

**Brazil as a case of North-South research
collaboration: Potential and pitfalls**

by

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Abstract

International research collaboration (IRC) has been on the global governance agenda since the mid-20th century, gaining steam especially after the Cold War and the rise of neoliberalism in the 1990s. As a means to promote social, intellectual, and economic development in the global South, North-South research collaborations have been encouraged in discourse and practice by development agencies, education ministries, and prestigious universities around the world. This study takes the case of Brazil to investigate how researchers perceive the role of collaboration in mitigating or reproducing North-South power imbalances, and what these perceptions reveal about the potential of IRC in bridging the global knowledge gap. Drawing on primary data obtained through 26 in-depth interviews with Brazilian and Northern researchers, this study identifies macrostructural, intermediate, and individual factors that have shaped their experiences. Two issues stand out: knowledge dissemination challenges; and the individualization of advantages, both of which speak to opportunities as well as limitations of North-South collaboration in fostering capacity building in the South.

Keywords: higher education; internationalization; North-South partnerships; international research collaboration; Brazil

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List of Acronyms

CAPES	Coordination for the Improvement of Higher Education Personnel
CBA	Canada-Brazil Awards – Joint Research Projects
CNPq	National Council for Scientific and Technological Development
GAC	Global Affairs Canada
HEI	Higher education institution
IC	Industrialized country
IGO	Intergovernmental organization
IRC	International research collaboration
LDC	Least developed country
MEC	Brazil's Ministry of Education
OECD	Organisation for Economic Co-operation and Development
S&T	Science and technology
STEM	Science, technology, engineering, and mathematics
SwB	Science without Borders
UN	United Nations

Chapter 1.

Introduction

As social, economic, and scientific challenges achieve global proportions, international efforts must often be brought together to generate innovative, locally driven solutions. Academic research is no exception to this. Whether it be with the purpose of developing new technology, expanding access to funding, or attaining a broader impact within academia and society at large, researchers have engaged in moving people, ideas, and resources across borders through international collaboration. Joint projects undertaken between researchers in the Global North and in the Global South¹ deserve particular attention: standing at the intersection between academia and development, North-South research collaboration offers important insights into whether, and how, mutually beneficial partnerships between Northern and Southern actors can be fostered, and how academic research can translate into local solutions to help bridge the North-South divide.

International research collaboration (IRC) has been on the global governance agenda since the mid-20th century, gaining steam especially after the Cold War and the rise of neoliberalism in the 1990s. And just like the history of IRC cannot be seen apart from that of international development itself, North-South research cannot be contextualized apart from the broader political and socioeconomic forces shaping the world order. Indeed, interactions between Northern and Southern actors occurring through research collaboration naturally reflect the forces driving knowledge production, wherein Southern countries are underrepresented. While North-South partnerships are seen by many as holding the promising potential for bridging the global knowledge production gap, postcolonial studies have accentuated the unequal power structures

¹ Hereafter, the term "Global South" refers to countries primarily located in the Southern Hemisphere with medium and low human development indices (<0.8 HDI) as assessed by the United Nations Development Programme. Totalling 127, most are in Latin America, Asia, and Africa and are also commonly referred to as "developing", or "least developed" countries. The "Global North", in turn, comprises countries mainly located in the Northern Hemisphere which have a high human development index (>=0.8 HDI), for a total of 62 (HDR, 2019). These are commonly referred to as "developed" countries. While the "North-South" label is utilized throughout the study, I acknowledge that "Global North" and "Global South" are overly simplistic terms that often conceal important dynamics and disparities between and within countries.

upon which North-South collaboration has been built, including a historical pattern of unidirectional knowledge transfer *from North to South* in the name of development (Alasuutari and Andreotti, 2015; Carbonnier and Kontinen, 2015; Bailey and Dolan, 2011). Long-standing North-South inequalities thus call into question whether and how Southern researchers can leverage their own interests and expertise within, and in response to, structures that have long favored knowledge production in the North.

To explore this question, this study sets out to examine how researchers perceive the role of research collaboration between the Global North and the Global South in reproducing or mitigating North-South power imbalances in the sphere of knowledge production, taking Brazil as a case study. Ranking 15th worldwide and 4th in the Global South in volume of scientific output as measured by scientific articles published between 1996 and 2018, Brazil has risen as an important Southern player in the production of knowledge, boosted by government policies directed at promoting the internationalization of scientific research through competitive grant schemes and academic mobility funding (Ramos, 2018; SJR, n.d.). Drawing on primary data obtained through in-depth interviews, this study explores the perceptions of individual researchers with regard to the opportunities and challenges presented by joint research projects between Brazil and the Global North, and, in doing so, it aims to examine how collaboration with the Global North has leveraged or improved Brazil's research capacity. Telling a unique story among Southern countries, Brazil can offer valuable, albeit not necessarily generalizable, insight into the Southern experience in North-South research collaboration and the potential of IRC for bridging the global knowledge production gap.

1.1. North-South collaboration as a tool for development

In the aftermath of World War II, an era of international cooperation emerged with the establishment of the Bretton Woods system, a concerted effort by the Allied nations to support the reconstruction of the global economy in order to prevent a recurrence of the economic traumas of the interwar period. In 1944, the two Bretton Woods Institutions of the International Monetary Fund and the World Bank were respectively tasked with stabilizing international trade and issuing loans for reconstruction in areas devastated by the war, mainly in Europe, and for development in impoverished countries. By the 1960s, the focus of these institutions had shifted to fostering economic growth in so-called least

developed countries (LDCs), including the newly independent nations in Asia and Africa born from the second wave of decolonization that continued through the mid-1970s. Standing at the forefront of intergovernmental organizations (IGOs) like the United Nations (UN) and the Organisation for Economic Co-operation and Development (OECD), industrialized countries (ICs) in the Global North – led by the United States and followed by the United Kingdom, France, the Netherlands, Belgium, Germany, Portugal, and Spain – took a dominant role early on in directing the flow of funding, investment, and human capital in development efforts, influencing the outcomes of research for poverty reduction and the advancement of science and technology (S&T) in the Global South (Gaillard 1994; Nakabugo et al., 2010).

In the postwar period, North-South relations largely took a paternalistic form, with ICs – the “knowledge holders” – becoming the purveyors of technical assistance and aid with the objective of fixing problems and “modernizing” LDCs, which were in turn perceived as “lacking knowledge” (Alasuutari and Andreotti, 2015). As dependency theory gained force across Latin America, Africa and much of Asia during the 1970s, however, many LDCs expressed concerns about “scientific colonialism, indirect military exploitation, commercial exploitation [...], and enhanced risks of brain drain,” potential abuses that could arise from the imposition of “quick solutions to development problems” in the South by the North (Gaillard, 1994, p. 33). Furthered by a postcolonial critique of donor-recipient relations as sustained by the historical “subsidization” of knowledge and wealth accumulation in the North through the exploitation of the South, the question of “who did the problem-solving, and how” was becoming increasingly relevant in development discourse (Gaillard, 1994; Alasuutari and Andreotti, 2015). The realization that problem-solving in the South required that research capacities be strengthened – enabling Southern countries to define their own priorities and objectives based on national and local needs, and to conduct scientific research that addresses those needs – would soon prompt a reorientation of IRC as a tool for development.

In shifting away from modernization paradigms built upon the premise that knowledge was to be transferred unidirectionally from ICs to LDCs for the development of the latter, S&T cooperation models espoused by IGOs turned to more locally-focused approaches where terms such as “participation”, “empowerment”, and “partnership” were deliberately brought to center stage (Bailey and Dolan, 2011). In 1972, the OECD Conference of Directors of Research and Training Institutes delegates noted an

increased interest in “new forms” of cooperation that were interdisciplinary and mutually beneficial, advocating for North-South partnerships that could “strengthen Southern institutions while producing more policy-relevant, critical research” (Bradley, 2017, pp. 43). In 1979, the Group of 77 – a coalition of Southern countries – would push members at the UN Conference on Science and Technology for Development for a commitment to fostering and financing capacity building in LDCs; and by the end of the decade, Northern countries that did not have a colonial past, such as Canada and Sweden, had created institutions dedicated to fostering S&T cooperation with the Global South (Rittberger, 1982; Gaillard, 1994). From the 1980s onwards, the concept of “capacity building” gradually supplanted that of “technical assistance,” emphasizing an aim to forge endogenous problem-solving capacities and self-reliance in Southern countries.

Under the view that research and knowledge production precede sociocultural and economic development, and that higher education is interconnected with the spreading of ideas, scientific knowledge, innovation, and thus poverty reduction, higher education institutions (HEIs) have since become a focal point in IRC (Baud, 2002; Koehn and Obamba, 2014). In 1998, the World Conference on Higher Education, organized by the United Nations Educational, Scientific and Cultural Organization (UNESCO) reinforced this notion by shedding light on the mutually reinforcing nature of higher education and international development, emphasizing the role of international cooperation and exchange and urging HEIs to engage with the understanding of global issues (Mwangi, 2017). Universities, as providers of teaching and research spaces, have enjoyed a unique position among HEIs to partner with governments, IGOs, and civil society in order to advance an agenda for the internationalization of higher education and foster North-South relations (Baud, 2002; Mwangi, 2017).

The relevance of North-South partnerships in higher education becomes even more evident in light of a knowledge production gap that has arguably helped sustain, if not furthered, global socioeconomic and political divisions. Indeed, studies from a wide array of disciplines have found evidence that there is a significant disparity in authorship, publication rates, and location of scientific research across the North-South divide (Karlsson et al., 2007). This divide is not only epistemic, but also material and institutional in that Euro-American forms of knowledge production take precedence in academia and attract the most resources (McFarlane, 2006). Concentrating the wealthiest and most prestigious educational and research institutions in the world, the

North leads in knowledge accumulation and investment in research and development (R&D)². In contrast, systems of knowledge production and dissemination in the Global South often lack funds, people, and resources when compared to the North.

In the face of this reality, partnerships between Northern and Southern HEIs have gained traction since the 1990s with the aim to promote academic exchange, knowledge sharing, and increased research capacity. Development discourse has largely embraced the partnership paradigm, with “Partnerships for the Goals” – which includes the enhancement of North-South cooperation on access to S&T and knowledge sharing on mutually agreed terms – becoming one of the 17 Sustainable Development Goals set by the UN General Assembly to be achieved by 2030. (UN, n.d.).

1.2. Normative aspirations of North-South partnerships

Considered as instrumental to build a “new shared worldview of North-South relations”, international HEI partnerships have been generally framed in optimistic terms (Koehn and Obamba, 2014). Such partnerships come in a number of forms, including “one-on-one co-authorship, training schemes, institutional twinning arrangements, networks, and the co-management of journals and publications” (Bradley, 2017, pp. 41). A common underlying assumption in all of these is that, through collaboration, the more developed institution (in the Global North) benefits from experience in sharing knowledge, understanding culture, or fulfilling some mission-focused aspect of the university’s goals, and that the developing institution (in the Global South) enjoys an upgrade in resources and training through collaboration (Collins, 2011). By generating mutual and reciprocal benefits in terms of funding, personnel, and intellectual gains to Northern and Southern partners alike, North-South partnerships could thus hold the potential for shifting global knowledge and power imbalances (Downes, 2013).

Yet, despite the potential benefits often attributed to research partnerships in theory, several studies have pointed to power imbalances between Northern and Southern institutions which may negatively impact the development of sustainable co-

² Although the OECD’s share of the total world expenditure on R&D has declined from 85% in 2001 to 62% in 2017, the Global North has continued to dominate scientific and technological production worldwide. (Note: out of 37 current OECD member countries, only Chile, Mexico, and Colombia are considered Global South countries. Brazil is not an OECD member country.)

operation (Bailey and Nolan, 2011; Bradley, 2017). Such imbalances arise from barriers faced by researchers and HEIs in the South, but not as prevalent in the North, including lower levels of research funding, poor wages, brain drain of skilled academics, lack of administrative support, and unequal access to scientific and technological resources. Within partnerships, language barriers, miscommunication and mismanagement can also exacerbate structural inequalities. The idea of *mutuality* – the reduction of power differentials through notions of equity, autonomy, solidarity, and participation – has been considered but a normative aspiration within partnerships that reproduce North-South power dynamics while lacking cultural relevance and context-driven results to truly yield mutual benefits (Mwangi, 2017).

Another common argument driving criticism towards North-South partnerships is the perceived neocolonial nature of donor-recipient relationships, which perpetuates power asymmetries and resource dependency (Ishengoma, 2016). The interests of Northern donors often influence agenda-setting and effectively limit the Southern partner's ability to have a say in the research project plan. In an attempt to secure financial resources, Southern researchers may choose to enter partnerships even though those do not suit their own needs and priorities. The literature also indicates donors often prefer financing short-term projects that match prescribed terms of reference instead of theoretically demanding studies that can create a strong research base in the Global South, and that in extreme cases they grant funding “to a Northern institution for collaborative research on a particular set of questions before a Southern partner is even identified” (Bradley, 2017, pp. 60).

The normative and aspirational language used to describe North-South HEI partnerships, therefore, contrasts with the criticism they have received. According to Downes (2013), the way interests are manifested in a partnership “may merely serve to exacerbate prevailing asymmetries in terms of power, resources and capacities among partners” (para. 3) through substituted sovereignty, paternalism, and the imposition of models originated in the Global North. If this is so, research collaboration between unequal partners is prone to becoming dictated by the interests of those which have the most prestige, human capital and financial resources – typically, the Northern HEI. To investigate the extent to which normative aspirations have been realized in IRC, this study looks at a Southern country in particular, Brazil, and the experience of its

researchers and collaborators with regards to power imbalances in joint research in light of internationalization policies pushed by Brazil's government in recent decades.

Chapter 2.

Brazil's internationalization of higher education

Among Southern countries, Brazil has seen a particularly expressive growth in academic production over the last 30 years, having also undergone an intense period of internationalization of higher education and research between 2011 and 2016. As of 2018, Brazil lagged only behind its BRIC counterparts – Russia, India, and China – in scientific and technical journal article publications in the Global South, leading scientific production across all subject areas in Latin America with 52.47% of the region's output and 2.63% of the world's total (SJR, n.d.).

The internationalization of higher education in Brazil has been defined by two crucial moments in recent history: the rise of neoliberal governance that reshaped the country's educational policies in the 1990s during Fernando Henrique Cardoso's tenure, and the expansion of access to higher education concomitant with significant levels of federal funding for international cooperation on S&T under the Worker's Party administration (2003-2016). Although in many ways divergent, with the former being marked by privatizations and austerity measures and the latter by principles of democratization of access to education and social welfare, these two eras overlapped in their alignment with "academic capitalism": "...an umbrella term for capturing the wide array of market and market-like activities universities engage in to generate external revenues from education, research, and service [...], such as fierce competition for public, private, and foundation grants, informal pressures for creative research entrepreneurship, or faculty self-promotion through branding..." (Hoffman, 2012, p. 12). This paradigm is also rooted in the very formation of Brazil's higher education model and reflected in its trajectory through the 2010s, as will be discussed in the sections to follow.

2.1. Roots of the Brazilian higher education model

The Brazilian higher education model has been rooted in a productivist conception of education since the military dictatorship period (1964-1985), when the 1968 University Reform was instituted under a corollary of "maximum result with minimum spending" built upon rationality, efficiency and productivity (Saviani, 2008).

Favoring privatizations, within eight years the reform had led to a 172% increase in the number of private HEIs, which in 1976 came to account for 75% of all HEIs in the country (Vieira, 1982). Public HEIs, too, had turned to market interests and needs, onboarding businessmen as university council members and offering undergraduate programs that could meet the labor market demand for qualified professionals (Saviani, 2008). Moreover, with the aim of “modernizing society” and fostering scientific and technological advancement, master’s and doctoral programs that culminated in research were implemented in Brazil in 1965, following the American model for postgraduate education (Saviani, 2008).

In its post-democratic period, influenced by development prescriptions espoused by international organizations like the World Bank and the World Trade Organization, Fernando Henrique Cardoso (1995-2003) continued to engage in the commodification of education, privatizing HEIs and reducing investments in public universities (Pereira, 2017). The neoliberal context of that period emphasized the *evaluative state* – one that was minimal in regard to the promotion and maintenance of educational policies, but maximum in the control and evaluation of institutional performance to be reported to key stakeholders (Yannoulas et al., 2009). This process of evaluation encompasses a “wide range of techniques – such as audits, rankings, ratings, indicators and indexes – that systematically assess the performance of individuals, organizations and states” to generate information for and also to discipline the state itself (Giannone, 2016, pp. 500). Applying this to higher education, Brazil implemented the regulation and evaluation of institutional performance through the Coordination for the Improvement of Higher Education Personnel (CAPES), an agency operating under the Ministry of Education (MEC) which since 1998 has been responsible for the quality assurance and funding of postgraduate studies in Brazil.

As part of its quadrennial (previously triennial) evaluation, CAPES gives postgraduate programs scores ranging from 1 (poor) to 7 (excellent). Although each of 45 areas of knowledge can define its own scoring criteria, generally these are based on scientific production and impact (as measured by articles published and citation frequency), faculty qualifications, and, more recently, social impact (CAPES, 2020). Programs that receive a score of 1 or 2 are discredited and discontinued; scores of 3, 4, and 5 correspond to “regular”, “good”, and “very good”, respectively. Programs that aspire to scores of 6 or 7, in turn, *must* display a high degree of internationalization in

research (Paiva and Brito, 2019). The CAPES evaluation has thus been instrumental in guiding postgraduate educational policies and the distribution of scholarships and research grants, incentivizing competition and international cooperation.

2.2. Internationalization in the 21st century

Following the rise of neoliberalism, and as a reaction to the increasing unemployment and inequality it left in its wake, the Brazilian state entered a period some have called post-neoliberal, or “social neoliberal,” in the early 2000s. Under the presidency of Luiz Inácio Lula da Silva (2003-2011), the internationalization of higher education primarily revolved around South-South cooperation, although pre-existing CAPES programs in partnership with institutions in France and Germany were maintained (Moreira, 2018). Meanwhile, access to higher education was expanded with government-funded initiatives like University for All (ProUni, Portuguese: *Programa Universidade para Todos*) and the Student Financing Program (FIES, Portuguese: *Programa de Financiamento Estudantil*), through which the Brazilian state subsidized enrollment in private HEIs (Chaves and Amaral, 2016). Yet research remained concentrated in public universities, highlighting the democratized but market-oriented, professionalizing character of higher education as conceived during Lula’s tenure.

Under Dilma Rousseff (2011-2016), Brazil pushed forward its most ambitious internationalization program to date, Science without Borders (SwB, Portuguese: *Ciência sem Fronteiras*). Launched with the promise to support study abroad opportunities for 101,000 students pursuing degrees in the fields of science, technology, engineering, and mathematics (STEM), SwB was regarded as an important initiative to promote internationalization in academia while addressing the shortage of STEM graduates in Brazil (Sá, 2016). Over the course of five years, SwB sent 92,880 Brazilian students and postsecondary education professionals from public and private universities to HEIs abroad for periods varying from one (undergraduate, sandwich doctorate, visiting scholar and postdoctorate research) to four years (full doctorate). As a joint initiative, SwB was co-funded by the Ministry of Science, Technology and Innovation and MEC through their respective development agencies, the National Council for Scientific and Technological Development (CNPq) and CAPES, in partnership with private companies. Figure 1 below shows the total expenditures incurred by the program between 2011 and 2017,

totaling R\$ 12.5 billion, and Figure 2 shows CAPES-only expenditures in selected categories of scholarships, including SwB.

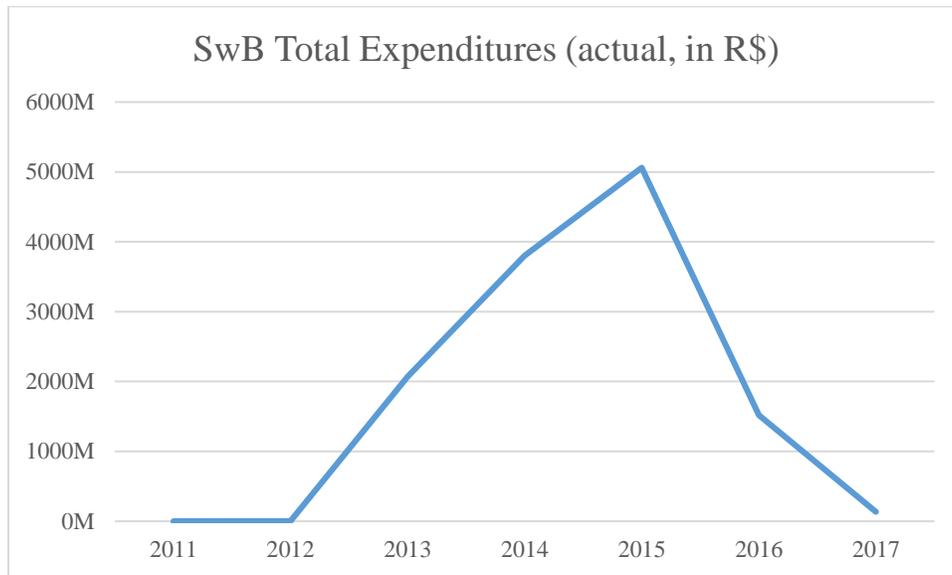


Figure 1. SwB total expenditures by year (2011-2017).
 Source: Ciência sem Fronteiras, 2020. Retrieved from <http://www.cienciasemfronteiras.gov.br/web/csf/estatisticas-e-indicadores>

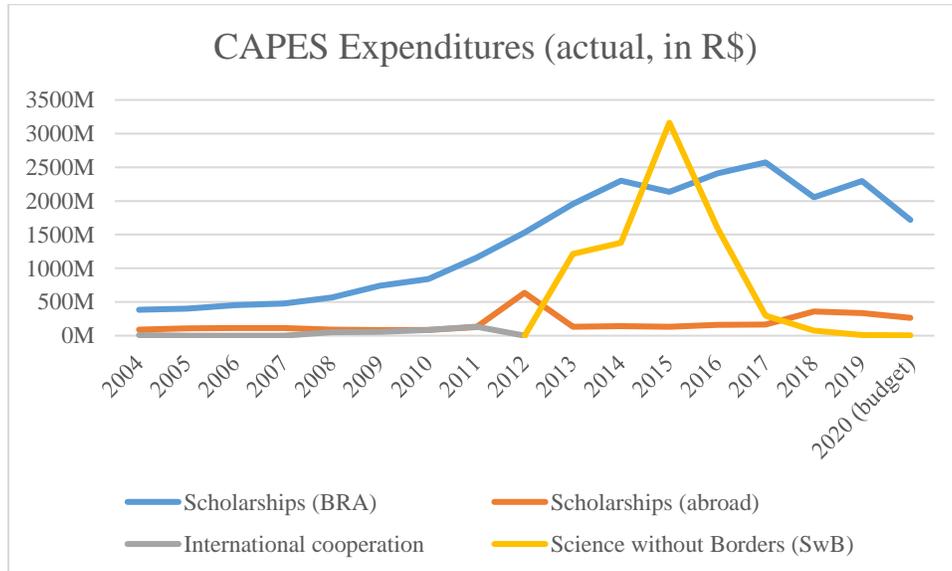


Figure 2. CAPES expenditures on scholarships by year (2004-2020).
 Source: CAPES, 2020. Retrieved from <https://www.capes.gov.br/orcamento-evolucao-em-reais>

After 2011, the CAPES' budget for international cooperation – intended for supporting the training of higher education professionals and promoting the internationalization of Brazilian S&T – was allocated to SwB, suggesting that, during

most of the 2010s, SwB was Brazil's main strategy for internationalizing its higher education system – and one with eyes on the market, with priority areas in STEM that made evident the focus on S&T development to the benefit of the industry sector. Although the program was not intended to create exchange exclusively with the Global North, two years into its implementation 97% of SwB scholarship recipients had chosen to visit Northern institutions³, with the top 10 host countries accounting alone for 93% of the total as shown in Table 1. According to Manços and Coelho (2017), not only did the increase in academic mobility generated by SwB lead to higher rates of international collaboration, but it was also likely that scholarship recipients would seek to maintain individual ties with collaborators in host countries even after participation in the program. By concentrating STEM students, SwB also had the spillover effect of increasing opportunities for academic mobility and research across other fields of study through pre-existing CAPES scholarship programs where competition faced by non-STEM candidates was now lower (Manços and Coelho, 2017).

Table 1. SwB host countries, top 10 (as of 2013)

Host Country	Sandwich Undergrad	Full Doctorate	Sandwich Doctorate	Postdoc	Country Total	% of Total*
United States	2927	118	1183	799	5027	22%
Portugal	2356	129	314	136	2935	13%
France	1884	97	445	266	2692	12%
Spain	1848	49	374	193	2464	11%
Canada	1686	53	265	141	2145	9%
United Kingdom	1204	158	277	300	1939	9%
Germany	1223	94	258	178	1753	8%
Australia	681	30	108	65	884	4%
Italy	479	22	120	58	679	3%
Netherlands	432	33	102	70	637	3%

* As of 2013, a total of 22,646 students had received scholarships through SwB (most recent publicly available data.)
Source: Ciência sem Fronteiras, 2020. Retrieved from <http://www.cienciasemfronteiras.gov.br/web/csf/painel-de-controle>

SwB reached its peak in 2015, when aggregate investment into the program reached R\$ 10.9 billion – a more than three-fold increase over its initial budget of R\$ 3.16 billion (Manços and Coelho, 2017). Under criticism over its high costs and uncertain

³ SwB scholarship recipients enrolled in undergraduate courses had the option to indicate a country of preference, where they would be assigned to a partner HEI based on availability. Doctoral and postdoctoral candidates, in turn, must have already been accepted at an HEI abroad before applying for the program.

returns, SwB was brought to a halt in the aftermath of a two-year recession that culminated in Rousseff's impeachment in August 2016. By 2017, undergraduate students had been excluded from eligibility, and only 5,100 scholarships remained in offer for doctoral students and postdoctoral researchers that year (Globo, 2017). While official data on SwB expenditures since then are unavailable, press outlets generally describe the program as having come to an end.

Currently, Brazil's IRC efforts are sparser and limited to programs of lesser scope, including CAPES-PrInt (CAPES' Institutional Internationalization Program), a federal grant budgeted at R\$ 300 million that in 2018 awarded funding to 36 Brazilian HEIs to support work and scholarships abroad for doctoral students and visiting scholars; the Canada-Brazil Awards – Joint Research Projects (CBA) program, which is co-funded by Global Affairs Canada (GAC) and CAPES and covers a period of four to six months of academic mobility for graduate students and short-term visits for PIs of selected joint research projects; and individual agreements between the Brazilian government and foreign HEIs. The Bolsonaro administration (2019-present) has further suspended funding both for new research projects through CNPq and for new master's and doctoral degree scholarships through CAPES, severely reducing opportunities for research collaboration and academic mobility among university students and faculty since (Brito, 2019; Viggiano, 2019).

Despite high levels of investment in IRC in the last decade – which *de facto* primarily served to fund joint research projects between Brazilian and Northern academics – Brazil has not seen a corresponding increase in terms of the relative intellectual and socioeconomic global impact of its scientific research (Ramos, 2018). Although Brazil's citation impact saw an increase of 18% between 2011 and 2016, it has historically fared below the world average, and its rates of international collaboration are still below those of most countries – signs of a potential discrepancy between scientific production (“quantity”) and international impact (“quality”) (Cross et al., 2018; Guimarães et al., 2019). The extent to which government policies aimed at internationalizing the production of knowledge have managed to elevate Brazil's research capacity, both at an individual and institutional level, to better position it within global knowledge production is a question that remains largely unaddressed.

Chapter 3.

Research design and methods

3.1. Research question

For the three decades since the end of the Cold War, official development agencies in many advanced industrial democracies, along with education ministries and prestigious universities around the world, have promoted North-South research collaboration as a means of promoting social, intellectual, and economic development in the Global South. This project explores the hopes and pitfalls of such binational “partnerships,” delving particularly into the power dynamics involved. Through empirical data on the experiences of Brazilian and Northern researchers, the chapters that follow will address the following questions: *how do researchers involved in joint projects between Brazilian and Northern HEIs perceive the role of collaboration in mitigating or reproducing power imbalances, and what do these perceptions reveal about the potential of North-South collaboration in bridging the global knowledge production gap?*

3.2. Research design

This study focuses on the experiences and perceptions of early- and later-stage career researchers who engaged in research collaboration between Brazil and in the Global North in the last decade (2009-2019), either as principal investigators (PIs) or research team members. Hereinafter, the term “collaboration” is used to encompass arrangements ranging from knowledge sharing within networks (less formal; characterized by horizontal exchanges of information with no long-term commitment), cooperation (organized interactions centered around a common goal for mutual benefit), and partnerships (more formal; structured forms of cooperation often established under a memorandum of understanding), adapting from Baud’s (2002) conceptual definitions of international cooperation. Arrangements that simply seek to provide an international experience for faculty and students or to create revenue-generating activities with no longer-term objectives, such as short-term exchange programs where students attend classes but do not conduct research at a host HEI, are excluded.

Ways in which North-South research collaboration holds potential for mitigating or reproducing power imbalances are primarily assessed via qualitative methods to draw insight from the experiences of researchers in establishing and undertaking joint projects. The potential to mitigate power imbalances is measured in function of the mutuality in goal-setting and decision-making as well as concrete capacity building that may have occurred through the collaboration, particularly to the benefit of the Southern partner, in terms of impact on research, policy, and local communities. The potential to reproduce power imbalances, in turn, is assessed in terms of the ability of Brazilian researchers to establish their own research agenda, address problems they identify or that are relevant to their local context, and disseminate knowledge. Inductive reasoning is applied to interpret the data collected and identify patterns or themes that emerge from respondents' answers, possibly revealing aspects of North-South power dynamics previously unexamined in the literature.

3.3. Ethical clearance

This research posed minimal risks to intended research subjects. The sampling process as well as the data collection and transcription, described in detail below, neither inflicted bodily harm nor placed individuals in hazardous situations, physically or psychologically. A Minimal Risk Approval letter was issued by the Research Ethics Board (REB) at Simon Fraser University, giving ethical clearance to this study.

3.4. Study population

Interview data were collected over the course of five months between late 2019 and early 2020. I used purposeful sampling methods, including convenience and snowball sampling, to recruit a target of 26 individuals who had participated in North-South research projects in the past 10 years (2009-2019) through and with HEIs. These individuals, who were based either in the Global North or Global South, were identified through my personal network in academia, faculty connections within Simon Fraser University, publicly available lists of projects funded through Brazil's General Program for International Cooperation, the CBA program and Mitacs, and authorship in edited books on North-South issues. Potential participants were first contacted via e-mail, and those who were interviewed were invited to share the contact information of one or more

individuals from their own personal and professional networks whose experiences could also be relevant to the study.

While my initial plan was to recruit university faculty and graduate students who had engaged in research partnerships established between Northern and Southern HEIs more broadly, after only a few weeks into data collection I pivoted to a Brazil-focused approach. The reason was twofold: first, it quickly became clear that expanding the scope of the study to just *any* North-South research partnership would pose issues of reliability and validity, since examining the experiences of participants subject to vastly different circumstances (depending not only on individual characteristics and particular partnership arrangements, but also on socioeconomic, political, and cultural differences within and across countries) would most likely lead to inconsistent and invalid results for the sample and context. Second, Brazil's history of internationalization laid out in the previous chapter made for a particularly interesting case study. The lessons Brazil could offer on the evolution and impact of North-South collaboration as it concerns the South, coupled with my own network in my country of origin, made it a prime candidate to be the focus of this study.

A total of 47 individuals were invited to participate in this study, with 26 (55%) of them accepting to be interviewed. Within the study sample, 58% of participants were Brazilian, 27% were Northern academics who were at the time collaborating or had previously collaborated with Brazilian researchers, and 15% were key informants with extensive experience in North-South research from the perspectives of project management, partnership development, and community engagement. In recruiting, I looked for a balanced distribution between more and less experienced researchers in order to capture perceptions and experiences in regard to North-South collaboration at different career stages. Out of the 15 Brazilian participants interviewed, seven (47%) were lecture- or tenure-track faculty at federal institutions or senior staff at research and policy centers, and eight (53%) were PhD students or postdoctoral researchers at public or private HEIs located in Brazil or abroad. Participants represented a variety of areas of study, with nine (41%) of them coming from Applied Sciences, five (23%) from Natural Sciences, and eight (36%) from Social Sciences. All four key informants had an academic background in Social Sciences.

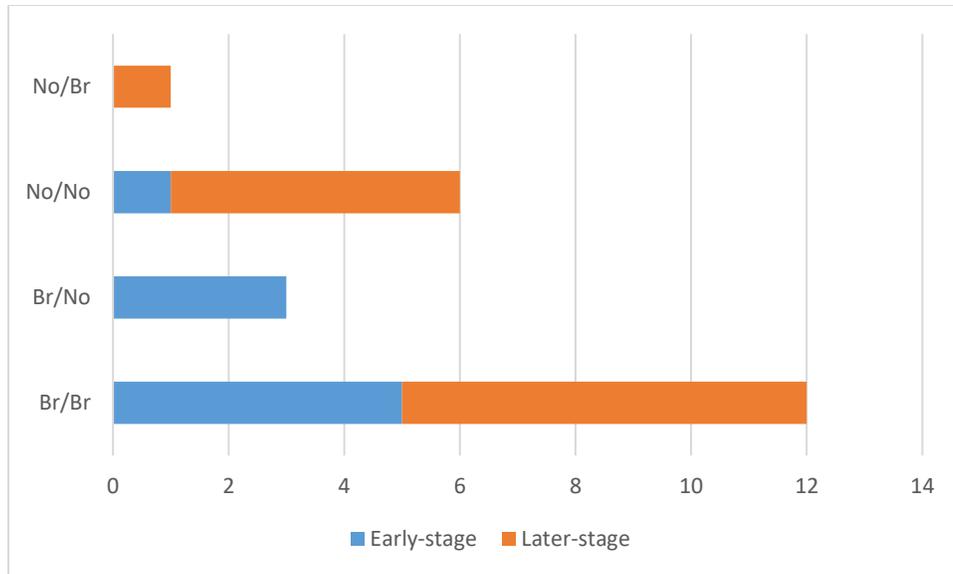


Figure 3. Distribution of study participants by category and career stage

3.5. Data collection

Individual, semi-structured interviews ranging from 45 minutes to an hour focused on personal perspectives and anecdotes, providing a space for participants to articulate their experiences and perceptions in a way that would not have been available within a large-scale survey. I was solely responsible for conducting all interviews, which were carried out in my native language, Portuguese, with participants who were Brazilian nationals or long-term residents of Brazil, and in English with participants from other nationalities and base countries, all of whom were native or fluent English speakers. Informed consent, including the consent to record interviews for subsequent transcription, was obtained from all respondents. No one refused to participate in this study.

In-depth interviews were confidential, and participants were assured that any information that could reveal their identity or place of work would not be released without their consent. Two (8%) interviews were held in person in the Metro Vancouver area, while the remaining 24 were conducted remotely over the phone (15%) or via Skype (77%). While not a complete replacement of face-to-face interactions, opportunities made available by the use of remote interviews in this study included the ability to easily contact participants across six countries, which led to a greater variety of experiences within the sample, as well as greater financial affordability. Moreover, Skype provided a

viable alternative to face-to-face interviews by allowing me to connect with participants using audio and video in real time through its VoIP (Voice over Internet Protocol) technology, so that little was lost in the areas of rapport and non-verbal cues.

At the beginning of each interview, I collected basic profile data (current position/title, home institution, area of study, previous experience in North-South collaboration) from each interviewee. I then asked them to briefly describe the kinds of North-South partnerships they had participated in throughout their careers, highlighting those from the past decade. Through a series of questions, I then proceeded to explore the following themes concerning the participant's experiences, borrowing and adapting from Maselli et al.'s (2004) list of critical questions to assess roles and the balance of power in North-South partnerships:

Initiative

- Please describe to me how you first became interested and involved in the research collaboration.
- Who had the original research collaboration idea?
- Over what duration did you hold conversations about this idea?
- Who designed the research project?
- Who set the research agenda?

Interests

- Why did you participate in this project?
- What did you hope to get out of it?
- What did you know about your other partners?
- Would you participate in another collaboration of this kind?
- Do you recall having any hesitations, fears or concerns about joining this collaboration?

Power

- *Funding*
 - Who generated funds for research collaboration? What did these funds cover?
 - Who negotiated with the donors that fund research collaborations?

- Who decided on how funds will be used?
- *Roles/positions*
 - Who was involved and in what kinds of roles?
 - Who was seen as an expert?
- *Operational responsibility and duties*
 - Who was the lead researcher?
 - Who was responsible for project management and co-ordination?
 - Who collected the research data?
 - Who had the authority to synthesize data and results?
 - Who was responsible for supervision?

Technical support

- Who provides technical support?
- Who has access to what kinds of infrastructure and technology?
- Who provides training and support to the research team?

Data

- Who collects what kinds of information?
- Where is the information stored?
- Who has access to what kinds of information?
- How is information disseminated or/ and exchanged?
- Who makes what kind of use of information/data collected?

Capacity building

- Which individuals can improve their capacities (knowledge, skills, empowerment) through this collaboration?
- Which institutions can improve their capacities (structural aspects, empowerment)?

Costs and Benefits

- What costs has this project incurred for individuals and/or the institutions involved in this collaboration?

- Who benefits in what ways (conference participation, publications, expertise/mandates, MSc/PhD degrees, scientific and social empowerment, promotions, etc.)?
- Who gets scientific or academic credit (publications, awards, invitation to conferences, etc.)?
- What did you learn about cross-national research collaboration?
- How would you evaluate the collaboration experience?

It is worth noting that, although the above themes offered a useful guide in conducting the interviews, a slightly different set of questions ultimately applied to each participant in accordance with their own experience. Participants were also given the opportunity to share any additional information they considered to be relevant to the conversation at the end of the interview. In this way, detailed first-person narrative accounts were valuable in eliciting important data against or in support of the many claims made about North-South partnerships, exposing the potential of research collaboration in widening or narrowing the North-South knowledge production divide.

3.6. Data analysis

For confidentiality purposes, a nonidentifying numeric code was assigned to each participant and used to identify the corresponding interview transcription in the data analysis phase. A master file of participant names and codes assigned to them was password-protected and stored digitally in the computer owned by the researcher. All audio transcriptions as well as hand-written interview notes that may have contained identifying information were digitalized, coded and stored in a location different from where the master file was kept in order to avoid a breach in confidentiality.

I was personally responsible for the transcription of audio-recorded interviews, translations from Portuguese to English (where necessary), and the coding of the data. All transcriptions were uploaded to NVivo 12, a qualitative data analysis software, where I conducted a content and thematic analysis to identify and code the relevant information that arose during data collection. In the analysis of the data, I employed the grounded theory method, using inductive reasoning to find regularities, patterns, and themes while staying open to the various possibilities doing so could offer in leading up to a general

theory (Charmaz, 2006; O'Leary, 2007). A triangulation of data sources, comparing primary data from different categories of respondents and secondary data obtained from the literature, has also been utilized so as to increase the validity of the results.

Chapter 4.

Findings

The data show a range of factors that shape North-South research collaboration as perceived by both Brazilian and Northern participants. Such factors reveal a range of – often interlinked – opportunities and challenges that speak to the potential of North-South collaboration in bridging the global knowledge gap. These coexist in an interplay of powers, sometimes motivating the researcher, and sometimes working to discourage them, and can be categorized into macrostructural, intermediate, and individual factors. A conceptual framework based on these findings is illustrated in Figure 4.

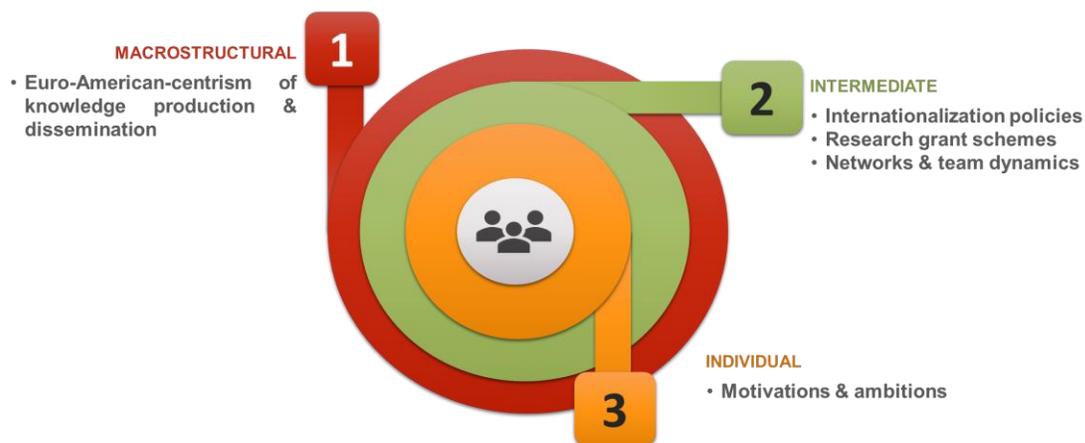


Figure 4. Conceptual framework of North-South research collaboration structures

Brazilian and Northern participants alike reported benefiting from collaboration in that it had enriched their academic career, facilitated the production of scientific articles, and in some cases provided opportunities for travel, lectures, and workshops abroad. These benefits were largely limited to the individual, and in only 18% of cases did the collaboration extend into local problem-solving and capacity building within Brazilian communities. As one Brazilian professor indicated, benefits from the partnerships she had had with Northern institutions were mainly personal rather than financial or structural. This limitation was, to varying degrees, influenced by the opportunities and challenges presented by macrostructural, intermediate, and individual factors.

Given that IRC can take a myriad of forms, an overview of the modes of collaboration identified in this study is presented in the sub-section to follow. This typology was not pre-defined, but rather it emerged from the accounts of study participants as they were asked to describe the inception and the configuration of the projects they had been involved in, what their motivations and objectives were in entering those projects, who set the research agenda, and what their roles within the collaboration were. Three modes were identified: remote collaboration based on expertise, research exchange, and community partnerships. Table 2 shows the participant composition by mode, with each being further described below.

Table 2. Participant composition by mode of collaboration

Mode	# participants	% of total*	% Brazilian**	% Northern**
Remote collaboration based on expertise	7	32%	100%	0%
Research exchange	11	50%	73%	27%
Community partnership	4	18%	0%	100%

* Out of 22 participants (excludes key informants).

** Percentage of Brazilian and Northern participants (based on nationality, irrespective of current country of residence) associated with each mode.

4.1. Modes of collaboration

4.1.1. Remote collaboration based on expertise

Remote collaboration based on expertise was the most common mode among Brazilian researchers, encompassing 46% of all Brazilian participants and 71% of those in later career stages. This mode is strongly entrepreneurial in nature, requiring networking and self-initiative, and typically starts with a researcher directly contacting another to request assistance with a particular task, such as data analysis, review of results, or editing a manuscript for publication, without any formal departmental or institutional support. Interactions between collaborators occurred almost exclusively via e-mail, although short-term travel for in-person meetings, lectures, or conferences was sometimes also part of the arrangement. In the cases surveyed as part of this study, Brazilian participants collected their own data and collaborated with Northern researchers on data analysis and discussion and in the production of scientific articles.

Four (57%) remote collaboration projects were funded by the CBA program, where the Brazilian team's short-term travels⁴ were fully funded by CAPES⁵. Out of these, three had been initiated by the Brazilian PI, and one had been initiated by the Northern collaborator. All were oriented by teaching and research relationships, with collaborators either knowing each other previously or being introduced to each other at the inception of the project through academic connections. All CBA-funded participants described a mutual research agenda setting process with the goal of comparing experiment results, sharing knowledge and technology (which was in all cases more advanced or readily available in the North), and strengthening their departments through greater expertise and international journal articles. The project plan was more or less defined, with some *ad hoc* tasks and communication, primarily via e-mail exchange. One participant described her project as follows:

We are going to run the experiments separately, although the study should be relevant within the reality of each country [Brazil and Canada]. We will then work together on the writing part, where we will combine our findings and ideas for the discussion section and for publication. (No. 4, Professor, Brazil)

Another CBA-funded project where Brazilian expertise was leveraged is described below by the director of a renowned research institute in Brazil who had over the last decades partnered with a number of HEIs in the North and, in particular, with a Canadian HEI that he has collaborated with in research and in the supervision of postgraduate students. The specific project discussed during the interview had been one of several initiatives born from the relationship between the institutions.

This partnership with [a Canadian HEI] arose out of mutual interest, because of a question we had about fish species here in the Amazon that they could provide expertise on. We were contacted by them. [...] They provided us with technology to advance some of the studies we were designing. [...] I would say that 50% of my publications are done with [the Canadian HEI]. We have also created a very significant

⁴ PIs had the option to travel to attend meetings and give lectures, usually over the span of a week or two, whereas graduate students could spend a period of two to six months at the partner institution. Only PIs, whose work was done mainly remotely, were interviewed as part of this study.

⁵ CBA funding is limited to travels only: once selected, the Brazilian PI is awarded up to R\$10,000 (equivalent to roughly CAD \$2,530 in July 2020) from CAPES to cover short-term travels to the host institution for up to 20 days, with graduate students being eligible for research exchange scholarships of varying amounts. The Canadian team receives between CAD \$2,700 and CAD \$9,700 from GAC to fund PI travels and graduate student exchange in Brazil, plus CAD \$500 per member to assist with administrative costs.

international network, expanding to Austria, Belgium, Australia, Portugal, England... (No. 24, Institute Director, Brazil)

Remote collaborations were mainly built on interactions between individual researchers, with little to no formal or monetary support from their departments or institutions. In two cases, participants reported a more concerted effort between institutions across multiple countries: roles were defined *a priori*, with clear objectives and a project plan that included organized checkpoints, such as virtual weekly meetings or short-term visits to the partner HEIs. These were funded exclusively by Northern HEIs and government agencies.

A participant who had been invited by a French researcher she had met during her postdoctoral studies to join a large-scale comparative research project between Brazil, France, and the US in her area of expertise recalled her excitement to become part of a project that would provide her with access to international experience and publications, which she saw as much-needed to build her academic reputation. She also acknowledged the hardships of conducting research “on the side,” in addition to her responsibilities as a full-time professor and postgraduate program coordinator at a federal university in Brazil:

“Participation in this project was on the side. [...] We didn’t receive any subsidy or remuneration from [home institution], nor from CAPES, nor through a regional research foundation. My CV also wasn’t competitive enough at the time to apply for grants.”

Although all Brazilian researchers in such project – the participant herself and two Brazilian colleagues whom she had invited to join it – carried their home institution’s name in the collaboration, they did not receive any funding from Brazilian sources, and the only expenses covered were travels to weeklong seminars – held once in each partner country – paid by the partner HEI in France. In person, all nine researchers involved (three from each partner HEI) would compare their findings and discuss opportunities for joint publication. Outside of seminars, communication occurred virtually through e-mail, Skype, and WhatsApp as the researchers built a database through which they could process the results of the project.

Lastly, one participant engaged in remote collaboration by requesting assistance from Northern academics she knew from the literature in writing or improving the discussion section of a manuscript in English, as well as in editing and proofreading the

manuscript as a whole, with the end goal of having it co-authored and published in high-impact international journals. While only one such case is featured under this mode, this strategy appears as common especially among early-career researchers in Brazil, having been also mentioned by other interviewees in different fields of study. This kind of remote arrangement was seen as mutually beneficial in that the Brazilian researcher got to access international collaboration in the absence of opportunities for travel and research exchange funding, whereas the Northern collaborators gained the opportunity to appear as authors in journal publications:

I already knew my collaborators' work because they are well-known scholars in my field. I had read some articles published by them, and then I sent them an e-mail with a brief summary of my work asking if they would like to collaborate with me. Many [of my colleagues] do as I did, they send an e-mail directly to the person they want to collaborate with, and that's how it starts. [...] We don't get many opportunities to travel, but these kinds of partnerships with foreign researchers are very common in my field [of biological sciences]. We invited all of them [Northern collaborators] to join us as co-authors, and they all said yes. (No. 14, PhD student, Brazil)

All participants who had participated in remote forms of collaboration reported having co-authored scientific articles in English which were published internationally. Only in one case did a Brazilian participant translate an article chapter into Portuguese with the aim to disseminate it among students and fellow researchers.

4.1.2. Research exchange

Half of all participants had engaged in forms of research exchange, composing the broadest and most diverse mode of collaboration identified in this study. Eight out of 11 (73%) participants in this mode were Brazilian, whereas early-stage researchers based in both Brazil and the North accounted for 82% of the total. Figure 5 below shows the composition of research exchange participants by category and career stages:

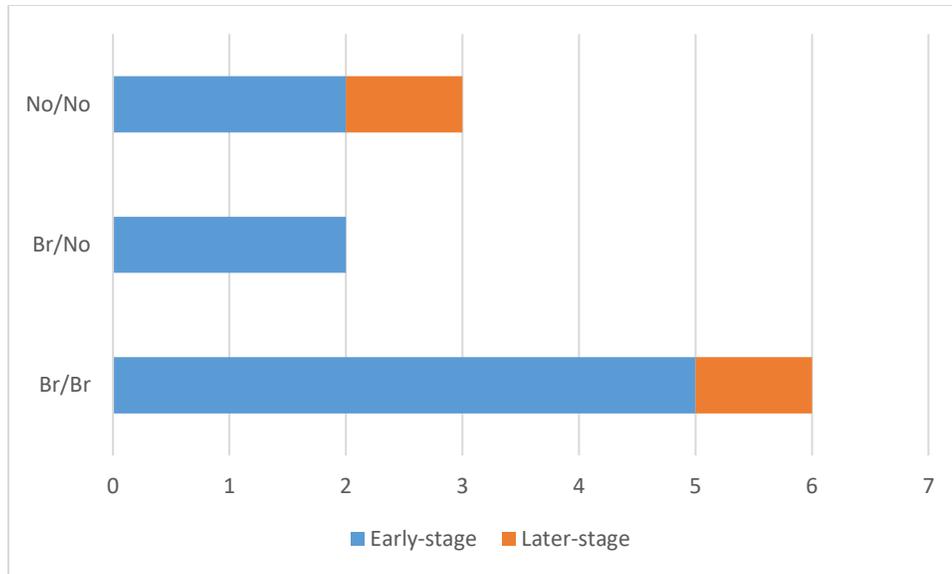


Figure 5. Participant composition in research exchange

Research exchanges are designed to provide participants the opportunity to spend time working away from their home institutions under the supervision of academics with complementary expertise in the pursuit of training and research goals. Such exchanges vary in duration and degree of formality, with collaboration on tasks that may include designing and running experiments, analyzing datasets, discussing results, and technological training. Although these arrangements usually occur within the context of a student mobility agreement between HEIs, 27% of participants reported initiating the exchange by directly contacting academics they knew from the literature or for having a reputation in their field of study. The remaining 73% had sought access to the exchange through academic connections (usually a supervisor for those in earlier career stages.)

All eight Brazilian participants under this mode of collaboration were PhD students or post-doctoral fellows at the time of exchange, having spent between three and 16 months at a Northern HEI. Among them, six (75%) had been funded by CAPES and CNPq through sandwich scholarships or specifically through SwB. In the remaining cases, participants had either paid for their time abroad themselves or received a fellowship from the host institution. Five (63%) of the Brazilian participants had had a specific objective relevant to their own research started in Brazil at the time of collaboration, whereas three (37%) had sought out the opportunity primarily for training and learning purposes for career development. In the latter case, the visiting Brazilian

researcher would collaborate with the Northern HEI on one or more projects determined by the host. Sample exchange cases are described below:

I needed to do experiments as part of my PhD, and I had found a group doing similar research [at German HEI]. I sent the PI an e-mail and he accepted that I join them with a sandwich scholarship from CAPES. In Germany, I gained access to more advanced experiments and infrastructure and was also asked by [the PI] to work on five or six projects while I was there. (No. 11, PhD student, Brazil)

I had e-mailed a professor at [Canadian HEI] asking to come do data modeling in his laboratory, which was better equipped for that, with funding from a CAPES sandwich scholarship. He agreed, and I spent six months there working with him on a chapter for my dissertation. (No. 12, PhD student, Brazil)

During my time [at Spanish HEI], we did some bibliographic reviews. I already had data, and we generated matrices of secondary data to be analyzed with the professor there. But this was the main goal: to analyze the primary data of my dissertation and prepare it for publication. [...] During that year, we wrote and published an article, which was also one of the chapters of my dissertation. In addition, we produced other analyzes and participated in scientific events in Spain. (No. 15, PhD student, Brazil)

Exchanges were more common when research was centered around practical experiments that required access to technology and infrastructure that may not be available at a Brazilian home institution. In fact, all Brazilian participants who had received funding from CAPES and CNPq for academic exchanges were in the Applied Sciences, reflecting the prioritization of S&T in national research grant schemes. In these cases, the scope of collaboration was limited to interactions between the Northern partner and the visiting Brazilian doctoral or post-doctoral researcher, not extending to the latter's supervisor or research group in Brazil. One exception was a participant who engaged Brazilian colleagues in the local data collection that was required for the project, although they ultimately did not participate in the data analysis:

My supervisor [at US HEI] knew that I had the goal of continuing my doctoral project while learning about the programs they ran there. She helped me redesign my research and develop tools with which I trained my entire team in Brazil online to do the data collection and send me the scanned files back, and I did the analysis with the staff [in the US]. [...] She did not at any point build a relationship with my dissertation supervisor in Brazil. (No. 18, PhD student, Brazil, based in the US)

Out of three Northern participants who had engaged in this mode of collaboration, one later-stage career Canadian researcher had partnered with a Brazilian HEI and hosted graduate students in his laboratory to share expertise and technology as part of the CBA program. Two others had spent time in Brazil during their postgraduate studies with funding from CBA and Mitacs' Globalink Research Award. In both cases, the participants had not initiated the collaboration themselves, but instead had learned about the opportunity to go to Brazil through their home institution in Canada. Without specific objectives defined from the start, they used the exchange as an opportunity for cultural immersion and professional development, working alongside their Brazilian collaborators on specific research projects. The participants' fluency in English also allowed them to produce scientific articles that, in their view, helped make the experience worthwhile for themselves and their Brazilian collaborators:

[The Brazilian host] was starting an international kind of policy agenda research group. I was brought on as a researcher to basically help her with her project. [...] Because I didn't speak Portuguese, the data collection wasn't really something I could do. So I did some data analysis and I ended up doing some translating and editing for her, because English journals are harder to get into. (No. 20, master's student, Canada)

4.1.3. Community partnerships

A third mode of collaboration was characterized by development projects involving Northern and Brazilian universities in partnership with city governments, cooperatives, or non-governmental organizations in Brazil. These partnerships had objectives that included sharing knowledge on problems concerning areas of urbanization, strengthening local governance, and empowering cooperatives, in all cases involving the Northern researcher's physical presence in Brazil (either for periodic meetings and workshops or on a longer-term basis) as well as a significant degree of participation by stakeholders during the design and execution of the project. A PI in one such project described setting up two types of committees to foster integration and synergy between the research team and the community:

We had a steering committee of professors, representatives from the [cooperatives] and an NGO representative. Then we had a deliberative management committee that included members from the different cooperatives which were involved. That was around 25 to 30 people,

and we met every two or three months [over two days]. That was where we decided what project activities to do. (No. 23, Professor, Canada)

Management committee meetings functioned not only as deliberative spaces, but also became a core research activity where collective learning was gained through the arguments brought up by members on the problems affecting the cooperatives and potential solutions. Time was also set aside to promote some form of capacity building through workshops on health, commercialization, and gender issues. In this particular project, the PI, who had been partly raised in Brazil and was fluent in Portuguese, also expressed a concern to produce materials that could be disseminated locally. Her research team eventually produced a leaflet in Portuguese with key findings and conclusions from the project that could be given back to the cooperatives and partner university in Brazil, although academic articles for publication were produced in English.

Unlike other modes of collaboration identified in this study, community partnerships did not receive any funding from Brazilian government agencies. Three of the four projects of this type had been funded by GAC (formerly CIDA), whereas one was conducted while the participant was an employee of a local Brazilian government. GAC funding was not perceived to be restrictive as far as the design or objectives of the projects: one participant described being given a free hand to work with partners in Brazil once the project proposal had been accepted (No. 6, Professor, Canada). In lieu of financial resources, another participant highlighted the in-kind contributions made by Brazilian researchers and staff during the project. He also noted that the funding obtained from GAC was only enough to cover travels, without any additional compensation for the research activity itself.

The financial resources were made available by CIDA to cover airfare and lodging for the Canadian team to stay here [in Brazil], and for us to go [to Canada]. We had no financial resources of our own, but we made in-kind contributions, providing our time and personnel. (No. 16, Professor, Netherlands, based in Brazil)

All cases of development research involving community partnerships were reported by late-stage career Northern participants in Social Sciences disciplines with established areas of expertise in development studies. Through personal and academic connections to Brazil, they had previously engaged in partnerships with Brazilian governments or HEIs, accessing opportunities for new projects over time. Because these participants belonged to overlapping academic circles and referred one another to

this study, insights drawn from their experience in projects between Brazil and the Global North are limited in generalizability given the well-known risk of community bias in snowball sampling. Even so, findings suggest concerns with local capacity building and awareness around the dissemination of knowledge in Portuguese were most common among (Northern) development researchers, even though journal articles were still majorly produced in English (a few reported exceptions were articles in Portuguese that had been published by local academics in Brazilian journals or as book chapters.)

4.2. Opportunities and challenges in collaboration

The modes of collaboration described above compose a scenario where the potential and pitfalls of North-South research collaboration begin to peek through, revealing opportunities and challenges associated with joint projects. Macrostructural factors affecting collaboration are hereinafter discussed in the context of the Euro-American-centrism in knowledge production and dissemination; intermediate factors, in turn, are those that serve as a conduit between the macro and the individual level, including internationalization policies, research grant schemes, and networks and team dynamics that create conditions for collaboration. At the individual level, each researcher also exercises their agency in choosing to engage in – and in directing – collaboration based on their research interests, career objectives, and personal circumstances.

While macrostructural, intermediate, and individual factors do not operate independently but rather feed into each other, the findings of this study indicate that the impact of North-South power imbalances – and the relevance of “North-South” as a framing at all – diminishes, although it does not disappear, as one moves from the macrostructural to the individual level. In other words, the control individual researchers have over North-South inequalities, and hence their ability to negotiate such inequalities, decreases as they move beyond the individual and intermediate spheres, being ultimately and invariably affected by the macrostructures of North-South collaboration.

4.2.1. Macrostructural factors

Euro-American centrism in knowledge production and dissemination

Through interviews, researchers expressed having overall perceived a movement towards making North-South collaboration a joint exercise in generating

knowledge, with participants feeling generally valued in and empowered by the projects they had been in. Aware of historical patterns in North-South relations, several participants and key informants emphasized the need to transcend the notion of “knowledge transfer” – described by a Canadian professor (No. 6) as a misnomer built on the erroneous assumption that Northern countries are rich *because* they are “smart and have high technology” that they can “just send to countries like Brazil to solve their problems” – and recognize that, despite economic and development differentials between the North and South, there is a wealth of knowledge to be gained on both sides. Another key informant optimistically described seeing a gradual shift of “powerships” in development research:

Usually what I notice unfortunately is Canadian universities do partnerships – I call them “powerships” – with that idea that they have a lot to offer, so it's their moral duty to go and educate the world. But this is changing a little in terms of, “wait a second – other countries might know things that we don't know, and it might be better to collaborate”. That's something good that's happening in the system. (No. 2, KII, Ecuadorian program manager based in Canada)

To the extent that no Brazilian participants reported relying on the Northern partner to “receive” knowledge; that less than a third (27%) reported receiving some form of funding from their Northern collaborator; and that the projects surveyed were either initiated by the Brazilian researcher or shaped by mutually aligned goals, the findings of this study suggest that Brazilian researchers have independently engaged in more collaborative interactions with Northern academics and HEIs, without being constrained by an imposition of the latter's agenda. That it not to say, however, that collaborations between Brazil and the North are *equal*: at a macrostructural level, the Euro-American-centrism of knowledge production and dissemination has created an environment that both showcases and undermines the potential of North-South collaboration in mitigating power imbalances between partner countries.

On the topic of knowledge *production*, several Brazilian participants emphasized that, often contrary to their expectations, the quality of knowledge they saw being generated within Brazilian HEIs did not fall short of that produced in partner institutions in the Global North, although differences in infrastructure and investment were noticeable. Three of them also made reference to the expression “mongrel complex” (*síndrome de vira-lata*), a popular idiom which denotes a collective sense of inferiority and lack of self-esteem among Brazilians when comparing themselves to wealthier

countries. These participants indicated that collaboration had allowed them to confront such complex, allowing them to see for themselves how their realities as researchers compared to those in the North and acknowledge their own capabilities:

I don't think we lag behind in regard to knowledge. I think the facilities, the money we have are inferior because the Brazilian government invests less in research and development as a share of GDP than developed countries. But when it comes to knowledge, work capacity, we are not behind. (No. 15, PhD student, Brazil)

I've heard comments from richer countries like "we are helping Brazil", "we are offering everything to Brazil and getting nothing in return", things like that. But that was a long time ago. [...] Today Brazil has the capacity for research found abroad. In fact, in our collaboration [with a Canadian HEI] we are partnering to share technology, in terms of equipment, but no one is exploiting anyone. (No. 4, Professor, Brazil)

Northern participants too recalled that their experience working with Brazilian researchers was positive in terms of knowledge sharing. One Canadian participant who had spent six months doing research in Brazil during her PhD recalled in good humor:

When I arrived in Brazil, I was so just awestruck at how smart my collaborators were. Just really, I was like... I would never get into a PhD program in Brazil compared to them. [...] They worked so hard; they were just working all day long. And they had a lot more experience with that population or with any population than I did. (No. 17, PhD student, Canada)

Yet, when it comes to knowledge *dissemination*, a key power imbalance plays out: scientific journals of highest impact factors are located in the Global North, primarily in the US and in the UK. As discussed by Collyer (2018), academic knowledge production has indeed become commodified and monopolized by a few commercial, profit-oriented publishers, along with the standardization of journals and their content – phenomena which have contributed to the imposition of Euro-American models of publishing production on the Global South. Two major consequences of Euro-American-centrism in this realm were highlighted by participants: first, Southern context-specific knowledge is perceived as less “attractive,” as discussed by a Brazilian researcher who expressed frustration over having her work in the field of ecology be deemed “too local” for high-impact international journals:

For example, someone collects data from a pond in Sweden and he publishes in *Nature*. Nobody says that his work is local. Then I have a study on 25 different natural systems distributed across a vast

territory in Brazil and my work is of local interest. As if what happens in a developing country is of interest only to that country, and what happens in Europe and in the US becomes of interest to the entire scientific community. It's a very surreal thing. (No. 15, PhD student, Brazil)

Second, the fact that the most prestigious scientific journals are published in English poses an inherent challenge to non-native English speakers. For Brazilian researchers, this means significant time, money, and energy are dedicated to learning English or seeking collaborations with Northern scholars to improve the written quality of their publications. This naturally creates a disadvantage, yielding power to Northern collaborators who are native or fluent English speakers, even at earlier career stages. As two Northern participants who were graduate students at the time of collaboration indicated, their proficiency in English was highly valued and had ultimately made them responsible for reviewing and editing manuscripts, which meant making decisions about *how* findings were being communicated to the scientific community. In the process, they said, some knowledge was inevitably lost in translation.

I translated some of their articles for them so they could get them published in English journals, and I would edit articles that they had written in English themselves to correct them. [...] Because if your work is published in Portuguese it's not going to make a splash, it's not going to be read. It's not going to be taken up in the major international canon of science. (No. 17, PhD student, Canada)

Brazilian participants, in turn, were largely aware of the power imbalance inherent to the issue of language – even if still operating within it. All of them recognized the need to be proficient in English as a given and placed a high priority on producing articles for international journals, which they considered more important to their own career advancement and satisfaction. Although one Northern professor emphasized the need for Brazil to value and incentivize Portuguese publications, this was a sentiment not voiced by most Brazilian participants, who felt Brazilian journals were low-reach, slow to provide feedback on submissions, and overall not worthwhile to pursue. This does not appear to be caused by a lack of patriotism or national pride, but as a form of resignation before the “reality” of academic publishing coupled with frustration over the perceived inefficiency and relative unpopularity of Brazilian journals, particularly in natural sciences and applied sciences fields:

It's tricky to talk about it... But, in the end, this universe of scientific publications is already dominated by large corporations, large

publishers. If a Brazilian journal is not part of this, it will never grow much in terms of its impact factor and gain an international profile. (No. 15, PhD student, Brazil)

In this context, the anticipated opportunity to publish internationally and achieve greater research impact was a primary reason for, if not the end goal of, collaboration, being explicitly mentioned by all Brazilian participants and 43% of Northern participants during interviews. Brazilian researchers assumed that their chances of achieving an international journal publication would be improved if they co-authored articles with a renowned Northern researcher, for reasons that included the latter's expertise, the technology their laboratory or HEI had to offer, their reputation, their analytical strength, and their ability to write or proofread "native-like" manuscripts in English. Among Northern participants, graduate students appeared as the most eager to draw publications from collaboration to enhance their curriculum vitae, although later-stage career researchers also saw the production of scientific output as a measure of success in collaborations. Ultimately, less than a third of participants (32%) reported generating any form of Portuguese publication – academic or otherwise – through IRC.

4.2.2. Intermediate factors

Internationalization policies

The internationalization of higher education appears as a driving force behind the pursuit of North-South collaboration in Brazil. All Brazil-based participants mentioned pressures to internationalize their research, all of which were directly or indirectly linked to the evaluative process instituted by CAPES (described in Chapter 2.) Not only does the agency encourage internationalization, both in discourse and through grant schemes, but it also makes internationalization a precondition for academic success. National policies of this sort, evidently, do not emerge in a vacuum, but exist within the macrostructures of the global knowledge economy. To do well in the rankings and receive resources from the federal government, including research funding, participants saw international publications as a necessity – emphasized by the use of expressions like "have to" and "need to" in their accounts, as bolded below:

I am a postgraduate program coordinator, so I have contact with many universities around the world. It seems to me that this is a general opinion: we need to internationalize our institutions. On [the Brazilian] side, this comes from CAPES. They want us to

internationalize, and one of the criteria for program excellence is that you **have to** be international. (No. 4, Professor, Brazil)

In Brazil, we have a very rigid system for program evaluation, and you **have to** publish in high-impact international journals to be well rated. If my colleagues and I don't publish, our program will fall in the rankings, and we will receive fewer resources and grants [from the government]. (No. 16, Professor, Netherlands, based in Brazil)

We are looking to publish more articles internationally this year because we **need to** improve the CAPES score of our two postgraduate programs, which are currently at a 4 but may be lowered to a 3 if we don't publish. (No. 10, Professor, Brazil)

The need to internationalize prevails even in situations where research could be otherwise carried out with resources already available in Brazil, as explained by a participant that had received funding from CAPES through the CBA program:

Thinking about the students now, maybe they go to Canada to do something that they could do in Brazil without a problem. [...] In fact, in some cases we wouldn't even need these collaborations – but the government is offering us funding to internationalize. (No. 4, Professor, Brazil)

Internationalization policies have thus created an important incentive for Brazilian researchers to seek out collaboration (predominantly with Northern HEIs, as discussed in Chapter 2.) While 67% of Brazilian participants had proactively sought out collaboration, six out of seven (86%) Northern participants had *accepted* invitations to collaborate with Brazilian researchers but not initiated those opportunities themselves. In responding to policy incentives, Brazilians were also more likely to “cold e-mail” an academic they knew from the literature or a renowned institution in their field proposing a collaboration. This suggests that, while Brazilian and Northern researchers see value in internationalizing, the pressure to proactively seek out international opportunities is felt more strongly by the former.

Research grant schemes

While the literature suggests that Southern researchers often partner with Northern institutions to access funding, the data obtained as part of this study offers a different view. Out of the 14 Brazilian participants who were based in Brazil, 12 had been involved in projects that required some form of funding; out of those, 10 (83%) had their involvement funded exclusively by the Brazilian government through CAPES or CNPq. Overall, 86% of all participants indicated that engaging in IRC projects had allowed them

to secure funding *from their own home institution or government*, not from their partner institution. Funding was a determinant factor only to the extent that it conditioned *eligibility* to funding, requiring that the researcher secure an international collaborator. Otherwise, the funder did not appear to influence or constrain the research collaboration agenda. Only in one case, recalled by a US-based Brazilian researcher involved in a multi-country IRC, did the funder influence the structure of the project as a whole:

We decided to get together to save resources. We initially wanted to setup our experiment in the South Pole, but because the university in South Korea had the infrastructure for it and the South Korean government offered us a grant, we partnered with them. (No. 1. PhD student, Brazil, based in the US)

Brazil's competitive research grants, specifically, appeared to present both an opportunity for collaboration, and a challenge to that collaboration itself. Substantial enough to provide *some* access to IRC, but too scarce to fully support academic exchange, CAPES and CNPq grants were seen in a positive light among researchers who predominantly conducted research *from within* Brazil, but as insufficient by Brazilian researchers visiting an institution in the North, where the cost of living is higher. Two participants – a Brazilian professor and a PhD student from Canada – who had been selected for the CBA program commented on how access to funds in Brazil had been relatively easy in comparison to what they saw in Canada, which surprised them given Brazil's lower economic standing:

In 2017 CAPES gave us an amount to develop our project – only R\$10,000, not much, but my partner [in Canada] had to seek external funding. She had to pay for the hour of using the cultivation tank, and it was not so easy for her to get started... so much so that she delayed her experiment by a year. Here we started our experiment first, ended first, and my partner isn't there yet. (No. 4, Professor, Brazil)

Funding in Brazil was good, at least for our project. I felt like the training, the entire institutional support, the enthusiasm, the capability, the facilities, and the funding for my study were there. We were able to get auxiliary funding credit easily, which I was surprised by because in Canada getting funding is really hard. (No. 17, PhD student, Canada)

On the other hand, participants who had conducted research in Northern HEIs as part of an academic exchange were attracted by the possibility of having their travels and lodging funded by the Brazilian government, but ultimately found the scholarships to be too small to afford a comfortable stay abroad. Although this may not have been a

significant issue in exchanges to Southern countries that had a cost of living equivalent to Brazil's, it was a recurring frustration among participants during their collaborations with the North:

The CAPES sandwich scholarship was only for me to survive here. It was a very tough six months, because Boston is one of the most expensive cities in the US and the money was very short. [...] (No. 18, PhD student, Brazil, based in the US)

I am sharing a bedroom with another colleague from Brazil here in Australia, because the stipend we get from CAPES is too little. It barely covers rent once you convert it to the local currency. (No. 7, Professor, Brazil)

In light of these experiences, Brazilian researchers doing academic exchanges were in certain ways disadvantaged, despite in all cases seeing the collaboration as overall positive. Not only did they have difficulties in getting by materially during their time abroad, but in occasionally working on tasks and projects defined by their host, they provided “free” labor to the Northern HEI: sandwich doctorate scholars interviewed believed their host institutions had benefitted from their willingness to work full-time with all expenses paid by the Brazilian government. Research grant schemes promoted by Brazil have thus incentivized IRC substantially enough to allow Brazilian researchers to play an active role in shaping their collaborations, but are not perceived to go far beyond covering travel expenses and supporting minor investments in R&D.

Networks and team dynamics

An important factor to the prospects of collaboration were the networks the participant could leverage along their academic career path and the team dynamics that shaped their experiences. These kinds of personal interactions could both originate new opportunities for collaboration as well as reproduce power imbalances, although this study found no evidence that such imbalances were necessarily inherent to North-South relations. Still, they are worth noting due to the spaces these interactions create for fostering more inclusive, context-sensitive, and impactful collaboration. Findings suggest that networks are an essential conduit of IRC, with 73% of participants having found opportunities to collaborate through professional connections such as colleagues, supervisors, contacts in local communities, and academic circles. Moreover, networks in the context of IRC can create awareness of local research work being done in the South, increasing the visibility and impact of Southern researchers and HEIs.

Whether participants engaged in remote or in-person collaboration, the quality of teamwork, particularly with regards to commitment, communication, and adaptability, was reported as crucial to success. In the realm of North-South relations, cross-cultural competency and trust were a must to create mutual understanding, establish clear research objectives, and mitigate power imbalances. While both sides of the collaboration should be vigilant to this, Brazilian participants appeared as more likely to be familiar with Euro-American ways of thinking, and in all cases more likely to communicate in their collaborator's language, than their Northern counterparts were to be familiar with Brazilian cultures (except in cases where they already had a history of conducting projects in Brazil.) That being said, all Northern participants interviewed did show overall cultural awareness and sensitivity to power issues; moreover, five⁶ out of seven were either fluent in Portuguese or had taken an interest in learning the language in the context of the collaboration. Even though Portuguese-speaking collaborators had been few and far between in their experience, all Brazilian participants reported having had successful collaborations on the basis of mutual respect and trust.

Power imbalances noted during interviews were perceived along seniority and gender lines, which may be present in but are not exclusive to North-South dynamics. Especially in larger projects, unfairness concerning workload and authorship was seen as detrimental by early- and later-career researchers alike, potentially creating spaces where North-South imbalances are also reproduced. For example, a PhD student working in a 50-person multi-country project expressed dissatisfaction with how a renowned UK-based scholar was earning credit for the group's research – for both himself and his students – while contributing very little to it other than his “name” in the field. This put the participant and other project members at a disadvantage in competing with those students:

Our collaboration has many people whose names are in the project but they don't work for it. [...] An expert gave his name and wants us to include his students in the project too, saying they will contribute something, but they haven't done anything. [...] It's unfair because I would now need to compete with these other graduate students, who are actually working on another experiment and publishing on it while

⁶ Interestingly, these participants were all in Social Sciences fields, having shown a high degree of awareness of North-South power issues as demonstrated both during interviews as well as by their own areas of expertise and research interests.

also appearing as co-authors on our papers, just like me. (No. 1, PhD student, Brazil, based in the US)

On the topic of gender, two female participants noticed they had to be more assertive and intentional in their communication than male colleagues, who tended to dominate meetings even when the gender ratio was balanced. This had them feel participation was not equal – in one case, within a Brazilian team, and in another, across teams based in different countries. Such team dynamics, whether influenced by cultural norms or personal biases, unsurprisingly have the potential to undermine collaboration at any level. Among the projects surveyed, awareness of gender biases was only manifested in community partnerships that featured forms of capacity-building on issues of gender in local communities *in the South*. Evidently, there is room to advance these issues across and within South *and* North.

4.2.3. Individual factors

Motivations and ambitions

At the core of North-South dynamics lie individual motivations and ambitions that play an important role in determining the reasons why researchers engage in IRC; their approach to it; and their behaviors within it. Individual factors are not disconnected from those playing out at the macrostructural and intermediate levels, but they do demonstrate the agency of each researcher in making choices and decisions within their experiences in joint projects.

Personal motivations were brought up in all interviews, emerging as an important factor behind researchers' pursuit of IRC. Opportunities to work in an international setting (either remotely or in person), gain exposure to a new language and culture, challenge oneself, and experience life abroad (when the participant traveled abroad, in some cases for the first time, as part of the collaboration) were much desired, speaking to Brazilian and Northern participants' curiosity about foreign ways of living and conducting research and how those contrasted with what they knew in their home countries:

One of the things that excited me at the time was precisely having this vision of what it's like to start from scratch somewhere else. In Brazil we tend to think we're inferior, that researchers in developed countries have a better academic routine. I really wanted to see what that was

like. And I wanted to put myself to the test in a new environment, with new people, competing and comparing what they do to what we do here. (No. 15, PhD student, Brazil)

The expectation to advance professionally through collaboration and co-authorship, as discussed previously, was largely shaped by the environment surrounding Brazilian researchers: one of competition that pushed for internationalization. But individual factors also played into what Brazilians expected from collaborating with the North. Among these, the desire to explore a career abroad based on personal ambitions or better perceived career prospects was mentioned by 10 Brazilian participants, two out of whom had already moved to the North through postdoctoral fellowships from Northern institutions they had previously collaborated with:

When I started my PhD in Brazil, my agreement with my supervisor already was that I was going to try spending at least one year out of the four abroad. I had always wanted to come to the US, because I know that in my field it is a thousand times better, in terms of remuneration, workload, recognition. (No. 18, PhD student, Brazil, based in the US)

Along with opportunities for collaboration thus came the potential for brain drain, as participants considered emigrating from Brazil to the North in pursuit of better living standards and careers prospects abroad. Evidently, brain drain does not result *only* from individual factors – it is also deeply affected by macrostructures beyond the individual, such as economic and development differentials between Brazil and Northern countries that make the latter be perceived as more attractive, as noted in the quote above. Moreover, intermediate factors, such as insufficient funding for universities as well as doctoral and postdoctoral scholarships, can further encourage students to pursue options abroad. That said, individual ambitions and attitudes toward those realities, to the extent that they fuel the desire to engage in IRC, should also be recognized as shaping outcomes of collaboration and the retention of knowledge in Brazil.

Chapter 5.

Discussion

5.1. Main findings

Brazilian and Northern researchers interviewed as part of this study unanimously agreed that North-South research collaboration was worth pursuing, indicating that their own experiences engaging in joint research projects had been overall positive and beneficial to their personal and professional goals. In further analyzing those experiences, this study has found a range of opportunities and challenges presented through collaboration, pointing to both the potential of IRC in bridging the North-South knowledge production gap as well as its limitations in addressing the very power imbalances that sustain this gap. In light of macrostructural, intermediate, and individual factors, the findings show that subjective experiences in North-South research can be multi-layered, allowing for the coexistence of opportunity and self-empowerment as well as struggles stemming from asymmetries in global knowledge systems.

Among macrostructural factors, the Euro-American-centrism of knowledge production and dissemination, embodied in the dominance of Northern-based publishers and the use of English as the language of science, has imposed important hurdles to Brazilian researchers, even if such hurdles are widely accepted as a “fact of life”. Moreover, a culture of academic capitalism that stimulates research entrepreneurship and frames productivity in terms of publication metrics has created utilitarian incentives for Brazilian and Northern researchers to pursue collaboration, whose instrumental value in increasing scientific output appears to exceed, although not offset, its intrinsic value as a space for knowledge sharing and knowledge generation between North and South. The result is a focus on individualized gains that reflect on researchers’ personal recognition and, to a more limited extent, the reputation of their home institutions, without significant impacts on local communities in the majority of cases surveyed.

Intermediate factors – those that serve as a conduit between the macro and the individual level – include internationalization policies implemented by Brazil, the conditions created by research grant schemes, and interpersonal networks and team dynamics. Within these factors, the influence of macrostructures is evident: the push for

internationalization as measured by the production of international publications has driven Brazilian researchers to take an active role in seeking out collaboration, predominantly with Northern academics and HEIs. Through government research grants, Brazil has fueled competition among researchers both in method and purpose, with funding being enough to increase Brazil's leverage in IRC but still falling short on investments in R&D that can significantly elevate Brazil's research capacity. And finally, through interpersonal networks and team dynamics, North-South power issues have the potential to be furthered or mitigated based on cross-cultural competencies and relations of trust, even though determinants of interpersonal relations go far beyond North-South lines. On an individual level, a researcher's personal circumstances and career outlook relate to their agency in deciding to pursue collaboration and shaping its outcomes.

This study departed from a critical literature on North-South power imbalances that create an uneven playing field in partnerships, with Southern actors often suffering from "resource starvation" and depending on partners from the Global North who, in turn, have historically disregarded Southern needs (Standing and Taylor, 2007; Gautier et al., 2018). The case study of Brazil offers reasons to question these notions, even if, indeed, findings indicate that Brazilian researchers face a number of challenges in conducting their work, from a poorer infrastructure and lower pay to the subordination of language, when compared to countries in the Global North, curtailing the local impact of North-South research. Two issues stand out: knowledge dissemination challenges; and the individualization of advantages obtained through IRC. Both are discussed below in the context of Brazil's embracing of internationalization and the use of North-South collaboration as a vehicle for knowledge dissemination.

5.2. Brazil's embracing of internationalization

Two key and interrelated critiques of North-South dynamics are that power imbalances between Southern and Northern institutions are prevalent, if not inevitable, with the former tending to face a scarcity of resources – such as funding, infrastructure and human capital – that puts them at an inherent disadvantage; and that donor-recipient relationships can be neocolonial in nature, with the interests of Northern donors often shaping the objectives and outcomes of partnerships. Although the findings of this study do not necessarily refute these claims, they do provide an alternative view of the role of Southern players in shaping North-South collaboration. The data obtained show

that in only about a fifth of the cases did the Brazilian researcher rely on a Northern partner for funding, and that in all cases collaboration was seen as beneficial and worthwhile. This suggests programs put in place by the Brazilian government have managed to foster more equitable collaborations with the North, ensuring a degree of autonomy for Brazilian researchers. At the same time, however, Brazil's embracing of internationalization has focused on the individualization of gains in a competitive landscape where incentives to, and benefits of, collaboration are closely tied to self-promotion and career advancement, and much less so on local problem-solving.

The Brazilian state's relationship to higher education has been rooted in a productivist conception of education and guided by principles of academic capitalism since the 1968 University Reform, which saw the alignment of national HEIs with market and market-like activities centered around competition and research entrepreneurship. The rise of neoliberalism in the 1990s exacerbated this process, inserting Brazil in a global higher education market where publications in English and publication metrics became paramount to success. In expanding access to IRC, government programs put in place in the last decade, most notably SwB, simultaneously helped earlier-career researchers gain a valuable opportunity for international exchange and failed to foster longer-term research capacity-building within Brazil, since scholarships were short in duration, limited to academic mobility, and restricted to travel and living expenses.

The costs and benefits of internationalization programs like SwB and CAPES-PrInt have been much debated in the literature and go beyond the scope of this study; a common theme, however, is that the internationalization of Brazil's higher education requires proper policy evaluation for strategic execution, strong articulation with HEIs, focus on all areas of knowledge – not only STEM fields –, and an increase in the number of visiting scholars and students from abroad (Manços and Coelho, 2017; Ramos, 2018; Oliveira, 2019). These are lessons Brazil can learn from past experiences to create a richer, more internationally collaborative environment at home, where Brazilian researchers need not always look outward for IRC opportunities. Doing so would both help foster locally-situated research and mitigate the risk of brain drain, which emerged among the findings of this study from the account of Brazilian participants, especially at earlier career stages, who had either settled or intended to settle in the North after research exchange periods at Northern HEIs.

As evidenced by participant experiences, Brazil has the stock of knowledge and the work capacity to be a leader in scientific research, both within the South and globally, and has put in place programs and policies which, even if still limited to individualized gains, have given Brazilian researchers the opportunity to transcend the so-called “mongrel complex”, instilling in them a greater sense of confidence and self-worth and sparking their interest in IRC. The Brazilian case shows that public policies aimed at fostering and funding IRC can help Southern researchers have leverage in their interactions with Northern partners. Yet, it must be acknowledged that extensive research funding requires resources that are often unavailable, especially in low- and middle-income countries. Brazil is no exception to this. In the aftermath of SwB, Brazil now sees a defunding of CNPq and CAPES scholarships coupled with dwindling funds for public universities under the Bolsonaro administration – a scenario that already negatively affects prospects for research both domestically and internationally, as reported by several interviewees.

5.3. North-South collaboration as a vehicle for knowledge dissemination

As presented in this study’s findings, international publications were a highly desirable outcome, if not the end goal, of joint projects. Across modes, fields, and career stages, success was in large part determined by the production of high-impact scientific articles in English language; and for Brazilian researchers in particular, co-authorship meant an opportunity to access Northern technology, expertise, and know-how vis-à-vis international journals, increasing prospects for publication and for meeting internationalization demands. In this sense, North-South collaboration emerges as a *vehicle for knowledge dissemination*, even though knowledge production also appeared as a motivator within projects, though to a lesser extent. Participants thus mainly approached opportunities for collaboration from a utilitarian point of view, seeking to draw personal fulfillment and further their own degrees and careers through IRC.

Adopting an “entrepreneurial” attitude in relation to pursuing opportunities for collaboration that make them more competitive in the global knowledge economy, this study suggests that Brazilian researchers have largely adapted to the productivist and neoliberal knowledge regimes that have shaped Brazil’s internationalization agenda. In attempting to thrive in this environment, little attention has been paid to local needs and

priorities, as evidenced by the low prevalence of capacity-building in collaboration, with the exception of community partnerships in areas of development research. While individual agency cannot be overlooked as a determinant of collaboration dynamics and outcomes, it is also apparent that Brazil occupies a subordinate position in the international division of knowledge labor which also governs rationalities and behaviors. Operating within pressures to publish in a language foreign to their own while looking up to Northern scholarship for the dissemination of their work, often deemed “too local” for international journals, Brazilian researchers face macrostructural constraints that undeniably play a role in how they approach North-South collaboration.

Despite recognizing disadvantages inherent to the *need* to publish in English, Brazilians related to it as a “fact of life” – something perhaps inconvenient, but crucial to academic and scientific success. Brazilian participants recalled spending considerable time and financial resources on learning English or affording translation services in attempts to produce quality international publications, which, to them, was a more worthwhile endeavor than publishing in Portuguese. Two Brazilian professors also saw the widespread use of English language as a positive aspect that facilitated cross-country communication within the scientific community; as part of their courses in fields of Natural and Applied Sciences, they made a point to incorporate English texts to help increase proficiency among students. In this reality of Anglocentrism, North-South collaboration was a way for Brazilian researchers to exercise their knowledge of English (even in cases where collaboration occurred with non-English speaking countries, but publications were still produced in English) and leverage the expertise and writing skills of Northern collaborators who were native or fluent English speakers.

Issues of subordination of Southern knowledge and ways of thinking caused by Anglocentrism⁷ were only brought up in these terms by three Northern participants, all in Social Sciences fields with a background in development research, who highlighted losses of knowledge that happen in translation and the yielding of power to English-speaking (in the context of this study, Northern) collaborators for their ability to produce or edit “native-like” publications for international journals. The finding that the same

⁷ While disadvantages caused by Anglocentrism are not exclusive to Brazil or the Global South, affecting also researchers from non-English speaking countries in the Global North, lower income levels in the South, coupled with the preference given to North-relevant issues by international journal publishers and editors, work to further North-South power imbalances (Collyer, 2018).

phenomenon – the depreciation of the Portuguese language in favor of knowledge dissemination in English – was seen as acceptable, and in some ways even desirable, by Brazilian participants, but as objectionable by some Northern participants, suggests that postcolonial views of North-South relations may be less diffused in Brazil, or at least that Brazilian researchers focus to a lesser extent (or simply have less time to focus) on the inequalities of global knowledge production.

5.4. Beyond “powerships”

This study has pointed to a range of opportunities and challenges in North-South collaboration as informed by the case of Brazil. Among factors shaping collaboration, macrostructural ones appear as the most rigid and long-standing, with constraints imposed on Brazil’s research by the Euro-American centrism of knowledge production and dissemination being especially difficult to negotiate and operate without. In the face of such overarching power asymmetries, there might be a temptation to deem all North-South interactions, in research and elsewhere, as necessarily unequal “powerships.” Doing so could feed into a negative view of North-South research collaborations and potentially divert resources away from such initiatives. The findings of this study ask for caution with this line of thinking. Power dynamics within IRC are not only shaped by macrostructures, but also by lower level factors such as the quality of internationalization policies, research grant schemes, networks, and team dynamics – and, last but certainly not least, individual attitudes from both sides of the collaboration.

As previously mentioned, study participants unanimously agreed that North-South research collaboration was worth pursuing on the basis of personal fulfillment and career advancement, particularly as measured by international publications produced by and through the collaboration. This individualization of advantages obtained through IRC – translated into private gains for the researchers and their HEIs, with little to no impact on local communities – points to a trend of depoliticization of North-South collaborations in favor of a more individually focused, utilitarian-governed rationality promulgated by the market-oriented internationalization of higher education. Given the resulting lack of focus on capacity building, the normative aspirations of North-South partnerships – to shift global knowledge and power imbalances – remain thus largely unrealized as shown in the case of Brazil; these aspirations, however, shall not be dismissed, as it is also in North-South collaboration that “spaces of hope” can emerge.

On this topic, borrowing from David Harvey's notion on the creation of a more equitable world, a Dutch professor who has lived in Brazil for over two decades proposed "small insurgencies" for the creation of "spaces of hope" in which to raise awareness, and potentially effect change, on issues of inequality between North and South.

We must engage with the contradictions of North-South collaboration while trying to create small insurgencies. There are contradictions in scientific journals, in the role of the language, in the asymmetries between North and South. But you can take advantage of the exchange and try to create "spaces of hope," where you build something new from the recognition of differences, creating knowledge that before collaboration existed neither in the Global North nor the Global South. (No. 16, Professor, Netherlands based in Brazil)

In referring to small insurgencies, the participant specifically mentioned the input he had provided within his institution, a federal university in Brazil, as a faculty member in meetings and informal conversations, and as an advisory board member to another HEI. He did acknowledge that, to even participate in these influential spaces and be heard, a precondition was to have earned a reputable position in academic rankings – which in itself had required engaging with the individual-focused rationality of internationalization that permeates Brazil's higher education. It appears, then, that spaces of hope are *possible*, although still conditioned by the adoption of dominant paradigms. Nonetheless, there is reason to conclude that North-South research collaboration, as experienced by Brazilian and Northern researchers, is becoming *more collaborative* in the true sense of the word, even as there is progress to be made.

In transcending "powerships," interpersonal relations and individual attitudes can create important spaces of hope in the face of macrostructural constraints, fostering greater equity within teams. Indeed, much of the positive experience study participants had had in collaboration related to the relationships they had built, the cross-cultural awareness they were able to develop, and the realization of their own capabilities and self-empowerment that occurred through those interactions. By building rapport, observing boundaries, listening, and being listened to, researchers made collaborations more fruitful by establishing communication and trust. Exercising these, of course, requires addressing gendered and racialized inequalities that may permeate the academic working life, both within and across national borders. Academics and HEIs should thus be intentional in creating working environments that are not only receptive to

international perspectives, but also guided by principles of inclusion and transformation of postcolonial knowledge relations.

Lastly, institutions that draw on “lessons learned” by developing the capacity to understand and challenge power imbalances in North-South relations are much more likely and better equipped to create spaces for worthwhile collaborations. Key to this, as is the case in the broader field of development, is abandoning the notion that “Northern countries are wealthier because they *know more*,” and instead recognizing that there is knowledge to be gained and shared by both sides of the collaboration. Achieving this should also involve engaging actors outside of academia for the strengthening of epistemic communities, centering project planning and execution not only around HEIs but also local governments and organizations, integrating Indigenous, local, and traditional knowledge into academic production.

Chapter 6.

Conclusion

The role of knowledge as a factor of production in the global economy has become widely recognized as a key tenet of development models, which over the last sixty years have evolved from “knowledge transfers” from ICs to LDCs to new forms of cooperation built upon the premises of knowledge sharing and research capacity building in the South. IRC, in this context, is frequently regarded as a practice through which knowledge can be developed and disseminated between North and South, with a presumed potential to help bridge knowledge gaps evidenced by the concentration of prestigious HEIs, intellectual property, and R&D investments in the North. Taking the case of Brazil, a Southern country which has undergone an intense period of internationalization in higher education since the 1990s and seen increasing rates of IRC, particularly in the last decade, this study set out to examine how researchers involved in collaboration between Brazilian and Northern HEIs have perceived its role in mitigating or reproducing power imbalances, and what these perceptions reveal about the potential and pitfalls of North-South research collaboration in bridging the global knowledge gap.

Through 26 semi-structured in-depth interviews, this study examined the subjective experiences of Brazilian and Northern researchers across three modes of collaboration: remote collaboration based on expertise; research exchange; and community partnerships. Findings provide evidence that North-South research collaboration across modes has been perceived by participants as positive and worthwhile, despite (and in a certain sense due to) its depoliticization in favor of an individual-focused, utilitarian rationale diffused by Brazil’s internationalization strategies. Brazilian and Northern researchers alike largely understood collaboration success and worth in terms of the production of high-impact journal publications, indicating that North-South collaboration is primarily measured by its instrumental value (as a vehicle for knowledge dissemination) and much less so by its intrinsic value (as a venue for generating new knowledge and building research capacity in the South.)

To the extent that no Brazilian participants reported relying on the Northern partner to “receive” knowledge, that most of them were funded by the Brazilian government when engaging in collaboration, and that joint projects had either been initiated by Brazilian researchers or shaped by mutually aligned goals, the findings of this study suggest that, through internationalization policies and funding programs, Brazil has managed to at least partly mitigate issues of paternalism often attributed to North-South partnerships, wherein wealthier Northern partners have tended to dominate research agendas. The case of Brazil further suggests that key power imbalances affecting collaboration result not from inequalities in the *stock* of knowledge, but primarily from how knowledge is *disseminated*. Most notably, the macrostructural Euro-American-centrism embodied in the concentration of high-impact scientific journals in the Global North and in the adoption of English as the “global” language of academic publishing is a determinant factor in collaboration, serving both as a motivator and a constraint to Brazilian researchers.

Despite a prioritization of individual gains through joint projects, and although North-South collaboration still falls short on its potential to address needs and create lasting capacity building in the South, the merits of IRC within the evolving context of development discourse should not be discounted. It is within these North-South interactions that “spaces of hope” may arise, offering researchers and HEIs on both sides an opportunity to negotiate power imbalances and asymmetries at the intermediate and individual levels. In emphasizing the agency of Southern actors in actively shaping collaboration and focusing on their perceptions and experiences, this study also contributes to the critical literature on North-South partnerships within and beyond postcolonial relations.

Drawn from purposeful sampling methods, the findings of this study may not be generalizable to Brazil or the Global South as a whole, given the heterogeneity that exists both between and within Southern countries. That being said, detailed anecdotal accounts provided by in-depth interviews were valuable in exposing the motivations, dynamics, and outcomes of North-South collaboration in the context of Brazil’s internationalization efforts. Triangulation by analyzing and comparing interview responses from different categories of respondents and secondary data obtained from the literature was also used to increase the validity of the results.

This study has a number of limitations. By broadly categorizing participants as “Brazilian” and “Northern”, it glosses over regional and national differences as well as different academic backgrounds. In addition, by recruiting participants who *have* engaged in modes of North-South collaboration, sampling methods excluded Brazilian researchers who had sought but been unable to access opportunities for IRC. Their experiences could further enrich the discussion on the potential and pitfalls of Brazil’s internationalization policies and competitive grant schemes vis-à-vis the stratification of academics and HEIs domestically. However, these limitations are unlikely to invalidate the results of this study. They also serve to inform further research on the internationalization of higher education as well as on the role of IRC in international development as it affects more localized contexts.

References

- Bailey, F., & Dolan, A. M. (2011). The Meaning of Partnership in Development: Lessons for Development Education. *Policy and Practice: A Development Education Review*, 13, 30–48.
- Baud, I. S. A. (2002). North-South partnerships in development research: An institutional approach. *International Journal of Technology Management & Sustainable Development*, 1(3), 153–170.
- Boekholt, P., Edler, J., & Cunningham, P. (2009). *Drivers of international collaboration in research*. Publications Office. doi: 10.2777/81914
- Bradley, M. (2017). Whose agenda? Power, policies, and priorities in North–South research partnerships. In *Putting Knowledge to Work: Collaborating, Influencing and Learning for International Development* (pp. 37–70). International Development Research Centre.
- Brito, C. (2019, April 18). CNPq congela mais de 5,5 mil novas bolsas de projetos de pesquisas. *Galileu*. Retrieved from <https://revistagalileu.globo.com/Ciencia/noticia/2019/04/cnpq-congela-mais-de-55-mil-novas-bolsas-de-projetos-de-pesquisas.html>
- Carbonnier, G., & Kontinen, T. (2015). Institutional Learning in North-South Research Partnerships. *Revue Tiers Monde*, 221, 149–162.
- Charmaz, K. (2006). *Constructing Grounded Theory: A Practical Guide through Qualitative Analysis*. London: Sage Publications.
- Chaves, V. L. J., & Amaral, N. C. (2016). Política de expansão da educação superior no Brasil: O PROUNI e o FIES como financiadores do setor privado. *Educação em Revista*, 32(4), 49–72. doi: 10.1590/0102-4698162030
- Collins, C. (2011). *Higher education and global poverty: University partnerships and the world bank in developing countries*. Amherst, NY: Cambria Press.
- Collyer, F. M. (2018). Global patterns in the publishing of academic knowledge: Global North, global South. *Current Sociology*, 66(1), 56–73. doi: 10.1177/0011392116680020
- Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES). (2020). *História e missão*. Retrieved from <https://www.capes.gov.br/historia-e-missao>
- Cross, D., Thomson, S., & Sinclair, A. (2018). *Research in Brazil*. Clarivate Analytics.

- Downes, G. (2013). A Critical Analysis of North-South Educational Partnerships in Development Contexts. *Policy and Practice: A Development Education Review*, 16(Spring).
- Eriksson Baaz, M. (2005). The paternalism of partnership: A postcolonial reading of identity in development aid. London: Zed Books.
- Gaillard, JF (1994) 'North-South research partnership: Is collaboration possible between unequal partners?' in *Knowledge and Policy*, Vol. 7, 2, pp. 31-63.
- Gautier, L., Sieleunou, I., & Kalolo, A. (2018). Deconstructing the notion of “global health research partnerships” across Northern and African contexts. *BMC Medical Ethics*, 19(1), 49. doi: 10.1186/s12910-018-0280-7
- Giannone, D. (2016). Neoliberalization by Evaluation: Explaining the Making of Neoliberal Evaluative State. *Partecipazione e Conflitto*, 9(2), 495–516. doi: 10.1285/i20356609v9i2p495
- Globo. (2017, April 4). Ciência sem Fronteiras chega ao fim por falta de dinheiro. *G1*. Retrieved from <http://g1.globo.com/bom-dia-brasil/noticia/2017/04/ciencia-sem-fronteiras-chega-ao-fim-por-falta-de-dinheiro.html>
- Guimaraes, F., Finardi, K., & Casotti, J. (2019). *Internationalization and Language Policies in Brazil: What is the Relationship? Internacionalização e políticas linguísticas no Brasil: qual a relação?* 19, 295–327. doi: 10.1590/1984-6398201913553
- Hoffman, S. G. (2012). Academic Capitalism. *Contexts*, 11(4), 12–13. doi: 10.1177/1536504212466325
- Ishengoma, J. (2016). Strengthening Higher Education Space in Africa through North-South Partnerships and Links: Myths and Realities from Tanzania Public Universities. *Comparative and International Education*, 45(1), Article 1. doi: 10.5206/cie-eci.v45i1.9282
- Karlsson, S., Srebotnjak, T. & Gonzales, P. (2007). Understanding the North–South knowledge divide and its implications for policy: A quantitative analysis of the generation of scientific knowledge in the environmental sciences. *Environmental Science and Policy*, 10(7), 668-684.
- Koehn, P. H. & Obamba, M. O. (2014). *The transnationally partnered university: Insights from research and sustainable development collaborations in Africa*. New York, NY: Palgrave Macmillan.
- Manços, G. R., & Coelho, F. S. (2017). Internacionalização da Ciência Brasileira: Subsídios para avaliação do programa Ciência sem Fronteiras. *Revista Brasileira De Políticas Públicas E Internacionais*, 2(2), 52-82.

- Manços, G. R., & Coelho, F. S. (2017). Internacionalização da Ciência Brasileira: Subsídios para avaliação do programa Ciência sem Fronteiras. *Revista Brasileira De Políticas Públicas E Internacionais*, 2(2), 52-82.
- Maselli, D., Lys, J.-A., & Schmid, J. (2006). *Improving Impacts of Research Partnerships*. Swiss Commission for Research Partnerships with Developing Countries, KFPE.
- McFarlane, C. (2006). Knowledge, learning and development: A post-rationalist approach. *Progress in Development Studies*, 6(4), 287–305. doi: 10.1191/1464993406ps144oa
- Moreira, L. C. dal P. (2018). *Análise do processo de internacionalização universitária entre países emergentes: Estudo de caso do Brasil com os demais países membros dos BRICS durante os governos Lula e Dilma* [Doctoral dissertation]. Universidade Federal do Rio Grande do Sul.
- Mwangi, C. A. G. (2017). Partner Positioning: Examining International Higher Education Partnerships through a Mutuality Lens. *The Review of Higher Education*, 41(1), 33–60. doi: 10.1353/rhe.2017.0032
- Nakabugo, M., Barrett, E., McEvoy, P. & Munck, R. (2010). Best practice in North-South research relationships in higher education: The Irish African partnership model. *Policy and Practice: A Development Education Review*, 10, 89–98.
- O’Leary, Z. (2007). *The Social Science Jargon Buster*. SAGE Publications Ltd. doi: 10.4135/9780857020147
- Paiva, F. M., & Brito, S. H. A. de. (2019). O papel da avaliação CAPES no processo de internacionalização da Pós-Graduação em Educação no Brasil (2010-2016). *Avaliação: Revista da Avaliação da Educação Superior (Campinas)*, 24(2), 493–512. doi: 10.1590/s1414-40772019000200009
- Pereira, J. A. S. (2017). A “reforma” universitária neoliberal nos governos de FHC e Lula em questão. *(SYN)THESIS*, 10(1), 41–54. doi: 10.12957/(syn)thesis.2017.47111
- Ramos, M. Y. (2018). Internationalization of graduate education in Brazil: Rationale and mechanisms. *Educação e Pesquisa*, 44, e161579–e161579. doi: 10.1590/s1517-9702201706161579
- Rittberger, V. (1982). *Science And Technology In A Changing International Order: The United Nations Conference On Science And Technology For Development*. Routledge. doi: 10.4324/9780429305429
- Sá, C. (2016). The Rise and Fall of Brazil’s Science Without Borders. *International Higher Education*, (85), 17.

- Santos, A. V. dos, & Guimarães-losif, R. M. (2013). The internationalization of higher education in Brazil: A marketing policy. *Journal of Contemporary Issues in Education*, 8(1), Article 1. doi: 10.20355/C59597
- Saviani, D. (2008). O legado educacional do regime militar. *Cadernos CEDES*, 28(76), 291–312. doi: 10.1590/S0101-32622008000300002
- ScimagoJR (SJR). (n.d.). *Scimago Country Rank*.
<https://www.scimagojr.com/countryrank.php>
- Standing, H., & Taylor, P. (2007). Whose Knowledge Counts? Development Studies Institutions and Power Relations in a Globalised World. *IDS Bulletin*, 38(2), 79–85. doi: 10.1111/j.1759-5436.2007.tb00354.x
- United Nations (UN). (n.d.). *Sustainable Development Goal 17*. Retrieved from <https://sustainabledevelopment.un.org/sdg17>
- Van de Sande, T. (2006). Priority setting in research for development: a donor's perspective. In L. Box & R. Engelhard (Eds.), *Science and technology policy for development: dialogues at the interface* (pp. 149-164). Anthem Press.
- Victoria, C., & Moreira, C. (2006). North-South relations in scientific publications: Editorial racism? *Revista de Saúde Pública*, 40 Spec no., 36–42.
- Vieira, S. L. (1982). *O discurso da reforma universitária*. Edições UFC.
- Viggiano, G. (2019, May 9). Gestão Bolsonaro corta bolsas de mestrado e doutorado em todo país. *Galileu*. Retrieved from <https://revistagalileu.globo.com/Ciencia/noticia/2019/05/gestao-bolsonaro-corta-bolsas-de-mestrado-e-doutorado-em-todo-pais.html>
- Yannoulas, S. C., de Souza, C. R. F., & Assis, S. G. (2009). Políticas educacionais e o estado avaliador: Uma relação conflitante. *Sociedade Em Debate*, 15(2), 55–67.

Appendix.

Participant List

No.	Participant Type*	Position / Title**	Discipline	Country of Origin	Current Country	Collaborating Country	Funding Source	Project Length
1	BR E.S.	PhD student	Nat. Sci.	Brazil	US	South Korea	Other	>12 mo
4	BR L.S.	Professor	Nat. Sci.	Brazil	Brazil (SC)	Canada	CBA	>12 mo
5	BR L.S.	Professor	Appl. Sci.	Brazil	Brazil (RS)	Canada	CBA	>12 mo
6	NC	Professor Emeritus	Soc. Sci.	Canada	Canada	Brazil	Other	>12 mo
7	BR L.S.	Professor	Nat. Sci.	Brazil	Brazil (CE)	Canada, Australia	CBA	>12 mo
10	BR L.S.	Professor	Soc. Sci.	Brazil	Brazil (PR)	France, US	Other	>12 mo
11	BR E.S.	PhD student	Appl. Sci.	Brazil	Germany	Germany	CAPES-Humboldt	>12 mo
12	BR E.S.	PhD student	Appl. Sci.	Brazil	Brazil (RJ)	Canada	CAPES	6 mo
13	BR E.S.	PhD student	Appl. Sci.	Brazil	Brazil (TO)	Spain	Self	4 mo
14	BR E.S.	PhD student	Appl. Sci.	Brazil	Brazil (PA)	US, France, Finland	None	Varied
15	BR E.S.	PhD student	Appl. Sci.	Brazil	Brazil (RJ)	Spain	SwB	6 mo
16	NC	Professor	Soc. Sci.	Netherlands	Brazil (SP)	UK, India	Other	>12 mo
17	NC	PhD student	Soc. Sci.	Canada	Canada	Brazil	CBA	6 mo
18	BR E.S.	PhD student	Appl. Sci.	Brazil	US	US	CAPES	12 mo
19	NC	Professor Emeritus	Soc. Sci.	France	UK	Brazil	Other	>12 mo
20	NC	Master's student	Soc. Sci.	Canada	Brazil (PR)	Brazil	Mitacs	4 mo
21	BR L.S.	Professor	Appl. Sci.	Brazil	Brazil (RJ)	Canada	CNPq	>12 mo

No.	Participant Type*	Position / Title**	Discipline	Country of Origin	Current Country	Collaborating Country	Funding Source	Project Length
22	BR L.S.	Research Center Co-Founder, Coordinator	Soc. Sci.	Brazil	Brazil (SP)	Spain, Germany, Sweden	Other	>12 mo
23	NC	Professor	Soc. Sci.	Germany, Brazil	Canada	Brazil	GAC	>12 mo
24	BR L.S.	Institute Director	Nat. Sci.	Brazil	Brazil (AM)	Canada	CBA	>12 mo
25	BR E.S.	PhD student	Appl. Sci.	Brazil	Brazil (RS)	US	SwB	6 mo
26	NC	Professor	Nat. Sci.	Canada	Canada	Brazil	CBA	6 mo
2	KII	Research Center Program Manager	Soc. Sci.	Ecuador	Canada	-	-	-
3	KII	Director, University	Soc. Sci.	Kenya	Canada	-	-	-
8	KII	Senior Lecturer	Soc. Sci.	UK	UK	-	-	-
9	KII	Professor	Soc. Sci.	Canada	Canada	-	-	-

*BR = Brazil; E.S.= Earlier-stage career; L.S. = Later-stage career; NP = Northern collaborator; KII = Key informant.

**At the time of participation in the project(s) discussed during the interview.