in the Chinese academia and evolved into a conceptual leader in various international collaborations:

Now when I invite international colleagues to join my project, I usually take the work of formulating research questions and framing the research objectives. My collaborators often take on the work of translating my ideas into formal models. But I've accumulated much experiences along the way to reach this point. (CN-11)

He was pleased to observe that his international co-publications have positively influenced the research community in China and in collaborating countries: 'People recognised the high quality work we did in these collaborations which have created a spill-over effect—other

researchers in China and abroad are learning from our framing and methodological approaches.’

Now also an established professor in economics, CN-9 shared his journey where he acquired academic capacity and confidence during his PhD training in an elite university in the US and later applied them to lead theoretical framework in international research and collaboration. ‘My US supervisors told me that developing your own theory is challenging but ultimately worthwhile. They also said that after spending some time at this university, I would never feel intimidated anywhere else.’ He later developed various theoretical frameworks discussing the role of the government in technology innovation, which were adapted by some South Korean collaborators to their local context.

Still evolving as a middle-career-researcher, SK-3 demonstrated agency beyond simply assuming technical responsibilities in her collaboration with a team of French researchers. She utilised the dataset provided by the French team to conduct an analysis rooted in her own methodological approach, focusing on a locally relevant topic.

I was originally invited to do some data collection, but I found the collected data suitable for a method I was developing. I suggested it to my collaborators, did some further analysis, and sent my preliminary draft to the French team. We had more discussion about how to refine the paper and eventually it was published in a really good journal. (SK-3)

Zi, an early-career-researcher, shared the aspiration of SK-3 but described his technical role as a pragmatic path towards professional advancement: ‘I still work on the data in most international collaboration as I accumulate more papers to get my tenure position. But I do want to go beyond this and work on more conceptual issues in maybe ten years.’ He added that he had been observing and internalising the norms of theoretical research through learning from more established collaborators.

CN-20 shared the process of negotiating interpretative power when collaborating with a US-based PhD peer. She recalled that they engaged in the collaboration as equals in conceptual design and framework and later encountered difficulties interpreting fieldwork data:

We had quite a bit of challenge when we tried to write it up because the way we understood what had happened during the fieldwork was just so different. He had a purely American mindset, and mine followed Chinese logic. So we decided to use very plain language to tell each other the story from our own perspective—until we could create an integrated version that made sense to both of us. Then we write the paper. (CN-20)

After round of simplifying concepts, questioning each other's assumptions, CN-20 found that what emerged was not just a shared publication but a richer understanding within themselves of each other's intellectual positions:

We stick to the intense discussion and negotiation throughout the project – none of us chose to just go with what the other was saying. And eventually we realised how differently people think about the same things and what new insights and innovative framework we can build collectively. (CN-20)

Bai shared her aspiration and approach to reshape the dominant intellectual agenda through conscious reconceptualising of existing frameworks and developing new theoretical routes, albeit still relying on Anglo-American collaborators to support, endorse, or strengthen the conceptual work. When writing a paper on university reform from a cross-nation comparative perspective, she said she actively collected data from Anglophone and non Anglophone country cases to build a more balanced lens but struggled with choosing the overarching framework. She sought help from her international collaborator Betty and eventually co-published the integrated framework:

I spent days sitting in front my desk reading and searching for a theory. Then I asked Betty if she had any idea – she read my notes and quickly suggested one framework.

Senior French scholars all have very good training in theories and philosophy... Chinese scholar like me just can't compete. We then integrate it with my data and developed a comprehensive conceptual framework. (Bai)

In sum, these cases ranged from subtle refusals of deferential routines (CN-4) to the gradual emergence of conceptual leadership (CN-9, CN-11). Mid- and early-career researchers (SK-3, Zi, CN-20) showed how even from technical entry points, they carved out intellectual space—whether by reinterpreting data, building hybrid frameworks, or challenging assumptions across cultural lines. Bai's efforts to reconceptualise dominant theories underscored both the possibilities and limits of reshaping intellectual agendas while still relying on Anglo-American endorsement. Taken together, these narratives demonstrate that power in collaboration is dynamic, continuously renegotiated through acts of resistance, reinterpretation, and creative theorisation.

The accounts in section 6.4 underscore that international collaboration is a site of power negotiation. Leadership emerged as a decisive factor in shaping practices and outcomes: effective leaders balanced vision with inclusivity, while weak or inattentive management often led to stagnation or collapse. Yet power was not unilaterally imposed participants described diverse forms of agency, from refusing deferential routines to gradually assuming conceptual leadership or co-creating new theoretical frameworks across cultural divides. These narratives show that the dynamics of relations of power in international collaboration are continually reshaped, revealing both the fragility of partnerships and their potential as spaces of critical dialogue, mutual growth, and intellectual innovation.

6.5 Summary

This chapter has demonstrated that international collaboration is not reducible to the structural conditions that shape its initiation, but is continuously reconstituted through the practices and experiences of researchers themselves. Enabling conditions such as overseas training, institutional infrastructures, or personal networks proved valuable in how participants actively mobilised them, extending mentorship ties, cultivating institutional goodwill, or strategically pooling complementary resources. Collaboration was further enacted through practices of resource sharing and style negotiation, where differences of academic culture or methodology became opportunities for hybrid approaches and innovative designs.

Trust-building emerged as a fragile but indispensable foundation for sustaining collaboration. Participants described how respect, credibility, and reciprocity were cultivated through everyday acts of responsibility and care, while also acknowledging how hierarchies of culture, seniority, and gender could undermine confidence and silence contributions. Yet, such hierarchies did not fully determine outcomes: trust was often restored through inclusive leadership, or reframed as an opportunity for professional growth and resilience.

Finally, the analysis of relations of power revealed the ambivalent role of leadership and the scope of individual agency. Effective leadership created conditions for sustained dialogue and productivity, while weak or authoritarian management deepened misunderstanding or derailed projects. At the same time, individual researchers demonstrated their capacity to resist deferential routines, assert interpretive authority, and reconceptualise frameworks—acts of agency that transformed unequal structures into spaces of intellectual creativity. Such negotiations underscore that power in collaboration is never static but continually contested and reshaped.

The findings of this chapter highlight collaboration as an evolving and negotiated practice. While shaped by entrenched inequalities, it is sustained and sometimes transformed through the everyday labour of researchers who mobilise resources, build trust, and renegotiate authority. In addition to the relatively static portrait of material and epistemic asymmetries in Chapter 5, this chapter has further demonstrated that collaboration is a lived process—fragile, adaptive, and deeply relational. Within international collaboration, agency and power are entangled, contested, and, at times, creatively reconfigured.

Chapter 7

Similarities and Differences in the Dyadic Groups

7.1 Introduction

This chapter extends the analytical arc of the thesis from structures (Chapter 5) and relational patterns (Chapter 6) to relational nuances inside specific collaborations. Chapter 5 offered a snapshot of how material and infrastructural asymmetries, institutional logics, and disciplinary cultures shape and condition participation and recognition in international collaboration. Chapter 6 moved from conditions to practices, tracing how international collaboration is enacted through interactional routines, trust-building, and negotiations of authority. Building on this trajectory, Chapter 7 adopts a close-up, dyadic lens to examine how those structuring forces and relational practices are lived and co-narrated within particular partnerships. The chapter addresses RQ3:

What are the similar and different negotiation and experiences of researchers in the same international collaboration?

It analyses paired accounts of five international dyads across Economics and Education. The dyadic design holds the project context constant while varying position, institutional location, and disciplinary socialisation, thereby foregrounding convergences (shared accounts of aims, process, and outputs) and divergences (valuations of contribution, authorship, pace, and voice) within the same collaboration. In this sense, the chapter provides a high-resolution

complement to Chapter 6: rather than mapping general relational tendencies across many cases, it constructs the micro-politics of collaboration as partners themselves experienced them.

While the sub-group of dyadic participants have emerged through the data collection process rather than planned deliberately, the cases possess sufficient variation to provide a rich account, albeit the fact that all international collaborators are based in Western countries. For instance, they vary in initiation (visiting appointment, supervisory lineage, peer partnership), duration (fleeting vs. enduring), discipline (economics vs. education), and institutional status (elite vs. non-elite settings). The findings in this chapter focus on various aspects of experiences: the origins of and motivations for collaboration; how the collaboration evolved and changed over time; the similarities and differences between the perceptions of the Chinese and Western researchers; perceptions (especially of the researchers from China) of the intersecting national and global factors; perceptions of the division of labour between participants, which often evolved over the course of the collaborative work; and perceptions of the relations of power between the participants. These themes were not all present in every set of interview data and the presentation remains mainly descriptive; it reports paired narratives and points of convergence/divergence without advancing excessive author's interpretation, which is reserved for Chapter 8.

Read alongside Chapters 5 and 6, the dyads function as a bridge between structural baselines and relational mechanisms. They show, in situ, how material infrastructures (funding streams, administrative support, publishing regimes) and educational/disciplinary socialisations (epistemic and methodological habits) surface inside meetings, drafts, and authorship decisions; and how interactional craft and nascent trust either stabilise or strain joint work.

7.2 Cheng with Chris (Economics): Fleeting Collaboration from Visiting Experiences

Cheng, a mid-career economics professor at a non-elite Chinese university, spent six months as a visiting scholar at a prestigious US university under the supervision of Chris, a senior professor in economics. Chris acknowledged that his international collaborations largely stemmed from his academic networks. ‘Almost all of my collaborators are my former students or the former students of my colleagues,’ he noted. For Cheng, the visit had both professional and personal motivations:

I obtained all my degrees in China and needed international experience to get promoted. I also wanted to take my child to study in the US for a while. Co-publishing papers wasn’t my priority. I had moved beyond the publication-driven mindset of early-career researchers. (Cheng)

In China, young scholars face intense pressure to publish, something Chris observed from his US perspective: ‘I never audit my colleagues from China—they work incredibly hard because they’ll be first or corresponding authors on every paper. In the US, authorship order doesn’t matter as much, but in China, it’s critical for career advancement.’

Cheng echoed this, noting that China’s focus on first-author publications discouraged broader research partnerships. ‘The evaluation system only values first-author publications, which makes domestic collaboration difficult.’ Regulation of authorship hierarchy shaped the nature of both domestic and international partnerships, influencing incentives and research dynamics.

Chris's research team was structured and well-funded, operating in a top-down style:

We collect 80 percent of the data ourselves. I raise funds, manage the broader research direction, and oversee multiple projects at the same time. I read every paper and edit it, but my team handle data collection, analysis, and drafting. (Chris)

During her visit, Cheng integrated into the team and later co-authored two papers based on existing datasets. Cheng and Chris agreed in describing the division of labour that governed their collaboration. 'Chris was like a supervisor—I shared my research ideas, and he provided insights on how to refine them,' she recalled. They met every two weeks, with Chris's team members supporting data analysis and writing. What Cheng found most rewarding was gaining exposure to Chris's broader theoretical perspective:

Our paper wasn't just a simple causation analysis—it was a theoretical exploration. These are the hardest to write because you need a deep historical grasp to situate current trends within a larger spatial and temporal framework. Chris's profound understanding of the field and his outsider perspective on China was particularly valuable. (Cheng)

Cheng was aware of the power dynamics at play in what was a junior/senior relationship. Conflicts were rare, both were experienced researchers, but Chris ultimately held more influence. 'Sometimes I followed his opinion when I was uncertain. It felt natural; his academic authority and ability to theorise were stronger. Over time, I learned to integrate his insights while maintaining my own voice.' This balance between deference and independence shaped Cheng's evolving academic identity. In economics, she noted, disagreements were less about fundamental theories (where Chris was the arbiter) and more about analytical approaches. 'Unlike sociology or education, where conceptual debates can be extensive, economics has more consensus on theories and methods. It's usually clear which approach makes more sense in a given context.'

After her return to China, Cheng and Chris did not continue collaborating. The logistical and time constraints of maintaining international partnerships made it difficult. Cheng's journey as a visiting scholar was shaped by multiple layers of experience—professional growth, cross-cultural academic exchange, and the dynamics of power and authorship in international collaboration. While the collaboration with Chris did not extend beyond the initial project, it left an imprint on how Cheng approached her work, 'I found the visiting experiences quite valuable, even if they hadn't ended up in publications. The collaboration has transformed me intellectually.'

7.3 Zi with Zach (Economics): Enduring Collaboration based on Supervisory Relations

After completing his PhD under Zach's supervision in the UK, Zi returned to China as an early-career researcher at a Chinese university. Zach is now working in a French university. Their junior/senior collaboration, which had begun during Zi's doctoral studies, continued, leading to over five co-authored papers. Zach's '*fangyang*' (free-range) supervisory style allowed Zi considerable autonomy, from developing research ideas to drafting papers, while Zach provided feedback at later stages. From Zach's perspective, his level of involvement as a co-author varied depending on the student.

I don't always take an active role in every project. It depends on the student's ability and approach. Zi was particularly strong at formulating research questions and identifying databases. He engaged deeply in publishing, which turned out to be very productive. (Zach)

Zi resonated, noting, ‘I think I’m among the top three of Zach’s PhD students in terms of the number of co-publications.’

Despite their fecund collaboration, occasional disagreements arose, as both acknowledged, particularly where academic analysis intersected with historical and political sensitivities. One such instance occurred when they co-authored a paper on an economic issue framed from a historical comparative perspective. Zach initially suggested using Country A as a reference point, believing it to be a strong analytical choice. However, Zi hesitated, noting that ‘while it was academically reasonable, it was affectively insensible from the Chinese perspective, as it related to a disputed historical event.’ After discussing the broader context, they eventually agreed to use Country B instead, considering both political and ideological factors. In such moments the complexities of integrating different cultural and geopolitical perspectives were apparent.

Despite these differences Zach found working with a Chinese researcher and across multiple perspectives to be intellectually fruitful.

I learned quite a bit about the relationship between the West and China, as well as about issues that are deeply internal within China. You gain an entirely different perspective. That additional set of eyes usually makes your paper better. (Zach)

Their discussions moved from global economic principles to social and economic policy problems that were specific to China. Zi discussed how the collaborators explored the economic implications of the *hukou* system, the Chinese household registration system that restricts rural migrants’ access to healthcare and education when they move to urban areas. They exchanged views and bridged insights from both Chinese and Western perspectives.

When reflecting on how disciplinary norms shape international collaboration, Zi echoed Cheng’s observations about economics’ structured and standardised frameworks. He

noted that the field's methodological consistency makes it easier for scholars from different countries to align conceptually and use shared analytical tools. Zach agreed, also emphasising the pragmatic and adaptable nature of economics. 'Economists study a wide range of subjects, from crime to marriage, in any country. The beauty of the discipline is that almost any issue can be framed through equations and economic models, making collaboration highly flexible.'

Unlike Cheng, who did not continue collaborating with her international mentor, Zi maintained his research partnership with Zach, noting a distinct difference between working with international and domestic colleagues. International work facilitated curiosity-driven research. 'I haven't found a domestic collaborator yet. The approach to research felt different between collaborating with domestic researchers and international collaborators. Social science research in China tend to emphasise policy implications rather than pure personal interest.' Zi and Zach's partnership, in which relations of power were more symmetrical than in Cheng and Chris's, reflected both the opportunities and challenges of international work. While shared disciplinary structures facilitated collaboration, cultural and political considerations required careful negotiation. Their ongoing research journey underscored how international collaborations are not only about co-authoring papers but also about individual change, mutual learning, intellectual exchange, and navigating complex academic landscapes across different systems.

7.4 Lan with Leo (Education): Adapting Anglophone Frameworks to Local Realities

Lan, a female early-career education researcher in China, had known Leo before her PhD when both were working in a Chinese university, and their shared interest in education technology led Leo to become Lan's informal supervisor. Their collaboration continued after Lan finished PhD and Leo moved back to work in Australia. The collaboration began as a junior/senior relationship but was largely driven by Lan's initiative and also sustained by her workload. Relations of power became more equal over time and Lan moved into a leading role.

Lan habitually took a proactive role in scheduling meetings, taking minutes, and conducting more fieldwork, aiming to develop her professional skills. Initially, Leo felt uneasy about the unequal workload. 'I wouldn't want to bully young scholars,' he stated. But Lan reassured him that she valued the experience. 'My international collaborators always treat me as an equal rather than a subordinate. I feel much respected taking on more work.' Over time, Leo came to appreciate her structured approach, noting differences in work styles across cultures: 'With Chinese colleagues, there's always a clear plan and deadlines. Whereas in other countries collaboration is often a lot looser, and some projects never get finalised.' Their partnership found a balance—Lan valued the learning opportunity and the equality in the collaboration while Leo appreciated the structured efficiency when working with Chinese researchers.

During their one collaborative project, they faced a key methodological decision—whether to analyse qualitative data deductively or inductively. As team leader, Lan gathered opinions and leaned toward a deductive approach, which had majority support. However, Leo suggested seeking external input to ensure a more informed decision. 'Not necessarily from renowned scholars, but from those with real expertise in qualitative analysis,' he advised. Concerned about efficiency, Lan initially hesitated but recognised the value of deeper

consultation. Gathering more perspectives, the team reached a consensus that satisfied everyone. This asserted cross-cultural learning and horizontal relations of power within the team. ‘Foreign researchers’ level of rigour really touched me. It’s not that Chinese researchers don’t ask for opinions, but efficiency is the priority—people tend to follow the team leader,’ said Lan.

Nonetheless Lan and Leo approached the collaboration with different purposes. Lan often borrowed Western ideas but shaped them to endogenous purposes:

When I encounter issues in my teaching, I look for relevant academic discussions, which usually lead me to Western experts. I then invite them to explore solutions together. They are like my consultants, offering theoretical guidance and helping navigate ambiguities. (Lan)

For example, Lan invited Leo to refine his existing framework to enhance teaching and learning practices in China.

We discussed how certain concepts—like ‘harmony’—mean very different things in China compared to the West. We had extensive discussion to find the right conceptual fit. It was challenging, but we eventually published a comprehensive book. I felt very proud. (Lan)

For his part, Leo found the shared process intellectually enriching, which was an end in itself:

It was an iterative process—constantly refining elements, merging ideas, and evolving the framework organically. I’ve since adapted it with other researchers because it’s about learning itself. It can easily apply to different countries. It’s exciting to see it keeps developing. (Leo)

Their collaboration demonstrated how cross-cultural academic partnerships in education can extend theoretical frameworks beyond their original contexts, resulting in research that is both methodologically rigorous and practically relevant while fulfilling contrasting agendas.

7.5 Hong with Henry (Education): Transformative Visiting Experiences and Research Values

Hong, currently a mid-career academic in education at a non-elite Chinese university, spent a year as a visiting PhD student ten years ago hosted by Henry, a senior professor at a non-elite US university, who became a mentor and long-term collaborator. Hong later invited Henry to his home in China and a long-term friendship and collaboration was established.

One of their early joint studies focused on university management:

We spent so much time explaining to each other country-specific features in higher education—such as the history of university development and the political contexts. I even invited Hong to attend faculty senate meetings for a more authentic understanding. (Henry)

For Hong, the experience provided a fresh perspective: ‘It allowed me to examine familiar social phenomena through another lens and logic.’ However, his engagement in US research created tensions in the national context. There was a disagreement during his later PhD viva in China:

The examiners asked me to move the methodology chapter to the appendix because they thought it was trivial. But I saw the methodology as the core part. I had to make much effort to keep it in the main body of my thesis. (Hong)

This tension reflected deeper differences in research traditions. Hong explained that in Chinese social sciences, particularly educational philosophy, empirical research is not dominant; instead, ‘*sibian*’ research (translated as ‘thinking and arguing’) is the mainstream.

He saw *sibian* research as similar to conceptual scholarship in the Western context:

Sibian research does not follow fixed methodologies. Scholars construct their own theoretical frameworks based on extensive reading, making arguments that are logical and persuasive. There’s no strict data collection process—arguments are built on work experience, local culture, and Marxist philosophy. (Hong)

Hong's exposure to the empirical paradigm in the US transformed his approach to research:

I used to follow the sibian model, but after my US experience, I gradually leaned toward empirical research because I find it more scientific and rigorous. I now integrate more data into my studies, although it still carries the sibian features. (Hong)

Henry found the differences in research approaches surprising yet understandable:

Education reflects national values. When we do education research, we question 'What does a country value' and 'How does a country's values become perpetuated through the education system'. And that's a very local conversation and sometimes it translates well and a lot of times it doesn't. (Henry)

Henry compared education research to economics, highlighting how disciplinary differences impact international collaboration:

Economics is more structural than cultural. Economic studies tend to have a tighter control of variables and overarching philosophical stances to place a country as a capitalist country or something else in the spectrum. The market-based principles are similar in all capitalist countries, leading to less communication and collaboration cost in international collaborations. (Henry)

Despite the challenges, Henry remained committed to the value of international research collaboration. 'The world is big and siloed. While there are values in country-specific research, international collaboration can highlight where the future goes.' (Henry). While the contrast between Chinese and Western research paradigms highlighted fundamental differences in epistemology and methodology, Hong and Henry's continued collaborations showed that academic exchange can bridge diverse research traditions and values, enhancing cross-cultural understanding. In this case the bridging was largely on Western terms.

7.6 Bai with Betty, and with Ben (Education): Complementary Expertise and Reciprocal Learning

Bai, a female mid-career education researcher in China, formed long-term collaborations with both Betty and Ben, researchers she met during her PhD studies. Bai had two PhD supervisors—one in France and another in Canada. In France in the 2010s she interned at an international organisation, where she met Betty, a professor in education at a different university in France. Their professional relationship developed into a partnership, leading to co-authored reports and papers in Chinese, French, and English. Through her Canadian supervisor she met Ben, a fellow PhD student in Canada. Their collaboration began during their doctoral studies and continued after graduation. Later, Bai invited Ben to join a special issue co-edited by Betty, solidifying a three-way partnership. Ben now works as a mid-career researcher at a top university in Canada.

Like Lan, Bai invited international collaborators such as Betty into projects to contribute insights on theoretical framing and research design. Bai valued Betty's strong theoretical grounding,

If you know some sociological theories, you can explain some issues in education. But when you move to a higher level of abstraction and macro explanation, you will need insights from philosophy. French scholars like Betty have solid training in philosophy and sociology. I learned a lot from her. (Bai)

When a Chinese journal editor invited Bai to write a commentary, she sought Betty's theoretical advice. 'I spent days reading and searching for a theory. Then I asked Betty if she had any idea – she read my notes and quickly suggested one framework.' They then discussed how to integrate the framework with historical and empirical data to form a logical

and coherent argument. Betty, however, saw their collaboration in terms of reciprocal exchange rather than hierarchy,

I think she has a very good command of the theories. Sometimes she is even more critical than me. Our collaboration was a reciprocal process – we were on the same plane. I don't consider there's any hierarchy, not at all. (Betty)

Publishing in a Chinese journal also offered Betty a new perspective.

I found it exciting to publish in Chinese without mastering the language... Chinese journals tend to be 'stricter' in form – the content and sequence of each section are more elaborated. I can operate a lot more [freely] when publishing in American and European journals. But I later found the more prescriptive style of publishing reassuring because I know what is expected. (Betty)

Bai similarly noted differences in the expected research orientation when publishing in Chinese journals compared to English-language journals, resonating Zi's point on policy implications:

Reviewers in Chinese journals often ask me to spend a substantial section on policy relevance. But I think the value of my study is on the investigation of the nature of the social phenomenon itself. The research focus is a bit different. (Bai)

In contrast with Bai's role with Betty, where she was often the initiator of collaboration, Bai was invited to join several of Ben's research initiatives. 'I found Ben a really good team leader as he was assertive enough to push for progress but also open-minded enough to receive suggestions and adapt to changes,' said Bai. At the same time Ben found working with Bai a rewarding experience with complementary expertise.

I wanted to write a comparative paper and Bai had the unique European perspective I wanted to add, so I invited her to join. We went back and forth for several rounds, but she was so engaged and insightful throughout the process. We developed a good friendship afterwards. (Ben)

Ben also acknowledged that international collaboration was not always seamless, with some collaborators slow to communicate. But he strongly believed in the value of global research partnerships: ‘We need to bring together different people with different understanding to be able to see the reality from multiple perspectives – it will be beneficial to the greater good.’

7.7 Summary

Chapter 7 examines the nuanced, lived experiences of five dyadic international research collaborations in economics and education, addressing RQ3 on the similarities and differences in researchers’ experiences within the same projects. By analysing paired accounts, it holds project contexts constant while highlighting variations in position, institutional status, and disciplinary socialisation. The chapter explores collaboration origins (e.g., visiting appointments, supervisory ties), evolution, epistemic alignments, national-global influences, labour division, and power dynamics.

Findings reveal convergences in shared goals and processes but divergences in valuations of contributions, authorship, and methodological priorities. For instance, Cheng and Chris’s fleeting economics collaboration showed deference to senior authority, while Zi and Zach’s enduring partnership balanced autonomy with negotiation over politically sensitive framings. In education, Lan and Leo adapted Western frameworks to Chinese contexts, navigating methodological rigour and workload equity, while Hong and Henry bridged empirical and sibian traditions, transforming Hong’s research approach. Bai’s collaborations with Betty and Ben emphasised reciprocal learning and complementary expertise. These dyads bridge Chapters 5 and 6 by illustrating how structural conditions and relational practices manifest in micro-level interactions, setting the stage for Chapter 8’s

synthesis of how asymmetries are negotiated for reciprocity and innovation in global science collaborations.

Chapter 8

Discussion

8.1 Introduction

Chapter 8 draws together the thesis’s empirical strands to develop a synthetic answer to the three research questions under the broader question: ‘What do researchers’ experiences in international collaborations in the fields of Economics and Education between China and four partner countries — the US, France, South Korea, and Pakistan — tell us about global and national research systems?’

1. How do researchers negotiate and experience materiality, epistemologies, values and imaginaries in international collaboration?
2. How do researchers negotiate and experience practices around trust and relations of power in international collaboration?
3. What are the similar and different negotiation and experiences of researchers in the same international collaboration?

Building on the background and introduction in Chapter 1, theoretical and empirical framing in Chapter 2 and 3, methodological design in Chapter 4, structural baseline in Chapter 5, the relational enactments in Chapter 6, and the dyadic close-ups in Chapter 7, this chapter advances a relational–infrastructural account of global science. The central claim is that global standards travel through unequal infrastructures and nationally inflected imaginaries, producing patterned yet negotiable asymmetries whose outcomes hinge on how partners

organise power, translate epistemic repertoires, and sustain reciprocity. In other words, international collaboration is a practical organisation under conditions of uneven capacity and converging or competing value regimes.

The discussion proceeds from the argument that international collaboration is an infrastructural shaping process under asymmetry, drawing on findings from Chapter 5. Three analytical layers are held in view simultaneously. First, the material layer, including funding streams, administrative capacity, publishing regimes, and geopolitical conditions, selects and stratifies participation by shaping who can collaborate, on what terms, and at what risk. Second, the epistemic–disciplinary layer, manifested in problem framings, norms of standards and rigour, and disciplinary grammars, organises what types of knowledge travel easily and what requires translation. Third, the normative layer, meaning values and imaginaries cultivated through education systems and institutional incentives, legitimises participation and filters recognition. Across these layers operate the agentic relational mechanisms traced in the findings from chapter 6: network mobilisation and interactional negotiation; trust as both capital and care; and the organisation and reconfiguration of relations of power through leadership and agency. Chapter 8 integrates them to explain how these layers combine in practice to make asymmetry either stifling or productive.

The chapter is organised to move from structure to practice to synthesis. Section 8.2 to section 8.4 aim to address the first research question on structure. Section 8.2 examines materiality and infrastructure, detailing how institutional capacities, publishing regimes, and geopolitical conditions create the conditions of possibility and constraint for collaboration. Section 8.3 turns to epistemology and disciplines, tracing negotiations over research purpose, standards of rigour (including the pairing of empiricist repertoires with *sibian* reasoning), and disciplinary contrasts between economics and education. Section 8.4 analyses values and

imaginaries, showing how global ideals and national imperatives, together with educational socialisation, shape what counts as credible, original, and worthwhile. Section 8.5 synthesises these layers to provide answers to RQ1. Section 8.6 and section 8.7 seek to address the second research question at the relational level. Sections 8.6 develop the relational mechanisms: network and interactional practices; trust as capital and care. Section 8.7 discusses power as negotiation, leadership, and inclusion. Section 8.8 then integrates 8.6 and 8.7 to address RQ2. Section 8.9 focuses on discussing the subgroup of the dyadic cases to locate convergence and divergence within international collaboration, with section 8.10 shedding light on RQ3. Finally, Section 8.11 answers the broader research question, offers the theoretical integration, and specifies the rationale and implications of the argument.

Read as a whole, Chapter 8 frames international collaboration as a layered, governable system: polycentric yet stratified, structured yet pliable. Its claim is not that asymmetry disappears, but that its effects are contingent on how actors organise power, translate repertoires, and sustain reciprocity. Where these practices are institutionalised and equitably recognised, inequality can be converted into productive asymmetry, yielding innovative forms of knowledge that neither side alone could easily produce.

8.2 Materiality and Infrastructure

Sections 8.2-8.4 aim to address the first research question: How do researchers negotiate and experience materiality, epistemologies, values and imaginaries in international collaboration?

Collaboration is never abstract: it unfolds within infrastructures of funding and administration, publishing regimes, and political environments that regulate access and

mobility. This study corroborates that these material conditions are not neutral backdrops but the conditions of possibility for science, structuring who can participate, on what terms, and with what risks (Archer, 1995). Findings also confirmed that material structures are marked by asymmetry (Marginson, 2022). Elite universities provide scaffolding that others lack; publishing systems encode competing standards of legitimacy; geopolitical tensions abruptly sever partnerships. Yet researchers are not passive. Agency appeared in many forms as scholars manoeuvred within constraints to keep collaboration viable or to reshape it.

The three subsections that follow examine these dynamics in greater detail. Section 8.2.1 considers how institutional infrastructures and uneven capacities shape the opportunities and constraints for collaboration, highlighting how access to resources and organisational support configures who can participate and on what terms. Section 8.2.2 turns to discuss publishing regimes and academic incentives, analysing how journal hierarchies, peer review conventions, and performance metrics channel recognition and influence collaborative priorities. Section 8.2.3 addresses broader political and temporal conditions, including geopolitical tensions, the legacy of the pandemic, and the emergence of regional collaboration networks. Taken together, these subsections show how material structures not only stratify participation in global science but also constitute arenas in which researchers exercise diverse forms of agency in navigating constraints, reconfiguring practices, and at times reimagining the very terms of collaboration.

8.2.1 Institutional Infrastructures and Uneven Capacities

Participants consistently underscored that infrastructure is not neutral: it conditions not only who can participate in international collaboration, but also the terms of their participation.

This resonates with Latour's (1987) and Pickering's (1995) insistence that material and social elements of science are co-constituted, and with previous observation of the systemic unevenness of global research systems (Marginson & Xu, 2021). Resources and administrative scaffolding are concentrated in elite universities and high-capacity countries, while others struggle to enter or remain visible in global circuits. US-2 made this point vividly. After returning to Turkey from the US, she found 'nobody did anything' for international collaboration, leaving her reliant on personal effort alone. Similar accounts like hers show how infrastructures are unevenly clustered resources that organise visibility, mobility, and even the durability of collaborations.

China provides a particularly illustrative case of materiality tension between national and global systems. On one hand, international partners like SK-1 remarked that their Chinese collaborators seemed to have abundant government funding, contrasting with his own situation where he had to purchase basic equipment himself. On the other hand, insiders like CN-15 described how receiving either domestic or foreign funds involved protracted bureaucratic hurdles. His account illustrates how policy-saturated infrastructures simultaneously enable and obstruct international collaboration, confirming that resources used at the global level are always mediated by diverse national-level regulations (Marginson, 2022).

Yet infrastructures were also a site of strategic agency. SK-2 leveraged her university's administrative support to join a 17-country project that offered no centralised funding; without that institutional backing, she admitted, participation would have been impossible. Participants also noted that infrastructures were not just about money and offices, but also about linguistic and cultural mediation. These accounts show how infrastructures of

admission, language training, and mentorship arrangement are as consequential as financial resources in shaping collaboration.

Taken together, these findings show that infrastructures do not merely facilitate research: they select, stratify, and destabilise international collaborations. At one pole, resource-rich universities and policy-backed researchers amplify global visibility; at the other, scholars contend with administrative bottlenecks, linguistic exclusion, and financial precarity. Across this uneven terrain, agency emerges through tactical negotiation with them. Infrastructures thus exemplify the paradox of global science: they are both the condition of possibility for international collaboration and the terrain on which power and inequality are enacted.

8.2.2 Publishing Regimes and Academic Incentives

Publishing systems emerged in the interviews as a structuring condition of collaboration, shaping not only where research is published but what counts as legitimate knowledge. Participants described publishing regimes as encoding national priorities, disciplinary hierarchies, and global recognition logics, confirming their function as filters of legitimacy (Birch, 2017).

This was evident in how participants navigated divergent expectations between Chinese and international journals. CN-7, trained in the US, recalibrated her style to domestic conventions to publish at home, even when this meant side-lining the theoretical depth emphasised in her doctoral training. CN-23, based at a non-elite Chinese university, collaborated with or sometimes hired international colleagues to mitigate his lack of familiarity with English-language publishing. His team contributed data and contextual

expertise, while international partners provided methodological support and guidance on global publishing norms. As he put it, this allowed his team to ‘play the international game’ while simultaneously building local capacity. These examples confirm that scholars are not passive recipients of publishing structures but actively mobilise strategies that reconfigure the very conditions constraining them.

Yet adaptive strategies were also accompanied by critiques. CN-15 condemned what he called China’s ‘soul-dead’ paper-pumping culture, where pressure to publish displaced substantive work and sometimes fostered unethical practices. Nepotism often determined access to top journals (CN-8). Interestingly, CN-15 articulated the paradox: those who master the system acquire formidable technical prowess, but often at the cost of eroded ideals. His metaphor of needing both a ‘Buddha heart’ and a ‘warrior hand’ captured the tension between maintaining scholarly integrity and surviving in a hyper-competitive, metrics-driven environment. These critiques resonate with literature that evaluation infrastructures often create performative pressures, privileging output metrics at the expense of intellectual depth (Setola et al., 2016; Hong, 2018).

Cross-national comparisons in this study align with existing argument that different publishing and evaluation regimes shape researchers’ diverse collaboration strategies. Some researchers were pushed to pursue volume and metrics while others prioritise intellectual integrity. The different strategies led to potential synergy or conflict in international collaboration (Redkina, 2024). Across these cases, agency seems to be expressed in various routes, such as accepting accelerated output cultures or hiring international partners. These were not resignations but tactical negotiations with asymmetrical systems of recognition, enabling scholars to secure visibility while preserving their own aspirations for intellectual contribution however tenuously.

8.2.3 Geopolitical Tensions and the Pandemic Legacy

Participants' accounts revealed that collaboration is always entangled with geopolitics, confirming that the circulation of people, data, and ideas is mediated by diplomatic tensions and shifting imaginaries of legitimacy (Archer, 2003). Findings in this section also illustrate how participants actively navigate geopolitical uncertainties, despite that these conditions often rendered collaboration fragile and vulnerable.

Disagreement related to geopolitical issues may potentially be rejected or labelled as authoritarian practices by collaborators from different countries (CN-4). Collaboration in politically sensitive domains depends on semantic compromises, where seemingly technical labels carry the weight of national recognition. CN-21 reflected that China–US tensions had disrupted collaboration more than COVID-19, underscoring how bilateral politics can override even global emergencies in determining the continuity of research.

PK-1 advocated for a shift toward broader institutional partnerships between Pakistan and China such as faculty exchanges and joint universities under the Belt and Road Initiative. Similarly, US-2 referenced EU international collaboration structures such as platforms, databases, and partner-matching mechanisms as models of resilient infrastructure that can be expanded and applied to other regions. These reflections confirm that establishing regional arrangements and more diverse collaboration routes are regarded as protective strategy, insulating cooperation from the volatility of politics and broader uncertainties.

These narratives highlight how infrastructures are politically saturated terrains. Diplomatic disputes, ideological mistrust, and pandemic disruptions have derailed projects, added bureaucratic burdens, and restricted mobility (Cai, 2023; Carter et al., 2024). Yet

scholars also mobilised agency, reframing categories, sustaining informal ties, and advocating regional frameworks, to keep collaboration viable. These findings extend existing literature by showing how material structures can be navigated by individual researchers through diverse strategies to provide some resilience and buffer against uncertainties.

In sum, these accounts show that the material structures of international collaboration is a contested terrain of asymmetry and re-working. Infrastructures stratify visibility and mobility, publishing regimes codify legitimacy and reward, and geopolitics reshapes the very conditions of exchange. Across these domains, participants revealed how global science is organised through unequal architectures of access, who has funding, whose outputs count, and whose collaborations survive political shocks. Yet the same accounts highlight that researchers are never fully determined by these structures. Agency surfaced in multiple, sometimes contradictory routes: compromise (CN-7 adapting to domestic publishing norms), obedience (CN-15 enduring bureaucratic hurdles for visibility), strategic compliance (CN-23 hiring international partners to meet English-language demands), resistance (CN-8 criticising ‘soul-dead’ publishing cultures), and challenge (PK-1 and US-2 proposing broader regional frameworks as alternatives to fragile bilateral ties). These modes show that participation in global science is marked by a spectrum of manoeuvres that reconfigure constraints into opportunities, even if unevenly.

Participants accounts help reconceptualise material structures as arenas of negotiated practice in which multiple forms of agency emerge. These structures stratify access while also opening routes for tactical improvisation, compliance, or outright resistance. What unites them is the fact that researchers actively work on structures, bending, enduring, or confronting them to keep international collaboration possible.

8.3 Epistemology and Disciplines

This section examines how international collaboration is organised not only by material infrastructures but also by epistemology and disciplines, including shared imaginaries of what research is for, how rigour is established, and which disciplinary grammars structure joint work. Participants' accounts show that collaboration proceeds through continuous epistemic negotiation: reconciling policy-oriented and theory-driven purposes, aligning empiricist standards with China's *sibian* (思辨) rationalist traditions, and working across fields that differ in cultural embeddedness. Findings foreground these orientations as cultural infrastructures; practical conditions that shape what can be asked, what counts as evidence, and how claims gain legitimacy.

Specifically, 8.3.1 discusses negotiations over research purpose and scope, contrasting China's state-attuned, policy-relevant orientation with Euro-American commitments to narrowly framed, theory-based questions, and shows how teams constructed hybrid problem framings. 8.3.2 turns to methodologies, tracing how empiricism featured by replication and falsifiability encounters *sibian's* conceptual and dialectical reasoning; it shows how 'rigour' operates as a boundary object that enables coordination while masking asymmetries in evaluation. 8.3.3 compares disciplinary cultures, with economics' high standardisation easing cross-border work but narrowing heterodoxy, and education's pluralism complicating translation while enabling methodological innovation. Across these strands, agency appears in practices of epistemic brokerage, code-switching, and selective reframing, through which researchers keep collaborations viable and intellectually innovative.

8.3.1 Epistemic Orientations and the Purposes of Research

Participants' accounts illustrate how international collaboration requires continual negotiation of research scope and purpose at the epistemic level. The most salient tension according to participants concerned the role of policy relevance and practical usefulness in choosing research topics and formulating research questions. In Chinese academia, participants described research as deeply intertwined with state agendas and valued for its policy implications. Contribution was often refracted through state imperatives, where social utility was equated with alignment to policy, reflecting an 'applied' orientation (Biglan, 1973). Policy uptake is both expected and celebrated. As CN-11 explained, contributing to policy agendas gave researchers the sense they could 'really make some difference.' By contrast, Euro-American and some South Korean collaborators emphasised more the exploration of truth, using narrowly focused research questions with a degree of distance from immediate policy application (US-4, SK-2).

These differences shaped participants' collaborative strategies. Some sought to bridge the divide: US-4, while committed to 'knowledge for its own sake,' acknowledged the value of his Chinese partners' attention to social welfare and sought to integrate it in his collaborative papers. Others found the orientations irreconcilable. CN-23, trained in South Korea, declined to collaborate with peers whose work she viewed as 'superficial and ostentatious,' tailored primarily to satisfy policy priorities. Such moments reveal how epistemic orientations were bound up with judgements of scholarly legitimacy.

Negotiation across epistemic orientations was found to produce hybrid forms of knowledge production. Chinese scholars sometimes stretched projects to broad agendas, aligning with policy demands while defending their work against accusations of superficiality (CN-22). International partners, meanwhile, held fast to the autonomy and independence of

making truth claims but frequently acknowledged the scope of policy suggestions to sustain collaboration (US-1). The outcome was neither full convergence nor outright standoff, but what participants described as an uneasy but potentially innovative middle ground: projects with more practical applicability than Euro-American conventions yet more epistemically autonomous and critical than many domestic Chinese norms (CN-22).

Theoretically, these hybrid spaces affirm calls for epistemic pluralism (Fochler, 2016; Franklin, 2015), but extend it by highlighting how pluralism is enacted through negotiation under conditions of asymmetry in international collaboration. What emerges is not just the coexistence of different epistemic traditions, but a dialogue between state and culture influenced imaginaries of science. Epistemic orientations thus functioned as cultural infrastructures that organised the possibilities, frictions, and adaptive strategies of international collaboration.

8.3.2 Methodological Standards: Empiricism, *Sibian*, and Rigour

Built on the diverse epistemological imaginaries of research purpose and practical application, participants emphasised that methodologies and research methods are also contested terrains, forming common ground or inviting frictions in international collaborations. Euro-American science training often instilled a strong orientation toward empiricism, emphasising replicability, falsifiability, formal transparency, and methodological codification based on sensory experience and observation (Katz, 1997; Popper, 1963). By contrast, Chinese research encompassed a more heterogeneous landscape in which empiricist techniques coexist with the longstanding *sibian* (思辨) tradition of rationalism, speculative and dialectical reasoning where truth claims can derive from logical deduction with internal coherence and abstraction (Markie & Folescu, 2004; Shen et al., 2025).

China-based researchers responded differently to Euro-American methodological exposure via international collaboration. CN-21 reported that work with Australian and US colleagues redefined rigour for him as primarily quantitative based on generalisability and falsifiability. Others grew more critical of *sibian*: CN-23 called it ‘disorganised theoretical rambling,’ and CN-14 worried about its weak ‘translational capacity.’ These divergences echo claims that global evaluation regimes privilege empiricist standards and marginalise alternative epistemic cultures (Whitley, 2000), with collaboration potentially reinforcing that hegemony. Yet some viewed Chinese practices as rigorous on their own terms: CN-9 noted that rigour need not be couched in labels like ‘triangulation.’ This points to a key tension: what counts as ‘rigour’ is not only a matter of technical practice but of discursive framing. Several defended *sibian* as an epistemic resource: CN-7 argued that it seeks a distinctive angle of understanding and cannot be judged by falsifiability alone, resonating with interpretivist and critical traditions (Oancea & Furlong, 2007).

The debate aligns with the rationalist versus empiricist divide outlined in Chapter 2. Empiricism grounds validity in observation and replication, whereas rationalist and dialectical traditions emphasise deduction, abstraction, and speculative coherence (Katz, 1997; Markie & Folescu, 2004). Participants characterised *sibian* as a Chinese instantiation of rationalism, mediated by Marxist and Confucian legacies and embedded in humanities-oriented social sciences (CN-23; Hong). Unlike rationalisms institutionalised through mathematical formalism, *sibian* privileges philosophical reasoning and discursive synthesis. This produces strengths in conceptual imagination and vulnerabilities in operationalisation under empiricist evaluative regimes. Participants also described hybrid practices. Some Euro-American-trained returnees integrated *sibian* with empirical designs: CN-7 examined AI ethics using Confucian *ren* (仁, benevolence) with empirical data, and CN-23 reported that

including *sibian* in a cross-cultural project created imaginative space for ideas and frameworks alongside rigorous measurement.

In this process, methodological standards can function as boundary objects (Star & Griesemer, 1989): flexible enough to be interpreted differently across communities, yet stable enough to coordinate joint work. For Euro-American scholars, terms like ‘rigour,’ ‘triangulation,’ or ‘validity’ anchored research methods in the empiricist orientation but provided flexible space for integrating with *sibian* reasoning which can expand conceptual scope and theoretical originality. These different appropriations of ‘rigour’ allowed researchers in international collaboration to work together innovatively without strictly applying one set of criteria.

Seen this way, methodology was not a technical toolkit but a cultural infrastructure of translation and contestation. Boundary objects facilitated cross-methodological dialogue but also highlighted asymmetries: empiricist framings travelled more easily across journals and funding systems, while *sibian* often required reframing or downplaying to gain recognition. The result was a politics of knowledge in which collaboration depended on constant bargaining over what counted as credible evidence, robust theory, and legitimate scholarship.

8.3.3 Disciplinary Cultures: Economics as Unified, Education as Pluralist

Beyond epistemic orientations and methodological standards, disciplinary cultures is another structuring layer researchers need to coordinate in international collaboration. Participants’ accounts revealed distinctions between economics and education, reflecting differences in epistemic consensus, methodological expectations, and the degree of cultural embeddedness.

Economics was consistently described in literature as a more standardised and cohesive field in the spectrum of social science disciplines (Hausman, 2023; Siesfeld et al.,

2009). Findings in this study adds more nuances regarding how these disciplinary features both enable and challenge international collaboration in economics. On the one hand, participants such as CN-2 and US-1 highlighted how economists' shared analytical lexicon and broad ideological alignment lowered the transaction costs of collaboration. On the other hand, participants also noted that coherence came at a cost. CN-2 lamented the decline of heterodox traditions such as the decline of Austrian School. In collaborations researchers tend to follow the more mainstream strand of thought even when they may apply alternative frameworks in individual work. These observations highlight that a high degree of consensus does not eliminate contestation but rather channels it into narrower parameters. For international collaboration, this meant that economists could more easily align across borders but at the same time it marginalised heterodox approaches that operated outside the prevailing paradigm, narrowing the intellectual horizon of collaboration.

Education research presented a different picture. Participants' accounts confirm scholars' characterisation of education as a relatively multi-paradigmatic field in social sciences, epistemologically pluralist, socially embedded, and culturally inflected (Furlong & Oancea, 2005). This means more negotiation is required in international collaboration. As US-5-Henry stressed, 'education reflects national values, and they can be so different and sometimes incompatible... it's a very local conversation and sometimes it translates well and a lot of times it doesn't.' Despite these challenges, education's pluralism also created opportunities for more hybrid and innovative knowledge production. SK-3 described how interdisciplinary work with physicists was made possible by education's methodological flexibility. This reflects Kosmützky's (2018) finding that international teams often adopt hybrid designs precisely because education's pluralism allows adaptation. In this sense, education's lack of consensus posed translation difficulties but also enabled ethical reflexivity and creative innovation.

The differences between Economics and Education illustrates how disciplinary cultures act as cultural infrastructures in international collaboration. Economics, grounded mainly in rationalist epistemology and supported by high level of global consensus, smoothed international exchanges but narrowed epistemic diversity. Education, by contrast, embodied more pluralist and context-sensitive traditions that complicated cross-national standardisation but allowed researchers to negotiate ethical and political dimensions more openly.

Theoretically, these findings extend previous typologies along the ‘hard/soft’ and ‘pure/applied’ distinctions and showed how research practices and international collaboration are also mediated by national and cultural imaginaries (Becher, 1989; Biglan, 1973). Economics achieved high global mobility through standardisation, while education maintained contextual sensitivity at the cost of translatability. Both, however, required researchers’ agency in international collaboration: economists compromised by bracketing heterodox traditions in order to speak a shared language, while education scholars adapted to hybridising methods to remain intelligible across borders. Disciplinary consensus and pluralism thus operated not only as intellectual categories but as structuring infrastructures that defined the possibilities, limits, and costs of international collaboration.

Across 8.3, international collaboration appears organised by epistemic infrastructures, including imaginaries of purpose, standards of rigour, and disciplinary grammars that are culturally inflected and unevenly portable. First, negotiations over research purpose can instantiate pluralism under asymmetry: policy-attuned logics and theory-driven logics do not converge, but are tactically aligned into hybrid problem framings that are simultaneously more practically oriented and more epistemically autonomous than either side alone. Second, methodological rigour operates as a boundary object: empiricist repertoires travel easily through global evaluative systems, while *sibian* (思辨) functions as a rationalist–dialectical resource that expands conceptual imagination; collaboration potentially become more

innovative when actors reframe rigour to host both evidential and speculative claims. Third, disciplinary cultures mediate transaction costs and horizons of allowable debate: economics' high consensus enables mobility while narrowing diversity; education's pluralism raises translation costs while enabling innovation.

8.4 Values and Imaginaries in International Collaboration

Participants stressed that the normative frames in collaboration that define what counts as credible research, legitimate participation. Worthwhile contribution was constantly reworked and reshaped by new imaginaries and practices. These imaginaries operated across scales. The global science system offered a universalist vocabulary of science as largely impartial, meritocratic, and collaborative. Yet in practice, these objectives were refracted through national imperatives, institutional logics, and educational traditions, producing lived tensions over recognition, originality, and legitimacy. Sections 8.4.1 and 8.4.2 unpack these dynamics: first, how global objectives intersected with national agendas in shaping collaboration; second, how educational systems and cultural traditions cultivated imaginaries of innovation that prefigured researchers' contributions in international spaces.

8.4.1 Global Objectives and National Imperatives

Participants' accounts make clear that international collaboration is shaped not only by infrastructures and epistemologies but also enduring navigation of normative imaginaries of science, the values that define legitimacy and purpose at global and national levels.

For some, the promise of universalism rang hollow in international collaboration. SK-2 recalled being positioned as the 'token Korean' in an Australian-led project, her contribution confined to data provision while theoretical framing remained in Anglo hands. The appearance of impartiality was preserved, but judgments of credibility were filtered through geopolitical reputational frames about which contexts hold more legitimacy (Weiss, 2012). Chinese participants narrated how ideals of disinterestedness were selectively reinterpreted. CN-15 noted calibrating publication strategies in line with shifting national priorities, while CN-18 framed international publishing as a way of inserting Chinese voices into US- and European-dominated circuits. Here, values operated as normative scripts mobilised to secure legitimacy, sovereignty, or recognition.

Yet participants also treated universalist objectives as resources for resistance rather than mere constraints. US-1 used the analogy of 'blind people feeling an elephant' to emphasise that only by integrating diverse perspectives could knowledge become fuller, mobilising communalism as a critique of hegemonic gatekeeping. CN-6 crafted multiple versions of a survey to balance cross-cultural comparability with contextual sensitivity, embodying what can be called epistemic humility (Wang, 2014). CN-18 hoped that her US collaborator's circulation of their joint work would spark reflexivity in American networks otherwise closed to Chinese voices. In these cases, the vocabulary of openness and universality was tactically deployed to counter exclusion and broaden recognition.

Rather than treating global objectives, national imperatives, and individual beliefs as fixed and opposing 'imaginaries,' the findings of this study foreground them as actor produced and field situated repertoires. These repertoires are assembled, translated, and

rescaled across diverse levels, guiding practices but are also outcomes of practices (Marginson, 2022). Participants did not simply inhabit imaginaries. They authored, combined, and reworded them to position projects, justify choices, and open doors. International collaboration therefore unfolded as active navigation. Researchers aligned proposals with state priorities to secure resources and legitimacy, while invoking universalist norms to challenge gatekeeping and reframe credibility. Values worked as normative infrastructures, but only because actors continually reproduced them through citation practices, methodological descriptions, venue selection, and relationship building.

Therefore, the value infrastructure is performative and revisable. Communalism, universalism, and disinterestedness emerged as resources that participants curated and deployed. Sometimes these values constrained, but often they were used tactically to widen participation, attract allies, and shift evaluative frames. Agency was visible in code switching across audiences, in rescaling claims from local to global, and in rearticulating what counts as rigorous or valuable knowledge. Imaginaries here are not background conditions but instruments of practice through which participants sought recognition, negotiated sovereignty, and exercised influence within international collaboration.

8.4.2 Education, Innovation, and the Politics of Imagination

Participants traced their value orientations to the educational systems that had shaped their intellectual dispositions. CN-8 critiqued the rigidity of Chinese schooling, where exams rewarded conformity and penalised difference, while CN-19 and US-4 emphasised the absence of theorising courses in Chinese curricula, leaving graduates adept at technical methods but less confident in conceptual work. CN-15 linked this to Confucian traditions of textual authority and harmony. Such reflections underscore that education systems cultivate

imaginaries of what academic work is for, whether training careful executors, cultivating conceptual innovators, or valorising credentials as markers of social prestige. These imaginaries shape researchers' practices in international collaboration in various ways.

These dispositions directly informed divergent understandings of academic innovation. For CN-2, innovation meant challenging consensus with evidence; for CN-12, doctoral work should make at least '2 per cent' theoretical contribution; for CN-18, innovation often amounted to 'repackaging known ideas.' CN-8 lamented systemic constraints such as restricted data and limited interdisciplinarity that constrained China's capacity for theoretical breakthrough, while others highlighted emergent forms of academic innovation rooted in Chinese contexts, such as the Confucian-inspired conceptual models (CN-14).

These accounts illustrate that values of originality, criticality, and rigour are not universal yardsticks but socially embedded and individually exercised. While institutions tend to measure academic innovation through citation counts, patents, or journal placements, participants revealed that in practice academic innovation is filtered through cultural and historical legacies. Geopolitics of knowledge are evident here: latecomer systems face structural disadvantages in gaining recognition because dominant definitions of innovation privilege Euro-American traditions of theorising (Antonelli & Crespi, 2013; Liao, 2021). Yet participants in this study were able to carve out opportunities to redefine what counts as innovation, whether through contextual theorising, hybridised methods, or culturally grounded constructs.

Theoretically, these findings show how education systems function as normative infrastructures of value. They are the more fundamental structures that embed understanding of what knowledge is for, and in doing so pre-configure the possibilities of international collaboration. Education systems do not simply train skills; they transmit value regimes that

researchers later reproduce, contest, or reimagine in collaborative settings. What emerges is a picture of agency exercised through changing imaginaries. Some participants aligned with global standards of originality, even when this marginalised local epistemic resources; others resisted by reclaiming indigenous concepts or contextual innovations. In each case, the negotiation of academic innovation was not merely technical but deeply normative; it is an effort to reconcile inherited pedagogical traditions, institutional scripts, and global yardsticks of originality.

In summary, values and imaginaries operate as normative infrastructures that organise and shape practices in international collaboration. Global objectives of openness, universality, and disinterestedness are refracted through national agendas, institutional incentives, and disciplinary traditions. Participants showed how universalism was filtered by status hierarchies, how disinterestedness could align with state priorities, and how meritocracy often masked cumulative advantage. At the same time, these very objectives were mobilised to widen inclusion, contest gatekeeping, and legitimise alternative voices. Educational systems shaped the repertoire of action: exam-driven credentialism, Confucian legacies, and mainstream metrics conditioned what counted as originality or rigour. Still, actors carved out space for redefinition through contextual theorising, hybrid methods, and culturally grounded models. Overall, values and imaginaries structured recognition while supplying tools for reflexivity and innovation. Collaboration thus unfolded as continual negotiation between global objectives, national imperatives, and schooled dispositions. Agency is exercised by bending and reinterpreting these infrastructures.

8.5 RQ1: Negotiation and Experiences at the Structural Level

Synthesising section 8.2-8.4, this section seeks to provide answer to the first research question: How do researchers negotiate and experience materiality, epistemologies, values and imaginaries in international collaboration?

Data in this study corroborate that structures select and stratify participation. Disciplinary cultures pattern translatability while also complicate linear narratives in the context of international collaboration by showing pluralism as outcomes of negotiation via boundary-object standards, code-switching and reframed warrants (Franklin, 2015; Fochler, 2016). International collaboration is practically stabilised under asymmetry: infrastructural buffering and semantic alignment on the material side; rigour-as-boundary-object and disciplined code-switching on the epistemic side; normative infrastructures and education-shaped imaginaries on the value side.

How do researchers negotiate and experience these structures? The data consistently show four strands of practice. (1) Alignment calibrates project scope and outputs to satisfy selected purposes. (2) Integration bridges methods and concepts legible across evaluative regimes. Rigour constantly hosts both evidential and speculative warrants, while *sibian* is presented as theory contribution alongside empirical data. (3) Re-routing diversifies networks and builds alternative architectures capable of withstanding diplomatic shocks and institutional volatility. (4) Reframing rearticulates value claims to be recognised by key evaluative audiences, invoking universalist norms to contest gatekeeping, and recasting policy alignment as societal contribution rather than political compliance. These practices do not resolve broad inequality, but they re-work asymmetry into provisional cooperation and, at times, genuine innovation. They also distribute labour unevenly: brokers, juniors and women shoulder disproportionate translation and maintenance work, an equity implication that links material and normative layers to the politics of recognition.

8.6 Trust, Vulnerability, and Agency

Building on Section 8.5, which framed international collaboration as an infrastructural shaping process with material systems as condition and arena, epistemic grammars as constraint and resource, and values as scripts and tools, this section treats trust as the mechanism that converts risks and differences into potentials and collaboration. Sections 8.6-8.7 seek to address the second research question: How do researchers negotiate and experience practices around trust and relations of power in international collaboration?

Material architectures make collaboration hazardous. Partners face uncertainty about quality, intent, and future recognition. Data in this study show that trust is both an outcome of active coordination and a precondition for deeper information sharing, authorship concessions, and the exposure of provisional ideas (Tschannen-Moran, 2001). Yet entry into trustworthy relations tracks proxies of recognition, networks, prestige, cultural familiarity, seniority, gender so that credibility is differentially allocated before merit is seen. Participants' accounts illustrated how actors navigate within these gradients of symbolic capital. Trust appears in dual form: as capital that opens doors, and as practice of receptiveness, responsibility, and reciprocity, through which partners continually confirm reliability and care (Tschannen-Moran, 2001).

The section proceeds in two steps. Section 8.6.1 examines how respect, credibility, and authority are negotiated at entry, showing how trust is entangled with hierarchies of recognition. Section 8.6.2 examines the everyday labour that sustains trust such as openness to difference, patterned reliability, and reciprocal commitment while noting the unequal costs borne by brokers and juniors. These dynamics explain how networks and interaction do more

than connect people; they build trust by systematically reducing uncertainty and vulnerability, setting the stage for the analysis on relations of power that follows.

8.6.1 Negotiating Respect, Credibility, and Authority

Trust was inseparable from recognition and authority. Initial perceptions of credibility often rested on proxies of cultural familiarity, seniority, or gender rather than scholarly merit alone. CN-10 described how talking about NBA games with US colleagues served as an icebreaker, smoothing collaboration for those with such cultural capital but excluding those without it. Such examples underline how trust was mediated by access to symbolic resources that had less to do with scholarly expertise. In this sense, trust was precariously tied to vulnerability (Tschannen-Moran, 2001), requiring some participants to continually adapt their repertoires in order to be recognised as trustworthy. What appeared as casual bonding thus can operate as a subtle gatekeeping mechanism, determining who could enter collaborative relations on equal footing.

Gender and age hierarchies were found especially salient in shaping who was trusted, how quickly, and under what conditions. CN-9 and CN-14 recalled having to earn credibility and trust again and again as early-career women, their contributions subjected to heightened scrutiny. PK-2 described how her views were often dismissed in male-dominated teams but more easily validated by female peers, underscoring the gendered circuits through which trust could either be withheld or extended. SK-3 contrasted South Korean collaborations, where junior scholars typically deferred to seniors, with European projects where her contributions were taken seriously regardless of age. Such accounts affirm that goodwill needs be enacted against entrenched inequities, and is therefore always relational and contingent in international collaboration (Mason & Lefrere, 2003).

Some participants took a distinctive perspective, reframing distrust and exclusion as opportunities for growth. CN-16 argued that undervaluation accelerated her development, motivating her to refine her skills and strategies. While CN-18 was denied full authorship parity, she nonetheless valued mentorship as guidance that shaped her otherwise unsupported trajectory. CN-4 described tailoring proposals to align with senior international scholars' agendas, conceding that aligned innovation was the 'currency' needed to secure collaboration trustworthiness. CN-19 highlighted how junior researchers sometimes accepted secondary authorship to gain visibility, trading some intellectual ownership for entry into transnational circuits. These dynamics suggest that trust was not experienced as a static condition and resonated with Bourdieu's (1988) notion of symbolic exchange: prestige, innovation, and authorship positions circulate as resources. Researchers traded degrees of autonomy or recognition in the present for the possibility of future reciprocity and inclusion.

In the broader backdrop of global hierarchy of reputation and recognition, researchers from non-Euro-American countries sought to gain visibility by strategies such as leveraging Euro-American affiliations. CN-9 relied on supervisory connections in the US to enter cutting-edge debates. CN-2, CN-10, and CN-19, for example, described how ties with former US or European supervisors conferred symbolic legitimacy after they returned to work in China. Such accounts reflect scholars' observation that reputational control and organisational dependency shape the very possibility of cross-border work: collaboration depends not only on intellectual alignment but on the capital embedded in networks (Whitley, 2000).

Yet some participants sought to counter Euro-American hegemony through building regional networks among marginalised countries. CN-12 described building an East Asian platform linking Chinese, Korean, and Japanese universities to generate alternatives to Euro-American dominance. CN-1 and PK-1 similarly stressed collaborations oriented around local

relevance, rather than global prestige. These attempts echo Kotze and Dymitrow's (2022) insights that researchers can redirect or sidestep dominant infrastructures by creating new circuits of exchange. Participants in this study argued that while such initiatives rarely displaced the global hierarchies and often carried less symbolic weight, they did create spaces of relative autonomy where participants defined standards on their own terms (CN-12). The difficulty of escaping the gravitational pull of global journal hierarchies was thus vividly confirmed: global science is both open and stratified; the same infrastructures that enable connection also perpetuate asymmetry (Marginson, 2022). The globalisation of science cannot be conceived as either a flat, stateless network or a rigid centre–periphery hierarchy (Collyer, 2018), but as a relational terrain continually reshaped in practice.

These accounts highlight trust in international collaboration as a dynamic negotiation of credibility within hierarchy. It enables participation and learning, but only through practices that expose vulnerability while simultaneously building relational capital. Trust is both fragile and productive: it binds collaborations together, yet does so unevenly, distributing opportunities along lines of culture, gender, seniority, and global status.

8.6.2 Receptiveness, Responsibility, and Reciprocity

If credibility and authority shape who is initially trusted, participants emphasised that sustaining trust depended on everyday practices, most notably in receptiveness, responsibility, and reciprocity. CN-14 described openness as an 'epistemic stance,' involving the suspension of assumptions in order to engage across cultural and disciplinary divides. This view resonates with scholarly argument that trust fosters reflexivity and mutual learning (Ellstrom, 2007). Trust requires cultivating a disposition of attentiveness to difference.

In-person encounters were found particularly important in reinforcing receptiveness. CN-16 and CN-19 observed that colleagues who had spent time in China tended to be more nuanced and flexible than those whose knowledge rested only on secondary sources. Trust in this sense was enacted through interaction, familiarity, and embodied presence (De Grijns, 2015). Several participants highlighted the role of cultural brokers in sustaining such receptiveness. CN-15 likened his UK collaborator to a ‘diplomat in the Three Kingdoms period,’ mediating between Chinese, Korean, and Chilean partners. These intermediaries translated not only language but also tacit institutional and cultural assumptions, stabilising fragile partnerships by making them mutually intelligible. Yet such brokerage seemed to come at the cost of additional, often invisible and less recognisable labour.

Responsibility provided another anchor for trust. CN-19 assessed collaborators’ credibility less through reputation than through consistent reliability in meeting commitments. Conversely, CN-3 lamented that some China-based researchers lacked teamwork training, despite being outstanding researchers individually. Here, trust was sustained by patterned performance: showing up, delivering on promises, and maintaining accountability. Responsibility thus grounded trust in a temporal dimension, where reliability over time signalled dependability and care for collective outcomes.

Reciprocity deepened these dynamics further. SK-3 recalled projects where reciprocity matured into friendship, transforming demanding late-night calls into interactions that felt ‘magical and refreshing.’ Such experiences align with Hojholt and Kousholt’s (2019) concept of transformative collaboration: reciprocity converts logistical strain into affective commitment, making trust more than an instrumental condition for productivity. Rather, it became a resource that sustained energy, patience, and creativity in the face of structural pressures.

Yet reciprocity was not evenly distributed. Cultural brokers bore the strain of extra mediation; junior researchers often felt compelled to over-perform in order to demonstrate reliability. While trust was cultivated, its costs fell disproportionately on those with less institutional power or symbolic capital. In this way, receptiveness, responsibility, and reciprocity illustrate trust as a dynamic practice of care and compromise. Trust opened conditions for learning and discovery, but it was maintained through uneven labour, highlighting that equity is integral to understanding how trust is enacted in international collaboration (Satterthwaite et al., 2024).

Bringing together the preceding two sections, trust in international collaboration emerges as both structured by hierarchies of recognition and enacted through everyday practices of care and responsibility. On one level, credibility and authority determine who is initially trusted: participants' accounts underscored how seniority, gender, and global status operated as proxies for scholarly merit. These dynamics reveal trust as embedded in asymmetrical distributions of symbolic capital, where access to recognition is uneven and often contingent on factors beyond intellectual contribution. Yet participants demonstrated how trust was actively cultivated and sustained through practices of receptiveness, responsibility, and reciprocity. Openness to difference, reliability over time, and reciprocal commitment grounded trust in situated interactions. Such practices highlight that trust is a relational process: fragile, negotiated, and continually renewed in the course of collaborative work.

Theoretically, this integration points to trust as both a form of capital and a practice of care. As capital, it confers legitimacy and access to networks, often unevenly. As practice, it is generated through attentiveness, reliability, and reciprocity, often disproportionately borne by junior or marginalised actors. Conceptualising trust in this dual way helps move beyond dichotomies of structure versus agency: trust becomes a lens for understanding how

collaboration is simultaneously constrained by hierarchies and sustained through relational negotiation.

8.7 Power – Negotiation, Leadership, and Inclusion

This section examines the relations of power, which serves as the most fundamental mechanism that shape hierarchies and condition practices of international collaboration.

Relations of power underpins uncertainty around collaboration practices. Different levels of control over infrastructure and funding make some partnerships safer bets than others.

Familiarity of publishing regimes and disciplinary grammars set thresholds for credibility.

Alignment with mainstream values legitimise certain framings as universal while others as local (Merton, 1973).

How do researchers navigate those uncertainties based on power asymmetries in practice? First, style of interaction is the lived and relational representation of epistemic and normative power. 8.7.1 traces how tensions can occur among different interaction styles such as high-/low-context repertoires (Hall, 1976), face-work (Goffman, 1959), and when debate is invited or bracketed (Knorr-Cetina, 1999). Participants did not assimilate to a single ‘global’ style of communication but assembled hybrid routines. Second, 8.7.2 treats leadership as the organisation of relations of power: how PIs and boundary spanners distribute voice, pace work, translate across epistemic and cultural repertoires, and install repair routines when frictions arise (Bolden, 2011). This section shows how researchers navigate international collaboration by organising and orchestrating relations of power.

8.7.1 Negotiating Interactional Styles between Open Debate and Subtle Agreement

Participants stressed that international collaboration was lived through everyday negotiation of interactional styles, indicating a subtle politics of voice and recognition. What counted as appropriate conduct in meetings, feedback, or authorship discussions was culturally variable and often contested: Asian settings were described as privileging efficiency, cohesion, and deference, while Euro-American settings valorised critical debate and overt contestation. Crucially, participants framed these not as fixed traits but as situational repertoires that confer or constrain influence. Which repertoire prevailed at a given moment is often shaped by seniority, language proficiency, venue, or funding, affecting who set agendas, who spoke, and whose judgments travelled. Interactional styles thus operated as micro-relations of power within collaboration.

SK-1 framed deference to leaders not as passive compliance but as a pragmatic strategy for preserving harmony and trust, a move legible as face-work in Goffman's (1959) terms and thus a way of managing vulnerability. SK-1's communicative orientation reflects a high-context repertoire in which meaning resides less in literal wording than in relational cues such as tone, timing, status recognition, and where silence or indirectness can function as potent communicative acts. By contrast, CN-14, working with French colleagues, spoke of the 'emotional toll' of direct critique while acknowledging the intellectual enrichment it produced, illustrating a low-context repertoire that valorises explicit articulation and argument even at the risk of interpersonal strain. These contrasts generate frictions with power effects: partners who advance knowledge through explicit contestation can read high-context cohesion as evasion, whereas low-context critique can be read as disrespect by partners oriented to relational calibration. Which repertoire prevails at a given moment

shapes agenda-setting and turn-taking rights, manifesting relations of power embedded in interaction (Hall, 1976).

Participants also showed how disciplinary and cultural logics intersected to configure influence. CN-16 observed that qualitative projects often invite open debate, while quantitative work narrows interpretive negotiation, providing evidence that epistemic cultures prefigure who speaks, how disagreement is legitimated, and what counts as closure (Knorr-Cetina, 1999). Therefore, the form of inquiry mediates the salience of cultural preferences for directness or indirectness: interpretive work tends to valorise discussion, dissent, and elaboration, whereas more positivist orientations delimit debate by anchoring legitimacy in statistical or technical procedures, redistributing authority from interactional persuasion to methodological proof (Markie & Folescu, 2004).

Agency did not disappear within these constraints; it was reconfigured: appropriating datasets to pursue new methods (SK-3), or gradually assuming conceptual leadership (CN-9, CN-11). CN-18, less comfortable with confrontational debate, told collaborators she would resolve disagreements through subtle adjustments. She reframed points gently and signalled concerns through calibrated language, demonstrating context-sensitive modes of influence. Others developed hybrid practices: rotating the meeting chair to diversify control of the floor, staging critique in writing after plenaries, and alternating between deference and debate depending on stakes and evidence (SK-2, US-3). Junior Chinese participants often described deference to senior collaborators as a default expectation, aligning with existing literature on high power distance (Lin & Xie, 2023). Yet CN-4's refusal to always accommodate foreign time zones and instead insist on rotation exemplifies how deference could be deliberately resisted. Such tactics redistribute interactional power while keeping channels for knowledge exchange open, enabling provisional communicative settlements without erasing difference

(Lewis, 2005). Collaboration thus unfolded not as assimilation into a single dominant style but as sustained plurality through tactical adaptation, where what may look like compromise is better read as strategic recalibration of agency.

At the theoretical level, CN-14's challenge to her European leader's stereotypical interpretation exemplifies idea of 'trading zones': spaces where epistemic differences are worked through by developing shared but partial languages (Collins et al., 2007). Her insistence on grounding claims in local data was not only a methodological correction but also an act of resistance of the default authority of the Global North partner. Similarly, CN-20's deliberate effort to narrate fieldwork stories side-by-side with her American collaborator until they reached an integrated account resonates with the concept of 'boundary objects': artefacts and stories flexible enough to mean different things locally yet stable enough to sustain collaboration (Valk et al., 2019). These examples demonstrate that negotiation is not merely technical but political, determining whose categories organise shared work.

8.7.2 Leadership as the Organisation of Power

While interactions and negotiation shows how relations of power circulates; leadership illustrates more explicitly how power is organised. Across cases, data in this study depict leadership as the hinge on which collaboration either stabilises or frays. Effective leaders did not eliminate asymmetries; they orchestrated them by sequencing tasks, distributing voice, and building repair routines when frictions surfaced (Bolden, 2011).

Leadership practices can potentially reconfigure and mitigate unequal credibility and recognition. CN-7 acknowledged her PI's deliberate checking of interpretations and avoidance of culture-loaded remarks, which created more equitable trust relations. Authority was exercised by actively redistributing opportunities for participation. This resonates with

scholarly discussion of effective leadership as relational rather than positional (Bolden, 2011), and with emphasis on trust as enabling epistemic humility and learning (Van de Ven & Ring, 2006). Inclusive leadership grounded trust in openness and responsiveness rather than established status, thereby loosening the link between authority and entrenched hierarchies.

For several participants effective leadership requires balancing reflexivity, drive and pacing. CN-22 described a failed project where the China-based lead unilaterally compressed deadlines and supplied *sibian*-style materials that were illegible to the US partner. This exemplifies that when positional authority is not accompanied by translation and reflexivity, it can amplify structural asymmetries rather than mediating them. CN-5 regarded the leader of her team as a ‘steward of momentum,’ while Bai praised a French PI who coupled grant-winning vision with attentiveness to team morale.

In addition, participants argued that effective leadership is distributed and often emergent, with boundary spanners doing invisible governance. CN-15 likened a UK collaborator to a ‘Three Kingdoms diplomat,’ mediating across Chinese, Korean, and Chilean partners. He was able to implement boundary-spanning leadership without formal authority (Marion et al., 2016). CN-23’s case sharpens the point: confronted with a South Korean PI rushing poorly grounded surveys, she quietly rewrote the instrument, protecting scientific quality while absorbing reputational risk. Such covert labour signals how power also flows through maintenance work of editing, translating, scheduling, which is essential yet less rewarded. Leadership, in practice, redistributed not only tasks but risks, with juniors and women disproportionately underwriting collaboration through affective and intellectual care (Lamont, 2009).

Cultural intelligence is found to be another key leadership competency especially in international collaboration. CN-22 captured the paradox succinctly: over-receptive leaders

risk chaos; over-assertive leaders stifle collaboration. Effective leaders code-switched, toggling between directive and consensus-oriented modes based on the task, team composition, and disciplinary grammar (Zakaria et al., 2022). CN-2 noted that Chinese teams expected leaders to do 80 per cent of work, whereas US teams distribute responsibilities more evenly. China-US team leaders need to possess the cultural awareness to negotiate expectations on responsibilities beforehand.

Leadership failures clarify the stakes. Bai recalled a China–US collaboration that stalled when the leader did not broker the purpose cleavage between policy relevance and theory contribution. CN-5 left a project where the eminent US lead was chronically unavailable, forcing the team to revisit decisions repeatedly. Absent reputational capital can convert into bottlenecked power. Amid geopolitical turbulence, leaders who diversified venues, partners, and financial channels enacted re-routing as a power strategy, insulating teams from single-node dependence.

Leadership and power also unfolded in structures. Control of resources such as funding streams, datasets, laboratory infrastructure frequently translated into agenda-setting power (Hottenrott et al., 2021). Participants from less resourced institutions reported having to accommodate the methodological preferences of elite partners, echoing the dynamics of ‘helicopter research’ (Adame, 2021). CN-23’s quiet rewriting of a South Korean leader’s weak questionnaire to protect her reputation illustrates how resource control and seniority constrained intellectual space, but also how agency could be expressed through resistance and covert labour. In this way, relations of power operated not only through explicit authority but through implicit burdens, the unequal labour of sustaining quality, translation, or credibility.

Therefore, leadership in this study functioned as the organisation of relations of power across layers: infrastructural (who controls funds and timelines), evaluative (who frames the paper and chooses the journal), epistemic (which warrants count), and relational (who speaks

when, and how dissent is handled). Effective leaders of international teams choreographed differences into productive asymmetry, a state where hierarchy exists but does not silence, because translation, pacing, and recognition are actively managed (Bolden, 2011; Marion et al., 2016).

8.8 RQ2: Negotiation and Experiences at the Relational Level

Integrating section 8.6 and 8.7, this section seeks to answer the second research question: How do researchers negotiate and experience practices around trust and relations of power in international collaboration?

Findings show that trust moderates power plays. In high-trust settings, critique travelled as constructive contention; disagreements over methods or claims were processed as project-first rather than person-threats (Van de Ven & Ring, 2006). In low-trust settings, the same frictions hardened into hierarchy, with juniors over-performing maintenance work to stay included. Thus trust is both a capital that opens doors along prestige lines and a practice of reliability, receptiveness, and reciprocity, redistributing who can safely exercise agency.

Throughout participants' accounts, relations of power seems to be multi-scalar and convertible. Infrastructural power (8.2) becomes epistemic authority through control of datasets and deadlines; epistemic power (8.3) sets the boundaries of credible warrants; normative power (8.4) legitimates or delegitimates claims; relational power (8.6–8.7) decides who speaks, who repairs, and whose risk counts. Researchers negotiate these relations of power through leadership that organises difference and agency that reconfigures

collaboration. The outcome is a repertoire for making asymmetry workable, sometimes merely survivable, sometimes genuinely innovative.

Then how do researchers negotiate and experience practices around trust and relations of power in international collaboration? (1) They practice alignment, integration, re-routing, and reframing to convert structural advantage into shared progress. (2) They invest in trust as both capital and care so that dissent, maintenance work, and conceptual ambition can circulate without collapse. (3) They install leadership routines that sequence tasks, distribute voice, and embed translation. In this light, international collaboration is the shaping of its governance, a continual effort to turn unequal architectures into provisional cooperation and, ideally, into innovative knowledge that could not have been produced alone.

8.9 Similarities and Differences in Dyadic Collaboration

Finding in this study also examined the dyadic experiences of China-based researchers in collaborating with Western colleagues. It seeks to address the third research question: What are the similar and different negotiation and experiences of researchers in the same international collaboration? Data shows how national policies and cultures, institutional policies, global networks, disciplinary norms and epistemic frameworks shape similar and different experiences. With minor exceptions (e.g. Bai's and Betty's differing readings of their relations) each account of the collaborative partners confirms that of the dyadic other, providing validation of the data.

It adds a unique mirrored and comparable layer in discussions on how researchers negotiate knowledge production across linguistic, disciplinary, and geopolitical divides in international collaboration. The findings demonstrate that international collaboration is more

than a transactional exchange of knowledge or individual interests. It is a deeply embedded social process where researchers navigate cultural differences, opportunities, resources and constraints, within a multi-scalar setting in which national and global intersections are strategic and can be transformative, especially for researchers from China for whom the global is largely but not wholly Western.

8.9.1 National and Global

Experiences in the dyadic groups explain social science research not as a locked centre-periphery vortex but as a polycentric epistemic ecosystem in motion, vectored by national and global relations. In addition to the distinctive contents and impacts of different national social sciences, scalar diversity and global exchanges further strengthen the plurality of knowledge production. By foregrounding researchers' narratives and meaning-making, the group of dyadic participants offers a more nuanced understanding of China in global social sciences. Findings suggest a dynamic interplay between global engagement and local adaptation.

The dyadic group applied strategies resonated with non-dyadic group, of alignment, integration, re-routing, and reframing. They actively navigate tensions between global visibility and national embeddedness, leveraging international collaborations for professional growth while adapting to shifting research priorities and local social realities. Their experiences speak to the literature on China's evolving position and positioning within the global social science system, in which international engagement contributes to both global knowledge and autonomous capacities in the national system (e.g. Marginson, 2022). They move adeptly between worlds. Cheng's prioritisation of international experience for

promotion and Bai's strategic use of French theoretical frameworks to meet Chinese journal expectations show how researchers leverage national/global mobility. They can also change themselves in the process.

Previous studies have discussed how Chinese researchers engage in international research to access dominant methodologies and paradigms while retaining features of local epistemologies (e.g. Yang et al., 2019). Cheng and Hong's experiences as visiting researchers show how exposure to international research cultures can reshape endogenous academic identities. Hong experienced a fundamental shift in research values, moving away from conceptual *sibian*-style research to empirical approaches. On the other hand, Lan iteratively adapts Anglophone frameworks to fulfil Chinese purposes, recontextualising Western theories while contributing new perspectives to her collaborator Leo. Here bidirectional learning is apparent, an 'ecology of knowledges' (Santos, 2015) in embryo, within the framework of a division of labour between theory and application.

8.9.2 Variations in Depth

The findings underline the value of international collaboration while acknowledging its challenges and limitations. Value seems to differ across the Chinese/Western divide. Chinese participants mention access to new theoretical perspectives, research methodologies, and professional networks. Western participants mention a growing curiosity about China, its distinctive society and its patterns of thought. But for all participants international collaboration demands substantial emotional and intellectual labour and this is a limiting factor, confirming findings in prior literature that successful collaboration requires more than shared expertise; it needs sustained engagement, trust, and commitment (Bozeman & Corley,

2004; Dusdal & Powell, 2021). These factors in turn rest on favourable conditions. Cheng's and Hong's experiences show that international partnerships do not always align with local career incentives or policy priorities (Xu, 2021). Some collaborations are longer term. Some are not. All must grapple with logistical, cognitive, and institutional constraints. The challenge of sustaining collaborations, especially beyond initial projects or visiting experiences, reflects the broader interplay of individual aspirations, national policies, and global academic structures.

Disciplinary conventions seem to impact longevity and depth, similar to findings from the larger participant group. On the whole, the two pairs of economists find collaboration easier, which they attribute to the discipline's positivist consensus on theory and method. Education is described by participants as more plural and open, more influenced by cultural and national values, and more differentiated than economics across the boundaries between China and the West. Less can be assumed and each project in education requires challenging epistemological negotiations (Fourcade, 2009; Yang et al., 2019). This contrast also enriches current literature by suggesting that disciplinary characteristics actively mediate the forms of reciprocity and depth of epistemic encounters (Graf & Kalthaus, 2018). Relatively pluridisciplinary fields like education involve more friction but also more space for reconfiguring concepts and knowledge relations, calling up the framing of international collaboration as a site of epistemic politics (Hofstetter, 2015). These cases complicate Kwiek and colleagues' (2024) argument that social sciences patterns are converging with the natural sciences, suggesting instead a spectrum of dynamics whereby (pluri)disciplinary epistemologies shape the degree to which collaboration can challenge or reinforce dominant knowledge hierarchies.

8.9.3 Relations of Power

Power asymmetries remain salient but not absolute in shaping collaboration dynamics based on finding from the dyadic group. Non-Western scholars who are at an earlier career stage than their collaborators actively shape global debates rather than merely supply empirical data. While some literature frames international research partnerships as one-sided knowledge flows or knowledge spillovers (e.g. Zingerli, 2010), this study highlights how international collaboration is a negotiated space of norms, labour, and power hierarchies. Relations of power manifested in professional outlook, managerial authority, interactional subordination, differing career stages and varying needs can change over time, as the work evolves and collaborators learn more about each other. Further, there is significant variation in relations of power within these five cases.

Cheng and Chris's collaboration is relatively hierarchical in epistemic terms, in the sense that Chris leads in research design and the judgment of research problems. The dyad is consistent with studies that position collaborative Anglophone researchers as characteristically dominant in theory (e.g. González-Alcaide et al., 2018). However, the international relation is not wholly one-sided: 'we were both mature scholars who can make valid academic arguments (Cheng)' (see also Steiner-Khamsi, 2025). Bai and Betty's collaboration is a more equal partnership. Betty made the larger theoretical contribution but Bai was a theoretical contributor as well as manager-leader and the conceptual weight of the Chinese side had increased over the course of the work. Betty framed the collaboration as 'on the same plane'. Lan, like Betty, is the primary managerial driver of her relationship with Leo. Notably, the familiar theory/operations division of labour (Zingerli, 2010) is again present.

The dyadic data vividly contribute to understanding the divisions of labour and relations of power in international research collaborations. The dyadic layer has bridged the macro-level framework of global-national social science with micro-level subjectivities (Lieblich et al., 1998), addressing Dusdal and Powell's (2021) call for a deeper examination of international collaboration as lived practice in the shifting political context. Data throughout this subgroup uncovers latent dynamics obscured in bibliometric or survey-based research. Bai and Betty's different interpretation of Bai's theoretical contribution provide a more comprehensive picture of roles in that collaboration. Leo's initial discomfort with Lan's disproportionate workload reveals how affective dimensions and power asymmetries can shape outcome, a layer of understanding that is absent from Fuchs and Sandoval's (2013) cost-benefit analyses. Hong's *sibian* narrative helps to explain the substance of China's 'nationalist turn' (Yang et al., 2019) in research, not ideological posturing but an epistemological tradition with long historical roots.

The China-Western dyads showed that global knowledge system is still Western (and primarily Anglophone) in form and content. Nonetheless, participants' experiences also prove that this asymmetry still leaves considerable scope for mutual agency in international collaboration and China-based researchers are exploring that scope. Moving forward, fostering more equitable and mutually enriching international research collaborations requires deeper curiosity about, and respect for, epistemic diversity, critical reflexivity about academic hierarchies, and institutional support for sustainable international partnerships.

8.10 RQ3: Similarities and Differences

Discussion in section 8.9 helps answer the third research question of this study: What are the similar and different negotiation and experiences of researchers in the same international collaboration?

Partners within the same collaboration largely agree on the factual arc of projects such as aims, task sequences, and milestones, while differing in how they value contributions, interpret purpose, and read power. Most dyads mutually confirm core elements of the collaboration, but national positioning, disciplinary grammar, and role expectations produce divergent emphases. China-based researchers tend to frame collaboration as a route to methods, theory, and networks that must be recontextualised for domestic incentives and policy expectations; Western partners highlight intellectual gains from engaging China's contexts. Visiting experiences recalibrate identities (e.g. Cheng, Hong), while longer partnerships (e.g. Lan–Leo; Bai–Betty) show iterative translation and bidirectional learning.

Depth and durability vary with discipline: economics, with higher methodological consensus, supports smoother alignment and sustained co-authorship; education's pluralism increases negotiation costs but also yields hybrid frameworks. Across dyads, the labour of collaboration is acknowledged, but its payoff is weighed differently against local constraints, explaining why some ties remain episodic and others endure. Power is co-recognised yet read differently from each side. Cheng–Chris narrates hierarchical but respectful epistemic organisation; Bai–Betty emphasises reciprocity with shifting theoretical weight; Lan–Leo concurs on Lan's managerial drive but interpret asymmetry as discomfort versus development. Thus, within shared projects, similarities cluster around mutual learning and workflow, while differences centre on purpose, authorship, workload, and authority. The dyads clarify how common processes yield unequal experiences, shaping the durability, equity, and epistemic yield of international collaboration.

8.11 Main Question: Global and National Research Systems through the Lens of International Collaboration

This section answers the overarching research question: What do researchers' experiences in international collaborations in Economics and Education between China and the US, France, South Korea, and Pakistan tell us about global and national research systems? The central claim is that global standards travel through unequal infrastructures and nationally inflected imaginaries, producing patterned yet negotiable asymmetries whose outcomes hinge on how partners organise relations of power, translate epistemic repertoires, and sustain reciprocity. In this reading, global science is a layered system in motion in which structural inequalities are consequential yet never fully determining; collaboration is made workable and sometimes innovative through situated practices that establish trust and reorder relations of power.

A layered, relational view of global–national science emerges from the data. Material and institutional infrastructures select and stratify participation, shaping who can collaborate, on what terms, and at what risk. Epistemic and disciplinary grammars organise what knowledge will travel, and what must be translated to become credible. Normative imaginaries legitimise participation and filter recognition. These layers do not operate in sequence but in concert. On top of the layers work the relational mechanisms of trust as both capital and care, and the organisation and reconfiguration of power through leadership and agency. Taken together, data in this study recast international collaboration as a structural shaping process under asymmetry. Heterogeneous teams hold together not by erasing differences but by managing them.

Within this architecture, standards do not diffuse wholesale from dominant sites. They move through conversion circuits that translate structural advantage into epistemic authority, and through friction points where translation is required. Control of resources routinely becomes agenda-setting power in the choice of questions, methods, and venues. That conversion is not automatic; it is stabilised or softened by leadership routines that pace work, distribute voice, and embed translation. Crucially, ‘rigour’ operates as a boundary object: stable enough to coordinate joint work, flexible enough to host different warrants. Where teams redescribe rigour to accommodate evidential demonstration and conceptual or dialectical reasoning, epistemic asymmetries become workable rather than paralysing.

Values, too, convert into legitimacy. Universalist vocabularies of openness, merit, and disinterestedness can mask hierarchy when invoked as unquestioned standards, yet they also serve as moral repertoires that actors tactically deploy to widen recognition, argue for fairer evaluation, or legitimate contextual theorising. Geopolitics inserts ideology frictions and mobility shocks. Collaborations persist through processes of semantic repair and re-routing that buffer diplomatic volatility. What travels, therefore, is not ‘the standard’ alone, but standards plus the mechanisms of their conversion. Where conversion is unmediated, hierarchy hardens; where it is brokered, hierarchy can be bent toward reciprocity.

Whether collaborations reproduce hierarchy, achieve incremental adaptation, or yield substantive innovation depends on three relational conditions. First, outcomes turn on the organisation of relations of power. Leadership that choreographs difference converts inequality into productive asymmetry, a condition in which hierarchy does not silence. Second, outcomes depend on translation across repertoires. For example, teams that integrate empiricist and rationalist–dialectical resources produce locally intelligible hybrids that can circulate without abandoning contextual specificity. Third, outcomes rest on reciprocity over

time. Trust practices convert risk into cooperation and enable constructive contention rather than person-threat. Where these practices are fragile or one-sided, maintenance burdens fall disproportionately on brokers, juniors, and women, and innovation stalls.

In practice, these conditions are enacted through four routes: (1) alignment of scope and outputs to multiple evaluative audiences; (2) integration of methods and warrants across epistemic traditions; (3) re-routing through diversified networks and venues to withstand political or institutional shocks; and (4) reframing of value claims to secure recognition within dominant evaluative regimes. Equitable and innovative results, on this view, are less functions of partner similarity than an accomplishment of governance: asymmetry is ordinary, but how it is organised, translated, and reciprocated determines whether collaboration reproduces hierarchy or yields shared advancement.

The China–US/France/South Korea/Pakistan cases make visible a dual movement within a polycentric yet stratified system. On one hand, participation and recognition remain tethered to Anglophone infrastructures of journals, networks, and language and to fields with highly portable grammars, such as economics. On the other hand, actors recontextualise imported frameworks to domestic purposes, articulate indigenous concepts, and build regional circuits that buffer geopolitical shocks and consolidate autonomous capacities without severing global ties. What results is a pattern of polycentric stratification: multiple centres exist, but they are unequally empowered. Movement across them occurs not primarily through structural realignment but through the practices specified above, leadership, translation, and reciprocity, that make asymmetry workable.

The analysis supports a set of interlinked propositions. First, collaboration is multiply determined: material infrastructures, epistemic grammars, and normative imaginaries jointly condition participation and recognition; none is sufficient alone. Effective projects align these

layers in practice, rather than relying on any single lever. Second, resource-to-authority conversion is a governance variable, not an inevitability. The degree to which funding, data, and institutional prestige become epistemic primacy depends on how leaders and brokers pace work, translate repertoires, and distribute voice. Conversion can be moderated without sacrificing coordination. Third, rigour pluralism is practically viable under asymmetry when teams treat rigour as a boundary object and sustain dual warrants, enabling pluralism by design rather than by exception. Fourth, trust acts simultaneously as capital and care. Unless the labour that sustains it is equitably recognised and distributed, trust amplifies existing hierarchies by smoothing entry for the already-recognised and raising costs for those who underwrite reciprocity. Fifth, disciplinary mediation matters: high-consensus disciplines lower transaction costs but tend to narrow heterodoxy; pluralist fields raise negotiation costs but expand the space for ethical reflexivity and methodological innovation. Finally, in periods of geopolitical turbulence, regional and diversified circuits function as effective buffers, maintaining collaboration without requiring macro-level resolution.

These propositions hold clearly where infrastructures are uneven but permeable, where teams include at least one broker capable of translation across epistemic and institutional languages, and where evaluation regimes are sufficiently elastic to host hybrid warrants. Where any of these scope conditions are absent, closed infrastructures, no brokerage capacity, or monolithic evaluation, reproduction of hierarchy, is the likely outcome. However, the study underscores that agency does not disappear; it shifts toward re-routing and reframing and preserving the possibility of future expansion.

In sum, researchers' experiences across the China–US/France/South Korea/Pakistan collaborations reveal a global research system that is polycentric, stratified, and governable in practice. Global standards move through unequal structures and nationally inflected

imaginaries, generating asymmetries that are patterned but negotiable. Where partners organise relations of power inclusively, translate epistemic repertoires into hybrid, portable forms, and sustain reciprocity over time, difference is converted into productive asymmetry, and collaborations yield innovative knowledge that neither side could generate alone. Where these conditions are absent, collaboration reverts to hierarchical reproduction. International collaboration thus appears as a practical organisation, the everyday governance of difference within an uneven yet transformable global–national research system.

Chapter 9

Conclusions

Chapter 9 consolidates the thesis' argument that international collaboration is a governable practice under asymmetries. Across the preceding chapters, collaboration appeared not as a frictionless exchange but as a layered organisation of difference in which material infrastructures, epistemic grammars, value regimes, and relational powers co-produce opportunities and constraints. This chapter concludes the thesis by specifying contributions to theory, method, and practice (9.1), acknowledging limitations and scope conditions (9.2), and setting an agenda for future research (9.3).

9.1 Contribution

This section consolidates the study's contributions across theory, methodology, and practice. It specifies the mechanisms by which asymmetries are converted or moderated in collaboration, demonstrates a mirrored dyadic design that links bibliometric mapping to qualitative depth, and derives actionable designs for brokerage, distributed leadership, dual-warrant evaluation, and the recognition of maintenance labour.

9.1.1 Theoretical Contribution

One distinctive theoretical contribution of this study is to specify how differences and asymmetries become consequential in international collaboration. Material advantage does not convert automatically into epistemic authority; conversion is mediated by leadership routines that pace work, distribute voice, and embed translation. Authority is not a fixed property of well-resourced actors but an outcome of collaborative governance. Where pacing, voice distribution, and translation are weak, resources remain logistical rather than epistemic; where these routines are strong, conversion is moderated and authority becomes shared rather than monopolised. The analysis thus reframes centre–periphery images by treating ‘conversion’ as a variable, team-level process rather than a structural inevitability.

The study also reconceptualises ‘rigour’ as a boundary object that is stable enough to coordinate joint work and satisfy external evaluators, yet flexible enough to host both evidential and conceptual warrants. When teams explicitly pair replicability/verification with abstraction/dialectical reasoning, they generate hybrid outputs that circulate across heterogeneous regimes without evacuating contextual specificity. This formulation renders pluralism a designed property of collaboration rather than a residual tolerance of difference, and it clarifies why some teams can publish across audiences while preserving locally meaningful concepts.

Further, the analysis specifies how normative vocabularies and geopolitics operate within international collaboration. Appeals to openness and merit can naturalise hierarchy by presenting certain standards as universal; the same vocabularies are also tactically redeployed to widen recognition and legitimate contextual theorising. Geopolitical turbulence introduces ideological frictions and mobility shocks; collaborations endure where actors practise semantic repair such as reframing categories and re-scoping claims, and re-routing such as diversifying venues, partners, and financial channels, including regional circuits. Taken

together, conversion, boundary-object rigour, semantic repair, and re-routing explain why seemingly similar collaborations diverge in outcome. Some reproduce hierarchy; others bend it toward reciprocity and innovation.

The study also consolidates a vocabulary for the governance of differences in international collaboration. Four recurrent families of practice organise heterogeneous teams: alignment of scope and outputs to multiple evaluative audiences; integration of methods and warrants across epistemic traditions; re-routing to buffer political and institutional volatility; and reframing of value claims to secure legitimacy without erasure. Trust figures throughout in a dual register as capital that tracks prestige and familiarity at entry, and as care enacted through receptiveness, responsibility, and reciprocity over time, linking recognition to practice. Leadership is correspondingly reshaped as the organisation of relations of power: not the elimination of hierarchy, but its choreography into productive asymmetry, a state in which difference is paced, translated, and made speakable rather than silenced.

Finally, this study specifies scope conditions and portability. Productive asymmetry is most likely where infrastructures are uneven but permeable, at least one broker can translate across institutional and epistemic languages, and evaluative regimes are elastic enough to host dual warrants. Where infrastructures are closed, brokerage absent, or evaluation monist, hierarchy hardens; agency shifts from integration toward re-routing and latency. By naming the mechanisms and the conditions under which they operate, the study offers a mid-range process theory that can be tested across fields and regions and used to diagnose and potentially redesign the governance of difference in international research.

9.1.2 Methodological Contribution

One methodological contribution of this study is the design and demonstration of an emergent, poly-scalar mixed-methods strategy that links bibliometrics to qualitative interviewing and comparative analysis. Bibliometric scoping was used instrumentally rather than inferentially to map collaboration trends, identify structurally salient country dyads, and construct a purposive sampling frame for interview recruitment. This coupling of database-driven mapping with qualitative depth enables movement between system-level patterns and lived practice without presuming that publication counts explain behaviour (Hesse-Biber & Leavy, 2006). The counts locate actors, the interviews explain how collaboration is organised.

A second contribution lies in the use of separate dyadic interviews as a ‘mirrored accounts’ design. Interviewing both members of a collaborating pair individually and without the other present yields paired narratives that can be read for convergence like shared chronology, task sequences, and procedural facts, as well as divergence like attributions of credit, interpretations of purpose, and readings of power. Treating dyads as analytic units permits validation that goes beyond single-respondent reliability checks and makes visible relational mechanisms such as tacit authorship negotiations (Eisikovits & Koren, 2010). The dyadic layer also provides an internal check on recall bias and social desirability: agreements across mirrors stabilise the event history (Eisikovits & Koren, 2010).

Third, the study operationalises co-authorship as a pragmatic proxy for international collaboration for sampling purposes while explicitly mitigating its blind spots in the interview protocol. Recruitment anchored in SSCI/CSSCI records ensured access to verifiable collaborations, and the researcher intentionally asked participants about non-publication collaborations, informal exchanges, and abandoned projects. This pairing of a measurable gateway with an expansive narrative net preserves tractability without foreclosing less visible

forms of cooperation (Khor & Yu, 2016). The same logic guided country selection: bibliometric volume and diversity identified feasible sites; the emergent design then refined cases iteratively as access and salience became clearer.

Regarding data analysis, the contribution is a staged, reflexive process that combines open coding, dyad-first recoding, and thematic matrices aligned to the study's infrastructural, epistemic, normative, and relational layers. Beginning with dyads concentrates attention on interactional processes before broadening to the full corpus. It helps generate a refined codebook when later returning to the entire dataset, thus strengthening cross-case comparability. To maintain linguistic fidelity in a bilingual corpus, translation protocols included intelligent-verbatim transcription, iterative clarification notes for culture-laden terms, and backward translation on extended quotations.

Finally, the study formalises a portable heuristic for the investigation of difference in international collaboration studies: mapping structural fields with bibliometrics; sampling into relational ties; eliciting mirrored narratives; conducting analysis from dyads to corpus; and documenting analytic decisions through reflexive memoing and translation audits. The approach travels under clear scope conditions. Methodologically, the value added is a design that keeps system-level visibility and micro-level nuances in the same frame, converting cases into mechanism-rich explanation.

9.1.3 Practical Contribution

The analysis suggests four domains for policymaking and practical implementation. First, brokerage capacity should be treated as an investable research infrastructure rather than an informal personal asset. Universities and funders can establish dedicated budgets for

translation and interpretation, comparative methods support, and intercultural facilitation. These can create ‘boundary-spanner’ roles with clear progression pathways. Practically, one possible way is to credential these capacities through micro-certificates such as bilingual academic writing, cross-jurisdictional ethics and disciplinary code-switching (Selvaratnam & Sankey, 2021). Doctoral training programmes can potentially incorporate **comparative design** courses to discuss academic routines across national systems to normalise epistemic translation early in training (Cardoso et al., 2022). At the university level, research offices can add a collaboration management unit staffed by linguistically competent project managers to handle tasks related to authorship tracking, meeting rotation logistics across time zones, and compliance with multi-country data/finance rules.

Second, distributed leadership in international teams can be institutionalised through co-PI governance and explicit operating charters agreed at the launch collaboration project. These charters need to specify issues such as decision rights by task, rotation of facilitation and time-zone burdens, pre-agreed ‘repair routines’ like scheduled check-ins after conflict, and data, IP, and authorship policies aligned with CRediT contributorship statements (Brand et al., 2015). Departments and funders can require submission of such governance plans at award stage and assess them in mid-term reviews, making the organisation of translation work a criterion of project quality rather than a discretionary courtesy (Goksoy, 2016).

Third, evaluation frameworks should recognise dual warrants by valuing conceptual contribution alongside evidential demonstration. At the funding and promotion levels, this entails (1) rubrics that separately score theoretical framing/translation and methodological execution (Farrington, 2003); (2) allowance for hybrid outputs like bilingual conceptual syntheses and contextual frameworks as ‘countable’ research contributions; and (3) reviewer guidance that treats rigour as a boundary object, legitimate when teams justify how empirical

and conceptual warrants are paired for the problem at hand (Birukou et al., 2011). Journals and conferences can pilot dual-track review of methods and conceptual translation, as well as invite reflexive 'methods-of-translation' submissions to make epistemic brokerage visible and citable.

A fourth implication concerns equity and the visibility of maintenance labour. The coordination, translation, and care work that underwrites reciprocity should be budgeted, recorded, and rewarded. Practical mechanisms can include (1) annual equity audits that check concentration of maintenance tasks by career stage and gender (Jappelli et al., 2017); (2) small stipends or course-release tied to documented maintenance tasks; (3) and contributorship that credits leadership or work of translation, governance, and data stewardship alongside analysis and writing. Without such recognition, the cost of trust building remain unevenly borne, and the very conditions that enable innovation are throttled.

Finally, regional platforms should be developed as complements to rather than substitutes for global circuits. Policymakers and funders can support regional associations and networks that (1) provide seed grants and mobility schemes across neighbouring systems; (2) maintain bilingual repositories with shared data standards to ease discovery and reuse; (3) implement mutual recognition arrangements of doctoral credit and faculty exchange. Institutions can encourage collaborator diversification at the department or research centre level to balance global projects with resilient regional ties so that re-routing remains feasible when single-node dependencies fail.

These measures convert the thesis's claims into actionable design: build brokerage as infrastructure, govern collaboration through distributed leadership and repair routines, evaluate with dual-warrant rubrics that credit epistemic translation, make maintenance labour

visible and rewarded, and pair global with regional circuits to manage volatility while sustaining exchange.

9.2 Limitations

This study adopts an exploratory emergent design suited to the investigation of China's international research collaboration, but that strength introduces limits to scope and inference. The sampling strategy combined bibliometric scoping with purposive recruitment, privileging researchers visible through co-authored outputs in SSCI and CSSCI. Reliance on corresponding authors and publicly listed addresses also biases the pool toward senior and institutionally embedded scholars, potentially muting perspectives from precarious or peripheral actors who often shoulder translation and maintenance labour (Elston, 2021).

The comparative frame is narrow: Economics and Education across four China–partner constellations (US, France, South Korea, Pakistan) from 2017–2022. This delimitation sharpens analysis of disciplinary and geopolitical variation but constrains transferability to other fields such as law, sociology, or STEM subfields with distinct laboratory routines, as well as to other collaboration geographies like Latin America, Africa, and Southeast Asia. The six-year window captures a period marked by pandemic disruption and heightened geopolitical tension: findings reflect these conjunctures and may not map cleanly onto calmer periods or future realignments.

Regarding research methods, semi-structured and dyadic interviews yield rich, first-person accounts but carry vulnerabilities. Retrospective narration invites recall error and post-hoc rationalisation (Lucas & Ball, 2005). Social desirability and reputational concerns may shape how power, authorship, and conflict are reported, especially where ongoing

relationships or institutional loyalties are at stake (Summers, 2017). Dyadic pairing strengthens internal validation by enabling mirrored accounts, yet the dyads remain few in number and focused on Western collaborations, while potentially under-sampling failed or aborted partnerships. The study did not include sustained ethnographic observation of meetings, document trails like tracked revisions, email threads, or systematic content analysis of manuscripts and reviews; as a result, claims about interactional styles, authorship negotiation, and editorial gatekeeping rest on convergent testimony rather than fine-grained process tracing (Plate et al., 2021).

Data infrastructure choices introduce additional constraints. SSCI and CSSCI differ in coverage, disciplinary taxonomies, and indexing practices, complicating cross-system comparability. English- and Chinese-language materials dominate; collaborations conducted primarily in other languages are less visible. For interviews conducted in Chinese and translated into English, back-translation was used for longer quotations, but translation inevitably flattens idiom, tone, and face-work cues central to interactional analysis (Katan, 2009). The analytic vocabulary like conversion, boundary-object rigour, semantic repair, re-routing helps synthesise patterns across cases, yet any conceptual construct risks reifying heterogeneous practices if treated as universal rather than contingent descriptors (Kuhn & Porter, 2010).

Finally, inference remains qualitative and conditional. The study identifies mechanisms and scope conditions rather than estimating effect sizes or causal impacts (Kraft, 2020). Patterns observed here are most likely to hold where infrastructures are uneven but permeable, evaluation regimes are elastic enough to host hybrid warrants, and at least one broker can translate across epistemic and institutional languages. Outside those conditions

and under closed infrastructures, monolingual regimes, or acute securitisation, dynamics may differ substantially.

9.3 Future Studies

Future inquiry can try test the portability of the study's propositions and open the mechanisms to closer inspection. One priority is longitudinal, process-level evidence. Multi-sited ethnographies of collaboration in the form of shadowing teams across proposal, data, writing, and review cycles would trace how material advantage converts or fails to convert into epistemic authority in real time (McDonald & Simpson, 2014). With careful consent and governance, digital trace data such as version histories, issue trackers, and messaging logs could be coupled with interviews and short diaries during phases of topic selection, authorship negotiation, revise-and-resubmit. These can potentially foreground more nuances on pacing decisions and the choreography of voice as they unfold rather than as retrospective accounts (Lucas & Ball, 2005).

A second line concerns comparative breadth. Extending analysis beyond Economics and Education to laboratory-intensive STEM fields, law, and interpretive humanities would test the discipline-as-infrastructure claim under different regimes of method, authorship, and credit. Regional diversification based in Latin America, Africa, the Middle East, or Southeast Asia would probe whether 'productive asymmetry' depends on specific language ecologies, funder architectures, or regional platforms. Natural experiments created by policy shocks like visa restrictions or evaluation reforms could be exploited with quasi-experimental designs to estimate effects on network structure, coauthorship durability, and agenda-setting power (Gopalan et al., 2020).

Specifically on the dyadic groups between Chinese and Western collaborators, a larger study is also needed to determine the extent to which a theory/operations division patterns Western–Chinese collaborations and to identify its drivers: whether it is more the Western contents of the global episteme and the advantages of native-English linguistic practice; heterogeneous career stages within dyads; or a stronger practical drive among China-based researchers. Measurement should leave room for positive readings of management and maintenance labour. In some cases such as Lan’s experiences, coordination are experienced as respected, developmental roles rather than subordination. Criteria and attitudes toward equality, respect, and hegemony are fluid and situational, shifting with task, venue, and career stage; future work therefore can try including repeated attitudinal measures and narrative elicitation to register these redefinitions over time.

Measurement innovations more broadly are needed to operationalise some conceptual constructs. Trust as both capital and care can be captured through paired indicators: reputational/network measures at entry and behavioural reliability metrics over time regarding deadline adherence, revision throughput, or responsiveness. The largely invisible maintenance labour of brokers can be made legible by coding meeting minutes, edit logs, and translation episodes, enabling tests of who performs this work and how it relates to authorship, retention, and epistemic yield. Computational text analysis of manuscripts, response-to-review letters, and reviewer reports could identify linguistic markers of boundary-object rigour and detect editorial gatekeeping frames tied to national origin or method (Pramanick et al, 2024). Network models that distinguish brokerage, re-routing, and redundancy can clarify how diversified ties buffer geopolitical shocks and when they merely add administrative drag (Gupta et al., 2024).

These directions aim to convert a descriptive account of negotiated asymmetry into a cumulative science of governance-by-design, specifying when and how collaborative inequality is bent toward reciprocity and innovation, and when it hardens into hierarchy despite best intentions.

Final remarks: Collaboration, Power, and AI

The dynamics traced in this thesis intersect directly with the accelerating diffusion of AI, which now functions as both infrastructure and collaborator-by-proxy in global knowledge production. Large language models lower transaction costs in literature synthesis, translation, coding, and drafting, potentially widening access for researchers outside dominant linguistic and institutional centres (Rueda et al., 2025). Yet the same systems can intensify hierarchy: compute concentration, proprietary training data, and English-dominant corpora risk hardening an already Western-tilted global episteme. The core propositions here therefore extend to an AI-mediated research world.

AI changes how power shows up in collaborations. When computing power, models, and privileged datasets sit in a few hands, infrastructural advantage can slide into epistemic authority. As Harari notes in *Nexus*, information hubs concentrate leverage. Shared governance of tools, transparent data provenance, and equitable access keep that hub advantage from hardening into default primacy (2024). Rigour may become more socio-technical. It is no longer just good evidence plus clear theory, but also model accountability: data lineage, bias audits, reproducible prompts, and interpretable outputs. In Harari's terms, whoever controls the 'pipes' shapes truth-claims; boundary objects like data statements and model cards keep those pipes contestable across teams (2024).

Trust and authorship can get trickier with synthetic text. If narratives are the operating system of cooperation, then provenance matters. Researchers need to disclose when and how AI assisted, obtain consent before fine-tuning on private materials, and credit the hidden labour that stabilises results (Resnik & Hosseini, 2025). These practices can protect the story

of who did what. Epistemic pluralism may increasingly depend on data sovereignty and multi-linguality. In research, that means building regional, open, non-Anglophone corpora, and teaching AI literacy alongside bilingual academic writing and cross-jurisdictional ethics in doctoral training. Translation becomes a first-order method, not an afterthought.

Pluralism drives innovation: when international teams treat difference as something to translate rather than erase, AI can act as a collaborator that converts uneven structures into productive asymmetry. Power over data and standards still tilts the field, yet agency scales through shared governance, multilingual corpora, transparent provenance, and fair credit, keeping authority contestable. Build polycentric infrastructures and teach socio-technical rigour, and AI will widen who gets to know and who gets to innovate the future where structure matters, but organised and reciprocal agency matters more.

References

- Abramo, G., D'Angelo, C. A., & Di Costa, F. (2019). A gender analysis of top scientists' collaboration behavior: Evidence from Italy. *Scientometrics*, 120(2), 405–418. <https://doi.org/10.1007/s11192-019-03136-6>
- Abramo, G., D'Angelo, C. A., & Murgia, G. (2014). Variation in research collaboration patterns across academic ranks. *Scientometrics*, 98(3), 2275–2294. <https://doi.org/10.1007/s11192-013-1185-3>
- Adame, F. (2021). Meaningful collaborations can end 'helicopter research'. *Nature*, 595(7867), 442–444. <https://doi.org/10.1038/d41586-021-01795-1>
- Adams, J. (2013). The fourth age of research. *Nature*, 497(7451), 557–560. <https://doi.org/10.1038/497557a>
- Adams, J., & Szomszor, M. (2024). National research impact is driven by global collaboration, not rising performance. *Scientometrics*, 129(5), 2883–2896. <https://doi.org/10.1007/s11192-024-05010-6>
- Adams, W. C. (2015). Conducting semi-structured interviews. *Handbook of Practical Program Evaluation*, 492–505. <https://doi.org/10.1002/9781119171386.ch19>
- Ahmad, F., & Barner-Rasmussen, W. (2019). False foe? When and how code switching practices can support knowledge sharing in multinational corporations. *Journal of International Management*, 25(3), 100671. <https://doi.org/10.1016/j.intman.2019.03.002>
- Ahmad, J. B., Hussain, M. A., & Mir, H. A. (2024). Developing a legal framework for digital policy: A roadmap for AI regulations in Pakistan. *Law and Policy Review*, 3(1), 162–188. <https://doi.org/10.5349/lpr.31.08>
- Aigner, E., Greenspon, J., & Rodrik, D. (2025). The global distribution of authorship in economics journals. *World Development*, 189, 106926. <https://doi.org/10.1016/j.worlddev.2025.106926>
- Aini, R. Q., & Triantama, F. (2021). The implementation of South Korea's military technology reform in the perspective of techno-nationalism. *Sospol*, 7(1), 63–76. <https://doi.org/10.22219/sospol.v7i1.14581>
- Akkerman, S. F., & Bakker, A. (2011). Boundary crossing and boundary objects. *Review of Educational Research*, 81(2), 132–169. <https://doi.org/10.3102/0034654311404435>
- Akrich, M. (2023). Actor network theory, Bruno Latour, and the CSI. *Social Studies of Science*, 53(2), 169–173. <https://doi.org/10.1177/03063127231158102>

Aksnes, D. W., & Sivertsen, G. (2023). Global trends in international research collaboration, 1980–2021. *Journal of Data and Information Science*, 8(2), 26–42. <https://doi.org/10.2478/jdis-2023-0015>

Aksnes, D. W., Piro, F. N., & Rørstad, K. (2019). Gender gaps in international research collaboration: A bibliometric approach. *Scientometrics*, 120(2), 747–774. <https://doi.org/10.1007/s11192-019-03155-3>

Ali, L., & Akhtar, N. (2024). The effectiveness of export, FDI, human capital, and R&D on total factor productivity growth: The case of Pakistan. *Journal of the Knowledge Economy*, 15(1), 3085–3099. <https://doi.org/10.1007/s13132-023-01364-z>

Amano, T., González-Varo, J. P., & Sutherland, W. J. (2016). Languages are still a major barrier to global science. *PLOS Biology*, 14(12), e2000933. <https://doi.org/10.1371/journal.pbio.2000933>

Amdaoud, M., Laurens, P., Le Bas, C., & Vo, L. C. (2024). Collaboration in academic research in the field of business and management in France: Intranational versus international. *Management International*, 28(6), 21–31. <https://doi.org/10.59876/a-fmez-b84e>

Angrist, J. D., & Pischke, J. S. (2010). The credibility revolution in empirical economics: How better research design is taking the con out of econometrics. *Journal of Economic Perspectives*, 24(2), 3–30. <https://doi.org/10.1257/jep.24.2.3>

Antonelli, C., & Crespi, F. (2013). The “Matthew effect” in R&D public subsidies: The Italian evidence. *Technological Forecasting and Social Change*, 80(8), 1523–1534. <https://doi.org/10.1016/j.techfore.2012.12.004>

Archer, M. S. (1995). *Realist social theory: The morphogenetic approach*. Cambridge University Press.

Archer, M. S. (2003). *Structure, agency and the internal conversation*. Cambridge University Press.

Awan, T. M. (2022). 71 years of Pak–China research & development cooperation: Regional dynamics and the way forward. *Journal of Peace and Diplomacy*, 3(1), 1–14. <https://doi.org/10.59111/JPD.003.01.014>

Bae, S. J., & Lee, H. (2020). The role of government in fostering collaborative R&D projects: Empirical evidence from South Korea. *Technological Forecasting and Social Change*, 151, 119826. <https://doi.org/10.1016/j.techfore.2019.119826>

Bagshaw, D., Lepp, M., & Zorn, C. R. (2007). International research collaboration: Building teams and managing conflicts. *Conflict Resolution Quarterly*, 24(4), 433–446. <https://doi.org/10.1002/crq.183>

Baker, D. P., & Powell, J. J. W. (2024). *Global mega-science: Universities, research collaborations and knowledge production*. Stanford University Press.

- Baloch, N., Luo, S., Shen, H., & Hoth, M. D. (2021). Faculty publication productivity and collaboration in Pakistan: Using mixed methods to compare foreign and domestic doctoral degree holders. In *Higher Education Forum* (Vol. 18, pp. 23-46). Research Institute for Higher Education, Hiroshima University. <https://doi.org/10.15027/50744>
- Beaver, D. D. (2013). The many faces of collaboration and teamwork in scientific research: Updated reflections on scientific collaboration. *COLLNET Journal of Scientometrics and Information Management*, 7(1), 45-54. <https://doi.org/10.1080/09737766.2013.802629>
- Becher, T. (1989). A meta-theoretical approach to education theory. *Cambridge Journal of Education*, 19(1), 13-20. <https://doi.org/10.1080/0305764890190103>
- Biesta, G. (2007). Why 'what works' won't work: Evidence-based practice and the democratic deficit in educational research. *Educational Theory*, 57(1), 1-22. <https://doi.org/10.1111/j.1741-5446.2006.00241.x>
- Biglan, A. (1973). The characteristics of subject matter in different academic areas. *Journal of Applied Psychology*, 58(3), 195-203. <https://psycnet.apa.org/doi/10.1037/h0034701>
- Birch, K. (2017). Techno-economic assumptions. *Science as Culture*, 26(4), 433-444. <https://doi.org/10.1080/09505431.2017.1377389>
- Birukou, A., Wakeling, J. R., Bartolini, C., Casati, F., Marchese, M., Mirylenka, K., ... & Wassef, A. (2011). Alternatives to peer review: Novel approaches for research evaluation. *Frontiers in Computational Neuroscience*, 5, 56. <https://doi.org/10.3389/fncom.2011.00056>
- Björkman, B. (2011). Pragmatic strategies in English as an academic lingua franca: Ways of achieving communicative effectiveness? *Journal of Pragmatics*, 43(4), 950-964. <https://doi.org/10.1016/j.pragma.2010.07.033>
- Blaug, M. (1992). *The methodology of economics: Or, how economists explain*. Cambridge University Press.
- Boari, C., & Riboldazzi, F. (2014). How knowledge brokers emerge and evolve: The role of actors' behaviour. *Research Policy*, 43(4), 683-695. <https://doi.org/10.1016/j.respol.2014.01.007>
- Bol, T., de Vaan, M., & van de Rijt, A. (2018). The Matthew effect in science funding. *Proceedings of the National Academy of Sciences*, 115(19), 4887-4890. <https://doi.org/10.1073/pnas.1719557115>
- Bolden, R. (2011). Distributed leadership in organizations: A review of theory and research. *International Journal of Management Reviews*, 13(3), 251-269. <https://doi.org/10.1111/j.1468-2370.2011.00306.x>
- Bolt, J., & Van Zanden, J. L. (2025). Maddison-style estimates of the evolution of the world economy: A new 2023 update. *Journal of Economic Surveys*, 39(2), 631-671. <https://doi.org/10.1111/joes.12618>

Bond-Barnard, T. J., Fletcher, L., & Steyn, H. (2018). Linking trust and collaboration in project teams to project management success. *International Journal of Managing Projects in Business*, 11(2), 432-457. <https://doi.org/10.1108/IJMPB-06-2017-0068>

Bond, M., Marín, V. I., & Bedenlier, S. (2021). International collaboration in the field of educational research: A Delphi study. *Journal of New Approaches in Educational Research*, 10(2), 190-213. <https://doi.org/10.7821/naer.2021.7.614>

Boon, M., & Van Baalen, S. (2019). Epistemology for interdisciplinary research – shifting philosophical paradigms of science. *European Journal for Philosophy of Science*, 9(1), 16. <https://doi.org/10.1007/s13194-018-0242-4>

Borgman, C. L., & Bourne, P. E. (2021). Why it takes a village to manage and share data. <https://doi.org/10.48550/arXiv.2109.01694>

Bosquet, C., & Combes, P. P. (2013). Are academics who publish more also more cited? Individual determinants of publication and citation records. *Scientometrics*, 97(3), 831-857. <https://doi.org/10.1007/s11192-013-0996-6>

Boulton, M., & Parker, M. (2007). Informed consent in a changing environment. *Social Science & Medicine*, 65(11), 2187-2198. <https://doi.org/10.1016/j.socscimed.2007.08.002>

Bourdieu, P. (1988). *Homo academicus* (P. Collier, Trans.). Stanford University Press. (Original work published 1984)

Bozeman, B., & Corley, E. (2004). Scientists' collaboration strategies: Implications for scientific and technical human capital. *Research Policy*, 33(4), 599–616. <https://doi.org/10.1016/j.respol.2004.01.008>

Brand, A., Allen, L., Altman, M., Hlava, M., & Scott, J. (2015). Beyond authorship: Attribution, contribution, collaboration, and credit. *Learned Publishing*, 28(2). <https://doi.org/10.1087/20150211>

Brewer, W. F., & Lambert, B. L. (2001). The theory-ladenness of observation and the theory-ladenness of the rest of the scientific process. *Philosophy of Science*, 68(S3), S176-S186. <https://doi.org/10.1086/392907>

Bryman, A. (2008). *Social research methods* (3rd ed.). Oxford University Press.

Cabestan, J. P. (2016). France-China cooperation in Africa: The emergence and the limits of a new initiative. In *New Haven, Paper presented at the Yale China-Africa Conference on Africa-China relations* (Vol. 16).

Cai, Y. (2023). Towards a new model of EU-China innovation cooperation: Bridging missing links between international university collaboration and international industry collaboration. *Technovation*, 119, 102553. <https://doi.org/10.1016/j.technovation.2022.102553>

Cao, C., Baas, J., Wagner, C. S., & Jonkers, K. (2020). Returning scientists and the emergence of China's science system. *Science and Public Policy*, 47(2), 172-183. <https://doi.org/10.1093/scipol/scz056>

- Cappellaro, G., Mele, V., & Ansari, S. (2025). Bridging Global Mandates and Local Realities: Intermediary clusters and interorganizational collaboration for international development. *Organization Studies*, 46(2), 157-185. <https://doi.org/10.1177/01708406241298398>
- Cardoso, S., Santos, S., Diogo, S., Soares, D., & Carvalho, T. (2022). The transformation of doctoral education: A systematic literature review. *Higher Education*, 84(4), 885-908. <https://doi.org/10.1007/s10734-021-00805-5>
- Carroll, J. K., Albada, A., Farahani, M., Lithner, M., Neumann, M., Sandhu, H., & Shepherd, H. L. (2010). Enhancing international collaboration among early career researchers. *Patient Education and Counseling*, 80(3), 417–420. <https://doi.org/10.1016/j.pec.2010.06.020>
- Carter, E. B., Carter, B. L., & Schick, S. (2024). Do Chinese citizens conceal opposition to the CCP in surveys? Evidence from two experiments. *The China Quarterly*, 259, 804-813. <https://doi.org/10.1017/S0305741023001819>
- Carvalho, D. S., Felipe, L. L., Albuquerque, P. C., Zicker, F., & Fonseca, B. D. P. (2023). Leadership and international collaboration on COVID-19 research: reducing the North–South divide?. *Scientometrics*, 128(8), 4689-4705. <https://doi.org/10.1007/s11192-023-04754-x>
- Ceci, S. J., Kahn, S., & Williams, W. M. (2023). Exploring gender bias in six key domains of academic science: An adversarial collaboration. *Psychological Science in the Public Interest*, 24(1), 15-73. <https://doi.org/10.1177/15291006231163179>
- Chan, R. Y. (2022). Exploring international joint and dual degree programs and transnational higher education: Ideas and possibilities during COVID-19. *Education Policies in the 21st Century: Comparative Perspectives*, 239-267. https://doi.org/10.1007/978-981-19-1604-5_10
- Chandler, F. (2011). Leadership and its impact on the success of Social Sciences and Humanities Research Council funded collaborative research projects. <http://hdl.handle.net/10464/3429>
- Chen, J., & Lin, Y., (2024). A preliminary study on open access transformation policies and practices of major academic journal publishers worldwide. *Chinese journal of scientific and technical periodicals*, 35(9), 1271. <https://doi.org/10.11946/cjstp.202403100212>
- Chen, J., & Sun, J. (2021). Understanding the Chinese data security law. *International Cybersecurity Law Review*, 2(2), 209-221. <https://doi.org/10.1365/s43439-021-00038-3>
- Chen, K., Ding, Y., Zhao, B., Guo, R., & Ning, L. (2025). Benefits beyond the local network: Does indirect international collaboration ties contribute to research performance for young scientists?. *Research Policy*, 54(5), 105233. <https://doi.org/10.1016/j.respol.2025.105233>
- Chinchilla-Rodríguez, Z., Sugimoto, C. R., & Larivière, V. (2019). Follow the leader: On the relationship between leadership and scholarly impact in international collaborations. *PloS one*, 14(6), e0218309. <https://doi.org/10.1371/journal.pone.0218309>

- Choi, M., Lee, H., & Zoo, H. (2021). Scientific knowledge production and research collaboration between Australia and South Korea: Patterns and dynamics based on co-authorship. *Scientometrics*, 126(1), 683-706. <https://doi.org/10.1007/s11192-020-03765-2>
- Choi, S. (2012). Core-periphery, new clusters, or rising stars?: International scientific collaboration among 'advanced' countries in the era of globalization. *Scientometrics*, 90(1), 25-41. <https://doi.org/10.1007/s11192-011-0509-4>
- Cimini, G., Zaccaria, A., & Gabrielli, A. (2016). Investigating the interplay between fundamentals of national research systems: Performance, investments and international collaborations. *Journal of Informetrics*, 10(1), 200-211. <https://doi.org/10.1016/j.joi.2016.01.002>
- Clough, P., & Nutbrown, C. (2002). *A Student's Guide to Methodology: Justifying Enquiry*. <http://digital.casalini.it/9781446258620>
- Collins, H., Evans, R., & Gorman, M. (2007). Trading zones and interactional expertise. *Studies in History and Philosophy of Science Part A*, 38(4), 657-666. <https://doi.org/10.1016/j.shpsa.2007.09.003>
- Collyer, F. M. (2018). Global patterns in the publishing of academic knowledge: Global North, global South. *Current Sociology*, 66(1), 56-73. <https://doi.org/10.1177/0011392116680020>
- Creswell, J. W. (2003). *Research design: Qualitative, quantitative and mixed methods approaches*. Sage publications.
- Cross, R. (1982). The Duhem-Quine thesis, Lakatos and the appraisal of theories in macroeconomics. *The economic journal*, 92(366), 320-340. <https://doi.org/10.2307/2232443>
- Crotty, M. J. (1998). The foundations of social research: Meaning and perspective in the research process. <http://digital.casalini.it/9781446283134>
- Curry, M. J., & Lillis, T. (2004). Multilingual scholars and the imperative to publish in English: Negotiating interests, demands, and rewards in the new economy of knowledge. *TESOL Quarterly*, 38(4), 663-688. <https://www.jstor.org/stable/3588284>
- D'amour, D., & Oandasan, I. (2005). Interprofessionality as the field of interprofessional practice and interprofessional education: An emerging concept. *Journal of interprofessional care*, 19(sup1), 8-20. <https://doi.org/10.1080/13561820500081604>
- Davis, K. E., Kingsbury, B., & Merry, S. E. (2012). Indicators as a technology of global governance. *Law & Society Review*, 46(1), 71-104. <https://doi.org/10.1111/j.1540-5893.2012.00473.x>
- de Frutos-Belizón, J., García-Carbonell, N., Guerrero-Alba, F., & Sánchez-Gardey, G. (2024). An empirical analysis of individual and collective determinants of international research collaboration. *Scientometrics*, 129(5), 2749-2770. <https://doi.org/10.1007/s11192-024-04999-0>

- De Grijjs, R. (2015). Ten simple rules for establishing international research collaborations. *PLOS Computational Biology*, 11(10), e1004311. <https://doi.org/10.1371/journal.pcbi.1004311>
- Santos, B. (2015). *Epistemologies of the South: Justice against epistemicide*. Routledge. <https://doi.org/10.4324/9781315634876>
- Deepwell, F., & King, V. (2009). E-research collaboration, conflict and compromise. In *E-Collaboration: Concepts, Methodologies, Tools, and Applications* (pp. 676-690). IGI Global Scientific Publishing. <http://www.igi-global.com/bookstore/titledetails.aspx?titleid=292&detailstype=description>
- DeJaeghere, J. G. (2024). Mixed Methods Research in Comparative and International Education: Philosophical and Methodological Considerations to Enhance Epistemological Pluralism. *Comparative Education Review*, 68(3), 489-510. <https://doi.org/10.1086/731726>
- Deleamarle, A., & Laredo, P. (2010). Dynamics of nanosciences and technologies: Policy implications. In B. Kahane, P. Laredo, & A. Deleamarle (Eds.), *STI Policy Review*, 1(1), 43–62. <https://ifris.org/wp-content/blogs.dir/1/files/2014/10/Laredo-Frontier-research-2010-14.pdf>
- Demeter, M., Goyanes, M., Háló, G., & Xu, X. (2025). The internationalization of Chinese social sciences research: publication, collaboration, and citation patterns in economics, education, and political science. *Policy Reviews in Higher Education*, 9(1), 81-107. <https://doi.org/10.1080/23322969.2024.2438240>
- Diaz, D. A., & Rees, C. J. (2020). Checks and balances? Leadership configurations and governance practices of NGOs in Chile. *Employee Relations: The International Journal*, 42(5), 1159-1177. <https://doi.org/10.1108/ER-08-2019-0327>
- Djørup, S., & Kappel, K. (2013). The norm of disinterestedness in science; a restorative analysis. *Sats*, 14(2), 153-175. <https://doi.org/10.1515/sats-2013-0009>
- Dobbins, M., & Knill, C. (2017). Higher education governance in France, Germany, and Italy: Change and variation in the impact of transnational soft governance. *Policy and Society*, 36(1), 67-88. <https://doi.org/10.1080/14494035.2017.1278868>
- Dodgson, M. (1993). Learning, trust, and technological collaboration. *Human relations*, 46(1), 77-95. <https://doi.org/10.1177/001872679304600106>
- Dong, Y., Ma, H., Shen, Z., & Wang, K. (2017). A century of science: Globalization of scientific collaborations, citations, and innovations. In *Proceedings of the 23rd ACM SIGKDD international conference on knowledge discovery and data mining* (pp. 1437-1446). <https://doi.org/10.48550/arXiv.1704.05150>
- Du, Z. Y., & Wang, Q. (2024). Digital infrastructure and innovation: Digital divide or digital dividend?. *Journal of Innovation & Knowledge*, 9(3), 100542. <https://doi.org/10.1016/j.jik.2024.100542>

Düerkop, S., Grubmüller, J., & Badran, R. (2024). International research collaboration-how powerful is it really?. *Journal of Construction Project Management and Innovation*, 14(2), 44-57. <https://doi.org/10.36615/jcpmi.v14i2.3065>

Dusdal, J., & Powell, J. J. (2021). Benefits, motivations, and challenges of international collaborative research: A sociology of science case study. *Science and Public Policy*, 48(2), 235-245. <https://doi.org/10.1093/scipol/scab010>

Eisenbeiss, S. A. (2012). Re-thinking ethical leadership: An interdisciplinary integrative approach. *The Leadership Quarterly*, 23(5), 791-808. <https://doi.org/10.1016/j.leaqua.2012.03.001>

Eisikovits, Z., & Koren, C. (2010). Approaches to and outcomes of dyadic interview analysis. *Qualitative Health Research*, 20(12), 1642-1655. <https://doi.org/10.1177/1049732310376520>

Elliott, J., Stankov, L., Lee, J., & Beckmann, J. F. (2019). What did PISA and TIMSS ever do for us?: The potential of large scale datasets for understanding and improving educational practice. *Comparative Education*, 55(1), 133-155. <https://doi.org/10.1080/03050068.2018.1545386>

Ellström, P. E. (2007). Knowledge creation through interactive research: A learning perspective. In *HHS-07 Conference, Jönköping University, May* (pp. 8-11). <https://urn.kb.se/resolve?urn=urn%3Anbn%3Ase%3Aliu%3Adiva-51066>

Elsevier. (2023). Updated science-wide author databases of standardized citation indicators. Elsevier Data Repository. <https://elsevier.digitalcommonsdata.com/datasets/btchxktyw/6>

Elston, D. M. (2021). Participation bias, self-selection bias, and response bias. *Journal of the American Academy of Dermatology*. <https://doi.org/10.1016/j.jaad.2021.06.025>

Faden, R. R., & Beauchamp, T. L. (1986). *A history and theory of informed consent*. Oxford University Press.

Fan, F. T. (2012). The global turn in the history of science. *East Asian Science, Technology and Society: An International Journal*, 6(2), 249-258. <https://doi.org/10.1215/18752160-1626191>

Fang, F. C., & Casadevall, A. (2015). Competitive science: is competition ruining science?. *Infection and immunity*, 83(4), 1229-1233. <https://doi.org/10.1128/iai.02939-14>

Farrington, D. P. (2003). Methodological quality standards for evaluation research. *The Annals of the American Academy of Political and Social Science*, 587(1), 49-68. <https://doi.org/10.1177/0002716202250789>

Faubert, C. (2019). Engaging people with lived experience on advisory councils: Lessons from co-creation partnerships. *Research Involvement and Engagement*, 5(1), Article 36. <https://doi.org/10.1186/s12961-022-00863-w>

Faure, M. C., Munung, N. S., Ntusi, N. A., Pratt, B., & de Vries, J. (2021). Mapping experiences and perspectives of equity in international health collaborations: a scoping

review. *International journal for equity in health*, 20(1), 28. <https://doi.org/10.1186/s12939-020-01350-w>

Fecher, B., Kahn, R., Sokolovska, N., Völker, T., & Nebe, P. (2021). Making a research infrastructure: Conditions and strategies to transform a service into an infrastructure. *Science and Public Policy*, 48(4), 499-507. <https://doi.org/10.1093/scipol/scab026>

Feenstra, R. A., & Delgado López-Cózar, E. (2023). The footprint of a metrics-based research evaluation system on Spain's philosophical scholarship: An analysis of researchers' perceptions. *Research Evaluation*, 32(1), 32-46. <https://doi.org/10.1093/reseval/rvac020>

Feinberg, J. (1984). The moral and legal responsibility of the bad samaritan. *Criminal Justice Ethics*, 3(1), 56-69. <https://doi.org/10.1080/0731129X.1984.9991743>

Feng, X. (2010). Sibiàn and empirical methods in higher education research [高等教育研究中的‘思辩’与‘实证’方法辨析]. *Peking University Education Review*, 8(1), 178–184. <https://eduwx.nju.edu.cn/upload/article/files/02/0d/1b24c0de402ba81b307f71709188/e46524e3-427d-4fc0-a889-b39aa1cf57a7.pdf>

Flaherty, D. K. (2013). Ghost-and guest-authored pharmaceutical industry–sponsored studies: abuse of academic integrity, the peer review system, and public trust. *Annals of Pharmacotherapy*, 47(7-8), 1081-1083. <https://doi.org/10.1345/aph.1R691>

Flink, T., & Schreiterer, U. (2010). Science diplomacy at the intersection of S&T policies and foreign affairs: toward a typology of national approaches. *Science and Public Policy*, 37(9), 665-677. <https://doi.org/10.3152/030234210X12778118264530>

Flynn, R., Glennon, B., Murciano-Goroff, R., & Xiao, J. (2024). *Building a wall around science: The effect of US-China tensions on international scientific research* (No. w32622). National Bureau of Economic Research. <https://doi.org/10.3386/w32622>

Fochler, M. (2016). Variants of epistemic capitalism: Knowledge production and the accumulation of worth in commercial biotechnology and the academic life sciences. *Science, Technology, & Human Values*, 41(5), 922-948. <https://doi.org/10.1177/0162243916652224>

Fominykh, M., Prasolova-Førland, E., Divitini, M., & Petersen, S. A. (2016). Boundary objects in collaborative work and learning. *Information Systems Frontiers*, 18(1), 85-102. <https://doi.org/10.1007/s10796-015-9579-9>

Fourcade, M. (2009). *Economists and societies: Discipline and profession in the United States, Britain, and France, 1890s to 1990s*. Princeton University Press. <https://doi.org/10.1515/9781400833139>

Fourcade, M., Ollion, E., & Algan, Y. (2015). The superiority of economists. *Journal of economic perspectives*, 29(1), 89-114. <https://doi.org/10.1257/jep.29.1.89>

Franklin, A. (2015). The theory-ladenness of experiment. *Journal for general philosophy of science*, 46, 155-166. <https://doi.org/10.1007/s10838-015-9285-9>

Frickel, S., & Moore, K. (Eds.). (2006). *The new political sociology of science: Institutions, networks, and power*. Univ of Wisconsin Press.

Fu, T., & Ji, Y. (2024). Government-University Relationship in China's AI Talent Development: A Triple Helix Perspective. *SAGE Open*, 14(2), 21582440241259012. <https://doi.org/10.1177/21582440241259012>

Fuchs, C., & Sandoval, M. (2013). The diamond model of open access publishing: Why policy makers, scholars, universities, libraries, labour unions and the publishing world need to take non-commercial, non-profit open access serious. *TripleC: Communication, capitalism & critique*, 11(2), 428-443. <https://doi.org/10.31269/vol11iss2pp428-443>

Fukuda-Parr, S., Heintz, J., & Seguino, S. (2017). Critical perspectives on financial and economic crises: Heterodox macroeconomics meets feminist economics. In *Critical and Feminist Perspectives on Financial and Economic Crises* (pp. 25-75). Routledge.

Furlong, J., & Oancea, A. (2005). Assessing quality in applied and practice-based educational research: A framework for discussion. *Review of Australian research in education: counterpoints on the quality and impact of educational research—a special issue of the Australian Educational Researcher*, 6, 89-104. <https://aare.edu.au/data/publications/2005/fu05018y.pdf>

Galison, P. (1997). *Image and logic: A material culture of microphysics*. University of Chicago Press.

Gao, B., & Guo, C. (2023). Where to publish: Chinese HSS academics' responses to 'Breaking SSCI Supremacy' policies. *Higher Education Policy*, 36(3), 478-496. <https://doi.org/10.1057/s41307-022-00268-y>

Gao, X., & Zheng, Y. (2020). 'Heavy mountains' for Chinese humanities and social science academics in the quest for world-class universities. *Compare: A Journal of Comparative and International Education*, 50(4), 554-572. <https://doi.org/10.1080/03057925.2018.1538770>

Gauchat, G. W. (2023). The legitimacy of science. *Annual Review of Sociology*, 49(1), 263-279. <https://doi.org/10.1146/annurev-soc-030320-035037>

Gazni, A., Sugimoto, C. R., & Didegah, F. (2012). Mapping world scientific collaboration: Authors, institutions, and countries. *Journal of the American Society for Information Science and Technology*, 63(2), 323–335. <https://doi.org/10.1002/asi.21688>

Gehring, K., Kaplan, L. C., & Wong, M. H. (2022). China and the World Bank—How contrasting development approaches affect the stability of African states. *Journal of Development Economics*, 158, 102902. <https://doi.org/10.1016/j.jdeveco.2022.102902>

Giddens, A. (2014). Structuration theory: past, present and future. In *Giddens' theory of structuration* (pp. 201-221). Routledge.

Gilmore, D. D. (2001). *The Trotula: a medieval compendium of women's medicine*. University of Pennsylvania Press.

Gluckman, P. D., Bardsley, A., & Kaiser, M. (2021). Brokerage at the science–policy interface: from conceptual framework to practical guidance. *Humanities and Social Sciences Communications*, 8(1), 1-10. <https://doi.org/10.1057/s41599-021-00756-3>

Godement, F. (2015). *Contemporary China: Between Mao and market*. Rowman & Littlefield.

Goffman, E. (1959). *The presentation of self in everyday life*. Anchor Books.

Gök, A., & Karaulova, M. (2024). How “international” is international research collaboration?. *Journal of the Association for Information Science and Technology*, 75(2), 97-114. <https://doi.org/10.1002/asi.24842>

Goksoy, S. (2016). Analysis of the relationship between shared leadership and distributed leadership. *Eurasian Journal of Educational Research*, 16(65), 295-312. <http://dx.doi.org/10.14689/ejer.2016.65.17>

Gong, K. (2023). Twenty years of Chinese social sciences towards internationalization (1998–2017): a knowledge sources perspective. *Scientometrics*, 128(12), 6373-6402. <https://doi.org/10.1007/s11192-023-04859-3>

Gong, K., & Cheng, Y. (2022). Patterns and impact of collaboration in China’s social sciences: Cross-database comparisons between CSSCI and SSCI. *Scientometrics*, 127(10), 5947-5964. <https://doi.org/10.1007/s11192-022-04483-7>

González-Alcaide, G., Salinas, A., & Ramos, J. M. (2018). Scientometrics analysis of research activity and collaboration patterns in Chagas cardiomyopathy. *PLoS neglected tropical diseases*, 12(6), e0006602. <https://doi.org/10.1371/journal.pntd.0006602>

Gopalan, M., Rosinger, K., & Ahn, J. B. (2020). Use of quasi-experimental research designs in education research: Growth, promise, and challenges. *Review of Research in Education*, 44(1), 218-243. <https://doi.org/10.3102/0091732X20903302>

Gorman, M. E. (2002). Levels of expertise and trading zones: A framework for multidisciplinary collaboration. *Social Studies of Science*, 32(5-6), 933-938. <https://doi.org/10.1177/030631270203200511>

Graf, H., & Kalthaus, M. (2018). International research networks: Determinants of country embeddedness. *Research Policy*, 47(7), 1198-1214. <https://doi.org/10.1016/j.respol.2018.04.001>

Grek, S. (2009). Governing by numbers: The PISA “effect” in Europe. *Journal of Education Policy*, 24(1), 23–37. <https://doi.org/10.1080/02680930802412669>

Griffin, G., & Hamberg, K. (2013). Managing differences: The complexities of leadership and leadership styles in interdisciplinary research collaboration. In *The Social Politics of Research Collaboration* (pp. 39-54). Routledge.

Große, C. (2023). A review of the foundations of systems, infrastructure and governance. *Safety science*, 160, 106060. <https://doi.org/10.1016/j.ssci.2023.106060>

- Gu, Q., & Schweisfurth, M. (2015). Transnational connections, competences and identities: Experiences of Chinese international students after their return 'home'. *British Educational Research Journal*, 41(6), 947-970. <https://doi.org/10.1002/berj.3175>
- Gui, Q., Liu, C., & Du, D. (2019). Globalization of science and international scientific collaboration: A network perspective. *Geoforum*, 105, 1-12. <https://doi.org/10.1016/j.geoforum.2019.06.017>
- Gupta, K., Ahmad, A., Ghosal, T., & Ekbal, A. (2024). A BERT-based sequential deep neural architecture to identify contribution statements and extract phrases for triplets from scientific publications. *International Journal on Digital Libraries*, 25(4), 1-28. <https://doi.org/10.1007/s00799-023-00393-y>
- Halcomb, E. J., & Davidson, P. M. (2006). Is verbatim transcription of interview data always necessary?. *Applied Nursing Research*, 19(1), 38-42. <https://doi.org/10.1016/j.apnr.2005.06.001>
- Hall, E. T. (1976). *Beyond culture*. Anchor Press.
- Hall, K. L., Vogel, A. L., Stipelman, B. A., Stokols, D., Morgan, G., & Gehlert, S. (2012). A four-phase model of transdisciplinary team-based research: goals, team processes, and strategies. *Translational behavioral medicine*, 2(4), 415-430. <https://doi.org/10.1007/s13142-012-0167-y>
- Hallonsten, O. (2021). Stop evaluating science: A historical-sociological argument. *Social Science Information*, 60(1), 7-26. <https://doi.org/10.1177/0539018421992204>
- Hamermesh, D. S. (2013). Six decades of top economics publishing: Who and how?. *Journal of Economic literature*, 51(1), 162-172. <https://doi.org/10.1257/jel.51.1.162>
- Hammersley, M., & Traianou, A. (2012). *Ethics in qualitative research: Controversies and contexts*. Sage. <http://digital.casalini.it/9781446258200>
- Hashiguchi, A., Asashima, M., & Takahashi, S. (2024). The influence of human connections and collaboration on research grant success at various career stages: regression analysis. *JMIR Formative Research*, 8, e49905. <https://doi.org/10.2196/49905>
- Hattori, R. A., & Lapidus, T. (2004). Collaboration, trust and innovative change. *Journal of Change Management*, 4(2), 97-104. <https://doi.org/10.1080/14697010320001549197>
- Hausman, D. M. (2023). *The inexact and separate science of economics*. Cambridge University Press.
- Hayhoe, R. (1993). Chinese universities and the social sciences. *Minerva*, 478-503. <https://www.jstor.org/stable/41820915>
- Hayhoe, R. (2019). Why Study Chinese Education?. In *Selected Essays on China's Education: Research and Review, Volume 2* (pp. 1-13). Brill.

- He, V. F., von Krogh, G., & Sirén, C. (2022). Expertise diversity, informal leadership hierarchy, and team knowledge creation: A study of pharmaceutical research collaborations. *Organization Studies*, 43(6), 907-930. <https://doi.org/10.1177/01708406211026114>
- Hedt-Gauthier, B. L., Jeufack, H. M., Neufeld, N. H., Alem, A., Sauer, S., Odhiambo, J., Boum, Y., Shuchman, M., & Volmink, J. (2019). Stuck in the middle: A systematic review of authorship in collaborative health research in Africa, 2014–2016. *BMJ Global Health*, 4(5), e001853. <https://doi.org/10.1136/bmjgh-2019-001853>
- Hemmert, M., & Kim, J. J. (2020). The bright and dark side of pre-existing social ties and relational orientation in research collaborations in South Korea. *The Journal of Asian Finance, Economics and Business*, 7(1), 279-290. <http://dx.doi.org/10.13106/jafeb.2020.vol7.no1.279>
- Herbet, S., Steenhuis, M., & Ramthun, A. J. (2014). Multicultural shared leadership: The moderating impact of intercultural competence in diverse teams. *Journal of Leadership & Organizational Studies*, 19(3), 303–314. <https://doi.org/10.1177/1548051812444129>
- Hesse-Biber, S. N., & Leavy, P. (Eds.). (2006). *Emergent methods in social research*. Sage.
- Hinds, P. J., Liu, L., & Lyon, J. (2011). Putting the global in global work: An intercultural lens on the practice of multinational teams. *Academy of Management Annals*, 5(1), 135–188. <https://doi.org/10.5465/19416520.2011.586108>
- Hodkinson, P. (2004). Research as a form of work: expertise, community and methodological objectivity. *British Educational Research Journal*, 30(1), 9-26. <https://doi.org/10.1080/01411920310001629947>
- Hofstede, G. (2011). Dimensionalizing cultures: The Hofstede model in context. *Online readings in psychology and culture*, 2(1), 8. <https://doi.org/10.9707/2307-0919.1014>
- Hofstetter, R. (2015). Building an “international code for public education”: Behind the scenes at the International Bureau of Education (1925–1946). *Prospects*, 45(1), 31-48. <https://doi.org/10.1007/s11125-015-9336-3>
- Højholt, C., & Kousholt, D. (2019). Developing knowledge through participation and collaboration: Research as mutual learning processes. *Annual Review of Critical Psychology*, 16, 575–604. <https://forskning.ruc.dk/en/publications/developing-knowledge-through-participation-and-collaboration-rese>
- Hong, J., Zhu, R., Hou, B., & Wang, H. (2019). Academia-industry collaboration and regional innovation convergence in China. *Knowledge Management Research & Practice*, 17(4), 396-407. <https://doi.org/10.1080/14778238.2019.1589394>
- Hong, L. (2018). Gaming the metrics? Bibliometric anomalies and the integrity crisis in global university rankings. *arXiv preprint arXiv:2505.06448*. <https://arxiv.org/abs/2505.06448>
- Hottenrott, H., Rose, M. E., & Lawson, C. (2021). The rise of multiple institutional affiliations in academia. *Journal of the Association for Information Science and Technology*, 72(8), 1039-1058. <https://doi.org/10.1002/asi.24472>

- Hsiung, P.-C. (2015). "Pursuing Qualitative Research From the Global South: 'Investigative Research' During China's Great Leap Forward (1958–62)." *Forum Qualitative Sozialforschung / FQS*. <https://doi.org/10.17169/fqs-16.3.2287>
- Huang, J., Hmelo-Silver, C. E., Jordan, R., Gray, S., Frensley, T., Newman, G., & Stern, M. J. (2018). Scientific discourse of citizen scientists: Models as a boundary object for collaborative problem solving. *Computers in Human Behavior*, *87*, 480-492. <https://doi.org/10.1016/j.chb.2018.04.004>
- Hudson, P. (2016). Forming the mentor-mentee relationship. *Mentoring & tutoring: partnership in learning*, *24*(1), 30-43. <https://doi.org/10.1080/13611267.2016.1163637>
- Huisman, J., & Smits, J. (2017). Duration and quality of the peer review process: the author's perspective. *Scientometrics*, *113*(1), 633-650. <https://doi.org/10.1007/s11192-017-2310-5>
- Hückstädt, M. (2022). Coopetition between frenemies—interrelations and effects of seven collaboration problems in research clusters. *Scientometrics*, *127*(9), 5191-5224. <https://doi.org/10.1007/s11192-022-04472-w>
- Ibrahim, M., Mahmoud, M. A., Al-Sharafi, M. A., & Hassan, A. (2025). A Decade-Long Bibliometric Analysis of Electronic Health Record Research Trends (2014–2024). In *Current and Future Trends on AI Applications: Volume 1* (pp. 37-53). Cham: Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-75091-5_3
- Isabelle, D. A., & Heslop, L. A. (2014). The role of social capital in international scientific collaborations: evidence from a multi-country survey. *International Journal of Technology and Globalisation*, *7*(4), 259-287. <https://doi.org/10.1504/IJTG.2014.066617>
- Jami, C., & Blue, G. (Eds.). (2021). *Statecraft and intellectual renewal in late Ming China: the cross-cultural synthesis of Xu Guangqi (1562-1633)* (Vol. 50). Brill.
- Janghorban, R., Roudsari, R. L., & Taghipour, A. (2014). Skype interviewing: The new generation of online synchronous interview in qualitative research. *International Journal of Qualitative Studies on Health and Well-being*, *9*(1), 24152. <https://doi.org/10.3402/qhw.v9.24152>
- Jappelli, T., Nappi, C. A., & Torrini, R. (2017). Gender effects in research evaluation. *Research Policy*, *46*(5), 911-924. <https://doi.org/10.1016/j.respol.2017.03.002>
- Jarke, H., Anand-Vembar, S., Alzahawi, S., Andersen, T. L., Bojanić, L., Carstensen, A., ... & Geiger, S. J. (2022). A roadmap to large-scale multi-country replications in psychology. *Collabra: Psychology*, *8*(1), 57538. <https://doi.org/10.1525/collabra.57538>
- Jasanoff, S. (2005). Designs on nature: Science and democracy in Europe and the United States. In *Designs on Nature*. Princeton University Press. <https://doi.org/10.1515/9781400837311>
- Javed, Y., Ahmad, S., & Khahro, S. H. (2020). Evaluating the research performance of Islamabad-based higher education institutes. *Sage Open*, *10*(1). <https://doi.org/10.1177/2158244020902085>

- Jentsch, B., & Pilley, C. (2003). Research relationships between the South and the North: Cinderella and the ugly sisters? *Social Science & Medicine*, 57(10), 1957–1967. [https://doi.org/10.1016/S0277-9536\(03\)00060-1](https://doi.org/10.1016/S0277-9536(03)00060-1)
- Jiang, J., & Shen, W. (2019). International mentorship and research collaboration: Evidence from European-trained Chinese PhD returnees. *Frontiers of Education in China*, 14, 180-205. <https://doi.org/10.1007/s11516-019-0010-z>
- Jones, M. T., & Millar, C. C. (2010). About global leadership and global ethics, and a possible moral compass: An introduction to the special issue. *Journal of business ethics*, 93(Suppl 1), 1-8. <https://doi.org/10.1007/s10551-010-0622-y>
-
- Ju, J., Ma, H., Wang, Z., & Zhu, X. (2024). Trade wars and industrial policy competitions: Understanding the US-China economic conflicts. *Journal of Monetary Economics*, 141, 42-58. <https://doi.org/10.1016/j.jmoneco.2023.10.012>
- Jung, J. (2012). International research collaboration among academics in China and South Korea. *International Journal of Chinese Education*, 1(2), 235-254. <https://doi.org/10.1163/22125868-12340005>
- Karnieli-Miller, O., Strier, R., & Pessach, L. (2009). Power relations in qualitative research. *Qualitative Health Research*, 19(2), 279–289. <https://doi.org/10.1177/1049732308329306>
- Katan, D. (2009). Translation as intercultural communication. In *The Routledge companion to translation studies* (pp. 88-106). Routledge.
- Katz, J. J. (1997). *Realistic rationalism*. MIT Press.
- Keller, E. F. (2003). Gender and science. In *Discovering reality: Feminist perspectives on epistemology, metaphysics, methodology, and philosophy of science* (pp. 187-205). Dordrecht: Springer Netherlands.
- Kellert, S., Longino, H., & Waters, C. (2006). La Posición Pluralista. *Scientific pluralism*, 7-29. <https://philpapers.org/rec/KELSP-4>
- Kelly, G. J. (2012). Epistemology and educational research. In *Handbook of complementary methods in education research* (pp. 33-55). Routledge.
- Kerasidou, A. (2016). Trust me, I'm a researcher!: The role of trust in biomedical research. *Medicine, Health Care and Philosophy*, 20(1), 43–50. <https://doi.org/10.1007/s11019-016-9721-6>
- Kerasidou, A. (2019). The role of trust in global health research collaborations. *Bioethics*, 33(4), 495-501. <https://doi.org/10.1111/bioe.12536>
- Khan, M. N., Akhtar, P., Ijaz, S., & Waqas, A. (2021). Prevalence of depressive symptoms among university students in Pakistan: a systematic review and meta-analysis. *Frontiers in public health*, 8, 603357. <https://doi.org/10.3389/fpubh.2020.603357>

- Khan, Z., Changgang, G., & Afzaal, M. (2020). China-Pakistan economic corridor at the cross intersection of China, Central Asia and South Asia: Opportunities for regional economic growth. *The Chinese Economy*, 53(2), 200-215. <https://doi.org/10.1080/10971475.2019.1688005>
- Khor, K. A., & Yu, L. G. (2016). Influence of international co-authorship on the research citation impact of young universities. *Scientometrics*, 107(3), 1095–1110. <https://doi.org/10.1007/s11192-016-1905-6>
- Kim, H., & Mobernd, E. (2025). International science as national project: lessons from South Korea for the future of international research collaboration. *Studies in Higher Education*, 1-13. <https://doi.org/10.1080/03075079.2025.2499951>
- Kim, S. Y., & Kim, Y. (2018). The ethos of science and its correlates: An empirical analysis of scientists' endorsement of Mertonian norms. *Science, Technology and Society*, 23(1), 1-24. <https://doi.org/10.1177/0971721817744438>
- King, D. A. (2004). The scientific impact of nations. *Nature*, 430, 311–316. <https://doi.org/10.1038/430311a>
- Kirkpatrick, A. (1997). “Traditional Chinese text structures and their influence on the writing in Chinese and English of contemporary Mainland Chinese students.” *Journal of Second Language Writing* 6(3): 223–244. [https://doi.org/10.1016/S1060-3743\(97\)90013-8](https://doi.org/10.1016/S1060-3743(97)90013-8)
- Kitajima, K., & Okamura, K. (2025). The altering landscape of US–China science collaboration: from convergence to divergence. *Humanities and Social Sciences Communications*, 12(1), 1-11. <https://doi.org/10.1057/s41599-025-04550-3>
- Kır, P., & Aptoula, N. Y. (2025). English Language Teaching Articles Published in the TR Indexed Journals: A Systematic Analysis from 2020 to Present. *Bogazici University Journal of Education*, 42(1), 87-100. <https://doi.org/10.52597/buje.1583986>
- Knorr Cetina, K. (1999). *Epistemic cultures: How the sciences make knowledge*. Harvard University Press.
- Kochan, F. (2013). Analyzing the relationships between culture and mentoring. *Mentoring & Tutoring: Partnership in Learning*, 21(4), 412-430. <https://doi.org/10.1080/13611267.2013.855862>
- Kosmützky, A. (2018). International Team Research in Comparative Higher Education: Shedding Some Light on Its Social Side. *Journal of comparative and international higher education*, 10(2), 14-23. <https://files.eric.ed.gov/fulltext/EJ1233235.pdf>
- Kostis, A., Bengtsson, M., & Näsholm, M. H. (2022). Mechanisms and dynamics in the interplay of trust and distrust: Insights from project-based collaboration. *Organization Studies*, 43(8), 1173-1196. <https://doi.org/10.1177/01708406211040215>
- Kotze, S., & Dymitrow, M. (2022). North–South research collaborations: An empirical evaluation against principles of transboundary research. *Development Policy Review*, 40(2), e12555. <https://doi.org/10.1111/dpr.12555>
- Kraft, M. A. (2020). Interpreting effect sizes of education interventions. *Educational researcher*, 49(4), 241-253. <https://doi.org/10.3102/0013189X20912798>

- Krige, J., & Barth, K. H. (2006). Introduction: Science, technology, and international affairs. *Osiris*, 21(1), 1-21. <https://doi.org/10.1086/507133>
- Kuhn, T., & Porter, A. J. (2010). Heterogeneity in knowledge and knowing: A social practice perspective. In *Communication and organizational knowledge* (pp. 39-56). Routledge.
- Kwiek, M. (2020). Internationalists and locals: international research collaboration in a resource-poor system. *Scientometrics*, 124(1), 57-105. <https://doi.org/10.1007/s11192-020-03460-2>
- Kwiek, M. (2021). What large-scale publication and citation data tell us about international research collaboration in Europe: Changing national patterns in global contexts. *Studies in Higher Education*, 46(12), 2629-2649. <https://doi.org/10.1080/03075079.2020.1749254>
- Kwiek, M., Horta, H., & Powell, J. J. (2024). Using large-scale bibliometric data in higher education research: Methodological implications from three studies. *Higher Education Quarterly*, 78(4), e12512. <https://doi.org/10.1111/hequ.12512>
- Lamont, M. (2009). *How professors think: Inside the curious world of academic judgment*. Harvard University Press.
- Lampland, M., & Star, S. L. (Eds.). (2009). *Standards and their stories: How quantifying, classifying, and formalizing practices shape everyday life*. Cornell University Press.
- Laredo, P., Mustar, P., & others. (2010). French higher education, research and innovation policy in the 2000s: sweeping changes. IFRIS. <https://ifris.org/wp-content/blogs.dir/1/files/2014/10/Vienna-PL-june-2011.pdf>
- Larivière, V., Pontille, D., & Sugimoto, C. R. (2021). Investigating the division of scientific labor using the Contributor Roles Taxonomy (CRediT). *Quantitative science studies*, 2(1), 111-128. https://doi.org/10.1162/qss_a_00097
- Larsen, I. M., Maassen, P., & Stensaker, B. (2009). Four basic dilemmas in university governance reform. *Higher Education Management and Policy*, 21(3), 1-18. <https://www.dii.uchile.cl/~daespino/EStatutos ANtecedentes/Four basic dilemmas in university governance reform 2009.pdf>
- Latour, B. (1987). *Science in action: How to follow scientists and engineers through society*. Harvard University Press.
- Lawn, M., & Grek, S. (2012). *Europeanizing education: Governing a new policy space*. Manchester University Press.
- Leahey, E., Beckman, C. M., & Stanko, T. L. (2017). Prominent but less productive: The impact of interdisciplinarity on scientists' research. *Administrative Science Quarterly*, 62(1), 105-139. <https://doi.org/10.1177/0001839216665364>
- Lee, J. J., & Haupt, J. P. (2020). Winners and losers in US-China scientific research collaborations. *Higher Education*, 80(1), 57-74. <https://doi.org/10.1007/s10734-019-00464-7>

- Lee, J. J., & Haupt, J. P. (2021). Scientific collaboration on COVID-19 amidst geopolitical tensions between the US and China. *The Journal of Higher Education*, 92(2), 303-329. <https://doi.org/10.1080/00221546.2020.1827924>
- Lee, J. Y. (2020). The geopolitics of South Korea-China relations implications for US Policy in the Indo-Pacific. <https://www.jstor.org/stable/resrep27748>
- Levesque, V. R., Calhoun, A. J. K., Bell, K. P., & Johnson, T. (2017). Turning contention into collaboration: Engaging power, trust, and learning in collaborative networks. *Society & Natural Resources*, 30(2), 245–260. <https://doi.org/10.1080/08941920.2016.1180726>
- Lewis, J. (2005). *Language wars: The role of media and culture in global terror and political violence*. Pluto Books.
- Li, G., Liu, H., & Luo, Y. (2018). Directive versus participative leadership: Dispositional antecedents and team consequences. *Journal of Occupational and Organizational Psychology*, 91(3), 645-664. <https://doi.org/10.1111/joop.12213>
- Li, M., & Yang, R. (2020). Enduring hardships in global knowledge asymmetries: A national scenario of China's English-language academic journals in the humanities and social sciences. *Higher Education*, 80(2), 237-254. <https://doi.org/10.1007/s10734-019-00476-3>
- Li, W., & Chen, J. (2024). From brussels effect to gravity assists: understanding the evolution of the GDPR-inspired personal information protection law in China. *Computer Law & Security Review*, 54, 105994. <https://doi.org/10.1016/j.clsr.2024.105994>
- Li, X., & Cong, Y. (2021). A systematic literature review of ethical challenges related to medical and public health data sharing in China. *Journal of Empirical Research on Human Research Ethics*, 16(5), 537-554. <https://doi.org/10.1177/15562646211040299>
- Li, X., & Cong, Y. (2024). Exploring barriers and ethical challenges to medical data sharing: perspectives from Chinese researchers. *BMC Medical Ethics*, 25(1), 132. <https://doi.org/10.1186/s12910-024-01135-8>
- Li, X., & Lee, J. (2022). US–China geopolitical tensions: Implications for universities and science. *International Higher Education*, 110, 21-22. https://doi.org/10.1163/9789004713901_007
- Liao, C. H. (2021). The Matthew effect and the halo effect in research funding. *Journal of Informetrics*, 15(1), 101108. <https://doi.org/10.1016/j.joi.2020.101108>
- Lieblich, A., Tuval-Mashiach, R., & Zilber, T. (1998). *Narrative research: Reading, analysis, and interpretation* (Vol. 47). Sage.
- Lin, C., & Xie, Y. (2023). Research on Sino-US differences in cross-cultural business communication from the perspective of cultural dimension theory: A case study of English business emails. *Academic Journal of Humanities & Social Sciences*, 6(19). <https://dx.doi.org/10.25236/AJHSS.2023.061903>
- Liu, J. (2007). *Gender and work in urban China: Women workers of the unlucky generation*. Routledge. <https://doi.org/10.4324/9780203964934>

- Liu, W., Hu, G., Tang, L., & Wang, Y. (2015). China's global growth in social science research: Uncovering evidence from bibliometric analyses of SSCI publications (1978–2013). *Journal of Informetrics*, 9(3), 555-569. <https://doi.org/10.1016/j.joi.2015.05.007>
- Liu, Y., Ma, J., Song, H., Qian, Z., & Lin, X. (2021). Chinese universities' cross-border research collaboration in the social sciences and its impact. *Sustainability*, 13(18), 10378. <https://doi.org/10.3390/su131810378>
- Loi, C.-K. & Evans, M. S. (2010). “Research article introductions in Chinese and English: A comparative genre-based study.” *Journal of English for Academic Purposes* 9(4): 267–279. <https://doi.org/10.1016/j.jeap.2010.09.004>
- Longhurst, R. (2003). Semi-structured interviews and focus groups. *Key Methods in Geography*, 3(2), 143-156. <https://hdl.handle.net/10289/15973>
- Longino, H. E. (2018). The fate of knowledge. <http://digital.casalini.it/9780691187013>
- Lu, J. (2019). Publish or Perish in Social Science?: Tension, Challenges and Opportunities for Chinese Academics in the Humanities and Social Sciences. *Asian Journal of Social Science*, 47(4-5), 484-507. <https://doi.org/10.1163/15685314-04704004>
- Lucas, E., & Ball, L. (2005). Think-aloud protocols and the selection task: Evidence for relevance effects and rationalisation processes. *Thinking & Reasoning*, 11(1), 35-66. <https://doi.org/10.1080/13546780442000114>
- Luo, Y. (2021). Illusions of techno-nationalism. *Journal of International Business Studies*, 53(3), 550. <https://doi.org/10.1057/s41267-021-00468-5>
- Lyall, C., Bruce, A., Marsden, W., & Meagher, L. (2013). The role of funding agencies in creating interdisciplinary knowledge. *Science and Public Policy*, 40(1), 62–71. <https://doi.org/10.1093/scipol/scs121>
- Malhotra, D., & Lumineau, F. (2011). Trust and collaboration in the aftermath of conflict: The effects of contract structure. *Academy of management Journal*, 54(5), 981-998. <https://doi.org/10.5465/amj.2009.0683>
- Marcuse, H. (1960). *Reason and revolution: Hegel and the rise of social theory*. Beacon Press.
- Marginson, S. (2006). Dynamics of national and global competition in higher education. *Higher education*, 52, 1-39. <https://doi.org/10.1007/s10734-004-7649-x>
- Marginson, S. (2008). Global field and global imagining: Bourdieu and worldwide higher education. *British Journal of Sociology of Education*, 29(3), 303–315.
- Marginson, S. (2022). What is global higher education? *International Higher Education*, 111, 4–6. <https://doi.org/10.1080/03054985.2022.2061438>
- Marginson, S. (2024). A bird's eye view of worldwide university science. <https://ora.ox.ac.uk/objects/uuid:07bc69fb-e8ce-4e96-a780-ca435fa69ced>
- Marginson, S., & Xu, X. (2023). Hegemony and inequality in global science: Problems of the center-periphery model. *Comparative Education Review*, 67(1), 31-52. <https://doi.org/10.1086/722760>

- Marion, R., Christiansen, J., Klar, H. W., Schreiber, C., & Erdener, M. A. (2016). Informal leadership, interaction, cliques and productive capacity in organizations: A collectivist analysis. *The Leadership Quarterly*, 27(2), 242-260. <https://doi.org/10.1016/j.leaqua.2016.01.003>
- Markie, P., & Folescu, M. (2004). Rationalism vs. Empiricism. <https://plato.stanford.edu/entries/rationalism-empiricism/?ref=hackernoon.com>
- Mason, J., & Lefrere, P. (2003). Trust, collaboration, e-learning and organisational transformation. *International Journal of Training and Development*, 7(4), 259-270. <https://doi.org/10.1046/j.1360-3736.2003.00185.x>
- Matthews, K. R. W., Yang, E., Lewis, S. W., Vaidyanathan, B. R., & Gorman, M. (2020). International scientific collaborative activities and barriers to them in eight societies. *Accountability in Research*, 27(8), 477–495. <https://doi.org/10.1080/08989621.2020.1774373>
- Mayhew, S. H., Doherty, J., & Pitayarangsarit, S. (2008). Developing health systems research capacities through north-south partnership: an evaluation of collaboration with South Africa and Thailand. *Health research policy and systems*, 6(1), 8. <https://doi.org/10.1186/1478-4505-6-8>
- McDonald, S., & Simpson, B. (2014). Shadowing research in organizations: the methodological debates. *Qualitative Research in Organizations and Management: An International Journal*, 9(1), 3-20. <https://doi.org/10.1108/QROM-02-2014-1204>
- Merry, S. E. (2011). Measuring the world: Indicators, human rights, and global governance. *Current Anthropology*, 52(S3), S83–S95. <https://doi.org/10.1086/657241>
- Merton, R. K. (1973). *The sociology of science: Theoretical and empirical investigations*. University of Chicago Press.
- Meyer, M. (2010). The rise of the knowledge broker. *Science communication*, 32(1), 118-127. <https://doi.org/10.1177/1075547009359797>
- Miao, L., Larivière, V., Wang, F., Ahn, Y. Y., & Sugimoto, C. R. (2023). Cooperation and interdependence in global science funding. <https://doi.org/10.48550/arXiv.2308.08630>
- Misra, J., Smith-Doerr, L., Dasgupta, N., Weaver, G., & Normanly, J. (2017). Collaboration and gender equity among academic scientists. *Social sciences*, 6(1), 25. <https://doi.org/10.3390/socsci6010025>
- Mohd Rasdi, R., Tauhed, S. Z., Zaremohzzabieh, Z., & Ahrari, S. (2023). Determinants of research performance of university academics and the moderating and mediating roles of organizational culture and job crafting. *European Journal of Training and Development*, 47(7/8), 711-728. <https://doi.org/10.1108/EJTD-11-2021-0192>
- Morgan, D. L., Ataie, J., Carder, P., & Hoffman, K. (2013). Introducing dyadic interviews as a method for collecting qualitative data. *Qualitative Health Research*, 23(9), 1276-1284. <https://doi.org/10.1177/1049732313501889>

- Morton, B., Vercueil, A., Masekela, R., Heinz, E., Reimer, L., Saleh, S., ... & Oriyo, N. (2022). Consensus statement on measures to promote equitable authorship in the publication of research from international partnerships. *Anaesthesia*, 77(3), 264-276. <https://doi.org/10.1111/anae.15597>
- Muethel, M., & Hoegl, M. (2010). Cultural and societal influences on shared leadership in globally dispersed teams. *Journal of International Management*, 16(3), 234-246. <https://doi.org/10.1016/j.intman.2010.06.003>
- Muric, G., Prignano, L., & Gabrielli, D. (2019). An investigation of impact of research collaboration on academic performance in Italy. *Quality & Quantity*, 53(4), 2027–2047. <https://doi.org/10.1007/s11135-019-00853-1>
- Murphy, M. (2011). From interdisciplinary to inter-epistemological approaches: Toward a transformed climate research agenda. *Wiley Interdisciplinary Reviews: Climate Change*, 2(4), 492–503. <https://doi.org/10.1111/j.1541-0064.2011.00388.x>
- Musson, A. E., & Robinson, E. (1989). *Science and technology in the industrial revolution* (Vol. 3). Taylor & Francis.
- Mutongoza, B. H. (2023). Pressured to perform: The negative consequences of the ‘publish or perish’ phenomenon among junior academics. *Scholarship of Teaching and Learning in the South*, 7(2), 46-62. <https://doi.org/10.36615/sotls.v7i2.301>
- Narin, F., Stevens, K., & Whitlow, E. S. (1991). Scientific co-operation in Europe and the citation of multinationally authored papers. *Scientometrics*, 21(3), 313–323. <https://doi.org/10.1007/bf02093973>
- National Bureau of Statistics of China. (2025, February 28). 2024 年国民经济和社会发展统计公报 [Statistical report of the People’s Republic of China on the 2024 national economic and social development]. https://www.stats.gov.cn/sj/zxfb/202502/t20250228_1958817.html https://www.stats.gov.cn/sj/zxfb/202502/t20250228_1958817.html
- National Science Board. (2024). The state of U.S. science and engineering 2024. National Science Foundation. <https://ncses.nsf.gov/pubs/nsb20243/>
- National Science Foundation. (2022). Science and engineering indicators 2022. National Center for Science and Engineering Statistics. <https://ncses.nsf.gov/pubs/nsb20221/>
- National Science Foundation. (2023). Science and engineering indicators 2023. National Center for Science and Engineering Statistics. <https://ncses.nsf.gov/pubs/nsb202333/>
- Ni, P., & An, X. (2018). Relationship between international collaboration papers and their citations from an economic perspective. *Scientometrics*, 116(2), 863-877. <https://doi.org/10.1007/s11192-018-2784-9>
- Nooteboom, B., & Stam, E. (2008). Collaboration, trust and the structure of relationships. *Nooteboom, B. & E. Stam, Micro-foundations for innovation policy*. <https://library.oapen.org/bitstream/handle/20.500.12657/35237/1/340093.pdf#page=200>

- Nordbäck, E. S., & Espinosa, J. A. (2019). Effective coordination of shared leadership in global virtual teams. *Journal of Management Information Systems*, 36(1), 321-350. <https://doi.org/10.1080/07421222.2018.1558943>
- Nozick, R. (1994). The Nature of Rationality. <http://digital.casalini.it/9781400820832>
- Oancea, A., & Furlong, J. (2007). Expressions of excellence and the assessment of applied and practice-based research. In *Assessing quality in applied and practice-based research in education*. (pp. 11-30). Routledge.
- OECD. (2023). Internationalisation, specialisation and technological collaboration in the EU Outermost Regions: A patent data analysis. OECD Publishing. https://www.oecd.org/en/publications/internationalisation-specialisation-and-technological-collaboration-in-the-eu-outermost-regions_7eac66d8-en.html
- Oldac, Y. I., Yang, L., Nkansah, J. O., & Li, S. (2025). Dynamics of International Research Collaboration in Higher Education in the Global Majority Systems: Evidence from Three Contexts. *Minerva*, 1-24. <https://doi.org/10.1007/s11024-025-09589-9>
- Oliver, A. L., Montgomery, K., & Barda, S. (2020). The multi-level process of trust and learning in university–industry innovation collaborations. *The Journal of Technology Transfer*, 45(3), 758-779. <https://doi.org/10.1007/s10961-019-09721-4>
- Pan, D. (2025). The same and the change: a topology of a Sino–French joint programme. *Comparative Education*, 61(2), 262-279. <https://doi.org/10.1080/03050068.2024.2386901>
- Park, H. W., Yoon, J., & Leydesdorff, L. (2016). The normalization of co-authorship networks in the bibliometric evaluation: the government stimulation programs of China and Korea. *Scientometrics*, 109(2), 1017-1036. <https://doi.org/10.1007/s11192-016-1978-2>
- Paula, I. C. D., Campos, E. A. R. D., Pagani, R. N., Guarnieri, P., & Kaviani, M. A. (2020). Are collaboration and trust sources for innovation in the reverse logistics? Insights from a systematic literature review. *Supply Chain Management: An International Journal*, 25(2), 176-222. <https://doi.org/10.1108/SCM-03-2018-0129>
- Peters, M. A. (2006). The Rise of Global Science and the Emerging Political Economy of International Research Collaborations 1. *European Journal of Education*, 41(2), 225-244. <https://doi.org/10.1111/j.1465-3435.2006.00257.x>
- Pickering, A. (1995). *The mangle of practice: Time, agency, and science*. University of Chicago Press.
- Plate, R. C., Shutts, K., Cochrane, A., Green, C. S., & Pollak, S. D. (2021). Testimony bias lingers across development under uncertainty. *Developmental psychology*, 57(12), 2150. <https://doi.org/10.1037/dev0001253>
- Pop, A., & Grigoraş, R. (2021). Towards a bifurcated future in the US-China relationship: What is in it for the EU?. *Futures*, 125, 102634. <https://doi.org/10.1016/j.futures.2020.102634>
- Popper, K. R. (1963). Science as falsification. *Conjectures and refutations*, 1(1963), 33-39. https://www.kth.se/social/files/57da705ef276540c0f789308/KPopper_Falsification.pdf

- Potluka, O. (2021). Roles of formal and informal leadership: civil society leadership interaction with political leadership in local development. In *Handbook on city and regional leadership* (pp. 91-107). Edward Elgar Publishing.
<https://doi.org/10.4337/9781788979689.00015>
- Powell, W. W., & Snellman, K. (2004). The knowledge economy. *Annu. Rev. Sociol.*, 30(1), 199-220. <https://doi.org/10.1146/annurev.soc.29.010202.100037>
- Pramanick, A., Hou, Y., Mohammad, S. M., & Gurevych, I. (2024). The nature of NLP: Analyzing contributions in NLP papers. <https://doi.org/10.48550/arXiv.2409.19505>
- Pring, R. (2004). *The philosophy of education*. Bloomsbury Publishing.
<https://digital.casalini.it/9781441137906>
- Punch, K. F., & Oancea, A. E. (2014). Introduction to research methods in education.
<http://digital.casalini.it/9781473909199>
- Rafols, I., Leydesdorff, L., O'Hare, A., Nightingale, P., & Stirling, A. (2012). How journal rankings can suppress interdisciplinary research: A comparison between innovation studies and business and management. *Research Policy*, 41(7), 1262–1282.
<https://doi.org/10.1016/j.respol.2012.03.015>
- Raj, K. (2007). *Relocating modern science: Circulation and the construction of knowledge in South Asia and Europe, 1650–1900*. Palgrave Macmillan.
- Rashed, F., Mirhosseini, S. A., & Shirazizadeh, M. (2023). Write in their tongue: Iranian higher education policies of publishing in English. *Language Related Research*, 14(1), 63-87. <https://doi.org/10.48311/LRR.14.1.63>
- Rasmussen, P. (2022). Educational research—public responsibility, private funding?. *Nordic Journal of Studies in Educational Policy*, 8(1), 65-74.
<https://doi.org/10.1080/20020317.2021.2018786>
- Redkina, N. S. (2024). Impact of Open Science infrastructure on the development of the world information resources market. *Scientific and Technical Information Processing*, 51(2), 161-172. <https://doi.org/10.3103/S0147688224700096>
- Reiter, B. (2013). The epistemology and methodology of exploratory social science research: Crossing Popper with Marcuse. https://digitalcommons.usf.edu/gia_facpub/99
- Reiter, B. (2017). *Theory and methodology of exploratory social science research*.
<https://hdl.handle.net/2346/86610>
- Resnik, D. B., & Hosseini, M. (2025). The ethics of using artificial intelligence in scientific research: new guidance needed for a new tool. *AI and Ethics*, 5(2), 1499-1521.
<https://doi.org/10.1007/s43681-024-00493-8>
- Rhee, B. S., & Yin, M. (2023). Academic excellence initiatives in the Republic of Korea: Brain Korea 21. *Academic Star Wars: Excellence initiatives in global perspective*, 81-106.
- Rigney, D. (2010). *The Matthew effect: How advantage begets further advantage*. Columbia University Press.

- Robinson-Garcia, N., Torres-Salinas, D., Herrera-Viedma, E., & Docampo, D. (2019). Mining university rankings: Publication output and citation impact as their basis. *Research Evaluation*, 28(3), 232-240. <https://doi.org/10.1093/reseval/rvz014>
- Rueda, A., Hassan, M. S., Perivolaris, A., Teferra, B. G., Samavi, R., Rambhatla, S., ... & Bhat, V. (2025). Understanding LLM Scientific Reasoning through Promptings and Model's Explanation on the Answers. <https://doi.org/10.48550/arXiv.2505.01482>
- Sabah, F., Hassan, S. U., Muazzam, A., Iqbal, S., Soroya, S. H., & Sarwar, R. (2019). Scientific collaboration networks in Pakistan and their impact on institutional research performance: A case study based on Scopus publications. *Library Hi Tech*, 37(1), 19-29. <https://doi.org/10.1108/LHT-03-2018-0036>
- Saliba, G. (2007). *Islamic science and the making of the European Renaissance*. MIT Press.
- Satterthwaite, E. V., McQuain, L., Almada, A. A., Rudnick, J. M., Eberhardt, A. L., Doerr, A. N., ... & Costello, W. J. (2024). CENTERING KNOWLEDGE CO-PRODUCTION IN SUSTAINABILITY SCIENCE. *Oceanography*, 37(1), 26-37. <https://www.jstor.org/stable/27301078>
- Scherngell, T., & Barber, M. J. (2009). Spatial interaction modelling of cross-region R&D collaborations: Empirical evidence from the 5th EU framework programme. *Papers in Regional Science*, 88(3), 531-547. <https://doi.org/10.1111/j.1435-5957.2008.00215.x>
- Schulhof, V., Van Vuuren, D., & Kirchherr, J. (2022). The Belt and Road Initiative (BRI): What will it look like in the future?. *Technological Forecasting and Social Change*, 175, 121306. <https://doi.org/10.1016/j.techfore.2021.121306>
- Selvaratnam, R. M., & Sankey, M. D. (2021). An integrative literature review of the implementation of micro-credentials in higher education: Implications for practice in Australasia. *Journal of Teaching and Learning for Graduate Employability*, 12(1), 1-17. <https://ojs.deakin.edu.au/index.php/jtlge/>
- Setola, R., Luijff, E., & Theocharidou, M. (2016). *Critical infrastructures, protection and resilience* (pp. 1-18). Springer International Publishing. https://doi.org/10.1007/978-3-319-51043-9_1
- Shapin, S. (1996). *The scientific revolution*. University of Chicago Press.
- Shen, W. (2018). Transnational research training: Chinese visiting doctoral students overseas and their host supervisors. *Higher Education Quarterly*, 72(3), 224-236. <https://doi.org/10.1111/hequ.12168>
- Shen, Y., Zhu, Y., & Yang, R. (2025). Integrating traditional knowledge of non-Western humanities and social sciences: a research agenda through the Chinese lens. *Studies in Higher Education*, 50(9), 1951-1965. <https://doi.org/10.1080/03075079.2024.2407051>
- Shin, J. C., Huang, J. W., Lee, J. K., & An, Y. (2023). Localization of social science research in selected academic disciplines in South Korea. *Current Sociology*, 71(5), 762-779. <https://doi.org/10.1177/001139212111048528>
- Siesfeld, T., Cefola, J., & Neef, D. (2009). *The economic impact of knowledge*. Routledge.

Sillitoe, P. (2007). Local science vs. global science: An overview. *Local science vs. global science: Approaches to indigenous knowledge in international development*, 4, 1-22.

Smith, A. T. (1994). Maya Royal Ritual: Architectonics as a Key to Political Organization. *Arizona Anthropologist*, 11, 89-126.

Solís, M., Pak, J., Joo, H., & Chung, H. (2024). *Export control policies in U.S.–ROK relations*. National Bureau of Asian Research. Retrieved from <https://www.nbr.org/publication/export-control-policies-in-u-s-rok-relations/>

Star, S. L., & Griesemer, J. R. (1989). Institutional ecology, “translations” and boundary objects: Amateurs and professionals in Berkeley’s Museum of Vertebrate Zoology, 1907–39. *Social Studies of Science*, 19(3), 387–420. <https://doi.org/10.1177/030631289019003001>

Steiner-Khamsi, G. (2025). The Evolution of a Global Script: The Present, Future, and Sequence of Reforms. In *Time in Education Policy Transfer: The Seven Temporalities of Global School Reform* (pp. 91-152). Cham: Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-82524-8_3

Steiner-Khamsi, G., & Waldow, F. (2018). PISA for scandalisation, PISA for projection: the use of international large-scale assessments in education policy making—an introduction. *Globalisation, Societies and Education*, 16(5), 557-565. <https://doi.org/10.1080/14767724.2018.1531234>

Stirling, A. (2007). A general framework for analysing diversity in science, technology and society. *Journal of the Royal Society interface*, 4(15), 707-719. <https://doi.org/10.1098/rsif.2007.0213>

Summers, J. S. (2017). Post hoc ergo propter hoc: some benefits of rationalization. *Philosophical Explorations*, 20(sup1), 21-36. <https://doi.org/10.1080/13869795.2017.1287292>

Sun, J., & Jiang, C. (2014). Sino-South Korean scientific collaboration based on co-authored SCI papers. *Journal of Information Science Theory and Practice*, 2(1), 48-61. <https://doi.org/10.1633/JISTaP.2014.2.1.4>

Suppe, F. (Ed.). (1977). *The structure of scientific theories* (Vol. 634, No. 8). University of Illinois Press.

Swist, T., & Magee, L. (2017). Academic publishing and its digital binds: Beyond the paywall towards ethical executions of code. *Culture Unbound*, 9(3), 240-259. <https://doi.org/10.3384/cu.2000.1525.1793240>

Tallberg, J. (2010). The power of the chair: Formal leadership in international cooperation. *International Studies Quarterly*, 54(1), 241-265. <https://doi.org/10.1111/j.1468-2478.2009.00585.x>

Tang, L. (2024). Halt the ongoing decoupling and reboot US-China scientific collaboration. *Journal of Informetrics*, 18(2), 101521. <https://doi.org/10.1016/j.joi.2024.101521>

Tashakkori, A., & Teddlie, C. (Eds.). (2003). *Handbook of mixed methods in social and behavioral research*. Sage.

- Temple, B., & Young, A. (2004). Qualitative research and translation dilemmas. *Qualitative Research*, 4(2), 161-178. <https://doi.org/10.1177/1468794104044430>
- Tenzer, H., Pudenko, M., & Harzing, A.-W. (2014). The impact of language barriers on trust formation in multinational teams. *Journal of International Business Studies*, 45(5), 508–535. <https://doi.org/10.1057/jibs.2013.64>
- Tian, M., & Lu, G. (2017). What price the building of world-class universities? Academic pressure faced by young lecturers at a research-centered University in China. *Teaching in Higher Education*, 22(8), 957-974. <https://doi.org/10.1080/13562517.2017.1319814>
- Ting-Toomey, S. (2005). The matrix of face: An updated face-negotiation theory. In W. B. Gudykunst (Ed.), *Theorizing about intercultural communication* (pp. 71–92). Sage.
- Ting-Toomey, S. (2008). Intercultural conflict styles and facework. *The international encyclopedia of communication*. <https://doi.org/10.1002/9781405186407.wbieci048>
- Toprak, E., & Genc-Kumtepe, E. (2014). Cross-cultural communication and collaboration: Case of an international e-learning project. *European Journal of Open, Distance and e-learning*, 17(1), 134-146. <https://www.ceeol.com/search/article-detail?id=848723>
- Tran, E. (2024). Twitter, public diplomacy, and social power in soft-balancing China–France relations. *Journal of Contemporary China*, 33(146), 267-294. <https://doi.org/10.1080/10670564.2023.2193150>
- Tschannen-Moran, M. (2001). Collaboration and the need for trust. *Journal of Educational Administration*, 39(4), 308-331. <https://doi.org/10.1108/EUM0000000005493>
- Tudor, C., & Sova, R. (2022). Driving factors for R&D intensity: evidence from global and income-level panels. *Sustainability*, 14(3), 1854. <https://doi.org/10.3390/su14031854>
- U.S. Government Accountability Office. (2022). Federal research: Information on funding for U.S.-China research collaboration and other international activities (GAO-22-105313). U.S. Government Accountability Office. <https://www.gao.gov/assets/gao-22-105313.pdf>
- UNESCO. (2021). UNESCO recommendation on open science. *United Nations Educational, Scientific and Cultural Organization*. <https://www.unesco.org/en/open-science/about>
- Usman, S. M. (2025). Post-COVID challenges to the China-Pakistan economic corridor: A power transition theory. *Chinese Public Administration Review*, 16(1), 60-73. <https://doi.org/10.1177/15396754241312016>
- Uzzi, B., Mukherjee, S., Stringer, M., & Jones, B. (2013). Atypical combinations and scientific impact. *Science*, 342(6157), 468-472. <https://doi.org/10.1126/science.1240474>
- Välk, S., Maudet, N., & Mougenot, C. (2019). Exploring how boundary objects can support multidisciplinary design and science collaboration. *International Association of Societies of Design Research*.
- Van Dalen, H. P. (2021). How the publish-or-perish principle divides a science: The case of economists. *Scientometrics*, 126(2), 1675-1694. <https://doi.org/10.1007/s11192-020-03786-x>

- Van de Ven, A. H., & Ring, P. S. (2006). Relying on trust in cooperative inter-organizational relationships. In *Handbook of trust research*. Edward Elgar Publishing.
<https://doi.org/10.4337/9781847202819.00015>
- Van Der Valk, T., Van Driel, J. H., & De Vos, W. (2007). Common characteristics of models in present-day scientific practice. *Research in Science Education*, 37(4), 469-488.
<https://doi.org/10.1007/s11165-006-9036-3>
- Vigier, M., & Spencer-Oatey, H. (2017). Code-switching in newly formed multinational project teams: Challenges, strategies and effects. *International Journal of Cross Cultural Management*, 17(1), 23-37. <https://doi.org/10.1177/1470595816684151>
- Wagner, C. S., & Cai, X. (2022). Changes in co-publication patterns among China, the European Union (28) and the United States of America, 2016-2021. <https://doi.org/10.48550/arXiv.2202.00453>
- Wagner, C. S., & Leydesdorff, L. (2005). Network structure, self-organization, and the growth of international collaboration in science. *Research Policy*, 34(10), 1608–1618. <https://doi.org/10.1016/j.respol.2005.08.002>
- Wagner, C. S., Park, H. W., & Leydesdorff, L. (2015). The continuing growth of global cooperation networks in research: A conundrum for national governments. *PloS one*, 10(7), e0131816. <https://doi.org/10.1371/journal.pone.0131816>
- Wagner, C. S., Whetsell, T. A., & Leydesdorff, L. (2017). Growth of international collaboration in science: revisiting six specialties. *Scientometrics*, 110(3), 1633-1652. <https://doi.org/10.1007/s11192-016-2230-9>
- Wagner, C. S., Whetsell, T., Baas, J., & Jonkers, K. (2018). Openness and impact of leading scientific countries. *Frontiers in research metrics and analytics*, 3, 10.
<https://doi.org/10.3389/frma.2018.00010>
- Wang, J. (2014). Unpacking the Matthew effect in citations. *Journal of Informetrics*, 8(2), 329-339. <https://doi.org/10.1016/j.joi.2014.01.006>
- Wang, J., Frietsch, R., Neuhäusler, P., & Hooi, R. (2024). International collaboration leading to high citations: Global impact or home country effect?. *Journal of Informetrics*, 18(4), 101565. <https://doi.org/10.1016/j.joi.2024.101565>
- Wang, J., Veugelers, R., & Stephan, P. (2017). Bias against novelty in science: A cautionary tale for users of bibliometric indicators. *Research Policy*, 46(8), 1416-1436.
<https://doi.org/10.1016/j.respol.2017.06.006>
- Wang, Z. (2002). Saving China through science: The Science Society of China, scientific nationalism, and civil society in Republican China. *Osiris*, 17, 291-322.
<https://www.jstor.org/stable/3655275>
- Weiss, L. (2012). The myth of the neoliberal state. *Developmental politics in transition: The neoliberal era and beyond*, 27-42.
- Whitley, R. (2000). *The intellectual and social organization of the sciences*. Oxford University Press, USA.

- Wildman, J. (2010). The effects of ethnic diversity, perceived similarity, and trust on collaborative behavior and performance. <http://purl.fcla.edu/fcla/etd/CFE0003102>
- Winch, C., Oancea, A., & Orchard, J. (2015). The contribution of educational research to teachers' professional learning: Philosophical understandings. *Oxford Review of Education*, 41(2), 202-216.
- Woiceshyn, J., & Daellenbach, U. (2018). Evaluating inductive vs deductive research in management studies: Implications for authors, editors, and reviewers. *Qualitative research in organizations and management: An International Journal*, 13(2), 183-195. <https://doi.org/10.1108/QROM-06-2017-1538>
- Woolthuis, R. K., Hillebrand, B., & Nooteboom, B. (2005). Trust, contract and relationship development. *Organization studies*, 26(6), 813-840. <https://doi.org/10.1177/0170840605054594>
- Wright, R. (2014). *Introducing Greek Philosophy*. Routledge. <https://doi.org/10.4324/9781315711614>
- Wu, J. (2016). Educational discipline, ritual governing, and Chinese exemplary society: Why China's curriculum reform remains a difficult task. *Policy Futures in Education*, 14(6), 721-740. <https://doi.org/10.1177/1478210316645248>
- Xi, J. (2016). *Speech at the National Conference on Science and Technology Innovation, the 18th Academician Conference of the Chinese Academy of Sciences, the 13th Academician Conference of the Chinese Academy of Engineering, and the 9th National Congress of the China Association for Science and Technology*. People's Daily. http://www.gov.cn/xinwen/2016-05/30/content_5077818.htm
- Xi, J. (2020). *Speech during inspection tour in Jilin Province*. Xinhua News Agency. http://www.xinhuanet.com/politics/leaders/2020-07/22/c_1126271772.htm
- Xiao, Z., Gao, J., Wang, Z., Yin, Z., & Xiang, L. (2022). Power shortage and firm productivity: Evidence from the World Bank Enterprise Survey. *Energy*, 247, 123479. <https://doi.org/10.1016/j.energy.2022.123479>
- Xu, X. (2021). A policy trajectory analysis of the internationalisation of Chinese humanities and social sciences research (1978–2020). *International Journal of Educational Development*, 84, 102425. <https://doi.org/10.1016/j.ijedudev.2021.102425>
- Xue, L. (1997). CHINA'S INNOVATION SYSTEM REFORM: A HISTORICAL PERSPECTIVE. In *The Reformability Of China's State Sector* (pp. 464-485). https://doi.org/10.1142/9789814261050_0026
- Yan, E., Ding, Y., Cronin, B., & Leydesdorff, L. (2013). A bird's-eye view of scientific trading: Dependency relations among fields of science. *Journal of Informetrics*, 7(2), 249-264. <https://doi.org/10.1016/j.joi.2012.11.008>
- Yang, H., Zhang, Y., Wang, G., & Liu, L. (2025). The growing third mission of academia in China: evolution of technology innovation based on quadrant model. *Asian Journal of Technology Innovation*, 33(2), 628-654. <https://doi.org/10.1080/19761597.2024.2377713>

- Yang, R., Xie, M., & Wen, W. (2019). Pilgrimage to the West: Modern transformations of Chinese intellectual formation in social sciences. *Higher Education*, 77(5), 815-829. <https://doi.org/10.1007/s10734-018-0303-9>
- Yoon, J., Yang, J. S., & Park, H. W. (2017). Quintuple helix structure of Sino-Korean research collaboration in science. *Scientometrics*, 113(1), 61-81. <https://doi.org/10.1007/s11192-017-2476-x>
- Yu, Q. (2018). The contemporary challenges and responses of speculative research in education [论教育思辨研究的时代挑战与应对]. *Journal of Educational Studies*, 14(5), 13-21. <https://epc.swu.edu.cn/info/1127/3206.htm>
- Zakaria, N., & Ab Rahman Muton, N. (2022). Cultural code-switching in high context global virtual team members: A qualitative study. *International Journal of Cross Cultural Management*, 22(3), 487-515. <https://doi.org/10.1177/14705958221137256>
- Zhang, C. (2017). A fiscal sociological theory of authoritarian resilience: Developing theory through China case studies. *Sociological Theory*, 35(1), 39-63. <https://doi.org/10.1177/0735275117693038>
- Zhang, L., Shang, Y., Huang, Y., & Sivertsen, G. (2021). Toward internationalization: A bibliometric analysis of the social sciences in Mainland China from 1979 to 2018. *Quantitative Science Studies*, 2(1), 376-408. https://doi.org/10.1162/qss_a_00102
- Zhang, Y., Liu, B., Gong, Y., Huang, J., Xu, J., & Wan, W. (2024). Application of machine learning optimization in cloud computing resource scheduling and management. In *Proceedings of the 5th international conference on computer information and big data applications* (pp. 171-175). <https://doi.org/10.1145/3671151.3671183>
- Zhao, K., Li, J., & Liang, H. (2025). Reconfiguring power: a field analysis of China's research evaluation reform. *Higher Education*, 1-18. <https://doi.org/10.1007/s10734-025-01480-6>
- Zhao, Y., Summers, R., Gathara, D., & English, M. (2024). Conducting cross-cultural, multi-lingual or multi-country scale development and validation in health care research: A 10-step framework based on a scoping review. *Journal of Global Health*, 14, 04151. <https://doi.org/10.7189/jogh.14.04151>
- Zhe, C., Lu, X., & Xiong, X. (2021). Analysis of influence factors on the quality of international collaboration research in the field of social sciences and humanities: The case of Chinese world class universities (2015–2019). *Sage Open*, 11(4), 21582440211050381. <https://doi.org/10.1177/21582440211050381>
- Zhou, P., & Leydesdorff, L. (2016). A comparative study of the citation impact of Chinese journals with government priority support. *Frontiers in Research Metrics and Analytics*, 1, 3. <https://doi.org/10.3389/frma.2016.00003>
- Zhou, Y. R. (2022). Vaccine nationalism: contested relationships between COVID-19 and globalization. In *Post-Covid Transformations* (pp. 82-97). Routledge.
- Zhu, Y., Shen, Y., & Yang, R. (2025). Transforming traditions into academic resources: A study of Chinese scholars in the humanities and social sciences. *Higher Education*, 89(6), 1619-1635. <https://doi.org/10.1007/s10734-024-01297-9>

Zingerli, C. (2010). A sociology of international research partnerships for sustainable development. *The European Journal of Development Research*, 22, 217-233.
<https://doi.org/10.1057/ejdr.2010.1>