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Reciprocity in international interuniversity global health partnerships

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Abstract
Interuniversity global health partnerships are often between parties unequal in organizational capacity and performance using conventional academic output measures. Mutual benefit and reciprocity are called for but literature examining these concepts is limited. The objectives of this study are to analyse how reciprocity is practiced in international interuniversity global health partnerships and to identify relevant structures of reciprocity. Four East African universities and 125 of their international partnerships were included. A total of 192 representatives participated in key informant interviews and focus group discussions. Interviews were transcribed and analysed thematically, drawing on reciprocity theories from international relations and sociology. A range of reciprocal exchanges, including specific, unilateral and diffuse (bilateral and multilateral), were observed. Many partnerships violated the principle of equivalence, as exchanges were often not equal based on tangible benefits realized. Only when intangible benefits, like values, were considered was equivalence realized. This changed the way the principle of contingency—an action done for benefit received—was observed within the partnerships. The values of individuals, the structures of organizations and the guiding principles of the partnerships were observed to guide more than financial gain. Asymmetry of partners, dissimilar perspectives and priorities, and terms of funding all pose challenges to reciprocity. In an era when strengthening institutions is considered crucial to achieving development goals, more rigorous examination and assessment of reciprocity in partnerships is warranted.

Keywords International university partnerships · Global health · East Africa · Higher education · Reciprocity · Social responsibility

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Introduction

Within global health and higher education literature, the concept of reciprocity has been discussed to a limited degree. Sometimes reciprocity, or similar terms such as reciprocal exchange or socially embedded exchange, are referred to but not defined (Benatar et al. 2003; Canto and Hannah 2001). The Working Group on Ethics Guidelines for Global Health Training (WEIGHT) suggests that sponsors of global health training programmes "consider" reciprocity and that "mutual and reciprocal benefit, geared to achieving the program goals of all parties and aiming for equity, should be the goal" [(Crump et al. 2010), p. 1178]. Unfortunately, WEIGHT did not define reciprocity or provide specific examples of reciprocity or mutual benefits. In a study examining undergraduate and graduate medical education programmes between institutions, Umoren et al. (2012) defined reciprocity as "actions that show mutual respect and seek mutual benefit between the institutional partners" [p. 2]. Similarly, Bozinoff et al. (2014) examined mutual benefit within a medical student international elective programme. Others have discussed reciprocity and mutuality without clarifying or discussing their nature in detail (Ilieva et al. 2014; Issa et al. 2017).

Partnerships, whether between individuals or organizations, are formed to realize objectives that cannot be achieved alone, including becoming more successful (de Waal 2012). Partnerships have long been considered intrinsically good (Kernaghan 1993), including in international development where capacity building and strengthening in low- and middle-income countries (LMICs), especially in sub-Saharan African countries, has been championed through partnerships (Jaycox 1989). They were included in the United Nations Millennial Development Goals (MDGs) and in the Sustainable Development Goals (SDGs) partnership is a specific goal (#17), with "North-South, South-South and triangular partnerships" identified as a target within capacity building (UN 2016). However, internationalization and partnerships bring both opportunities and risks for the host institutions and the countries in which they are housed (Knight 2008). International interuniversity global health partnership frequently emphasizes the importance of mutual interest, mutual benefits and mutuality when developing and implementing partnerships (Anderson et al. 2014; Mulvihill and Debas 2011; Stöckli et al. 2014; KFPE 1998; Muir et al. 2016). Within SDG Goal 17, "mutually agreed terms" is specifically mentioned (UN 2016).

By definition, many global health university partnerships are between unequals. Their overall stated objective is to address health inequities between populations and also often between the participating institutions, especially between higher-income countries (HICs) and lower- and middle-income countries (LMICs). Inequalities in terms of the existing capacities and access to resources (Gaillard 1994; Mulvihill and Debas 2011; Leng 2016) can result in power imbalances between the partners to such an extent that some partnerships can be considered disempowering or neo-colonial (Canto and Hannah 2001; Yarmoshuk et al. 2018).

When considering universities, it is important to remember that inequalities do not simply exist between universities in HICs and LMICs. There are many types of universities and higher education or tertiary institutions, both within countries and across countries, as in satellite institutions. Many of the largest and wealthiest universities (e.g. Oxford and Harvard) are particularly interested in conducting leading-edge research and are located in HICs. Smaller universities in poorer countries do not have the same resources available and may be interested in research in different areas, more relevant to them. Centre-periphery theory has examined this important issue in higher education (Altbach 2007).

The number of international interuniversity health partnerships has continued to grow, between universities in HICs and LMICs, and among LMICs (Yarmoshuk et al. 2016). Partnership guidelines and toolkits have been developed to guide the development and management of global health partnerships (Afsana et al. 2009; IJsselmuiden et al. 2004; Stöckli et al. 2014; KFPE 1998), but they tend to focus on process and perceptions, like setting objectives together, the importance of building trust and having good communication, rather than the outputs, outcomes or composite picture of results achieved. As it is difficult to measure and evaluate the success of partnerships, empirical studies evaluating the tangible benefits of partnerships have been rare (Mullan et al. 2010; The Academy of Medical Sciences and Royal College of Physicians 2012). Developing more rigorous and nuanced approaches to assessing reciprocity within global health partnerships may assist with monitoring and evaluating such partnerships and improve clarity on what is meant by mutual benefit in practice.

As part of a multiple case study of four focus universities in East Africa, we previously mapped the partnerships and identified the range and types of activities and outputs within all partnerships (Yarmoshuk et al. 2016). University representatives identified a total of 21 activities within four groupings—(i) education, (ii) research, (iii) service (care) and (iv) infrastructure development, including the provision of equipment and supplies. Nineteen of the 21 activities were stated to be particularly significant for capacity development at their institutions, by at least some representatives. A second paper (Yarmoshuk et al. 2018) reported that 25% of the partnerships were judged to be *higher-value* by the senior representatives of the four East African universities. Thematic analysis revealed that all higher-value partnerships shared three general characteristics: the outputs and outcomes addressed a priority need of the university; the long-term capacity of the focus university to fulfil its mandate was increased; and the overall capacity building benefits realized by the focus university were perceived to be fair when compared to the benefits realized by the international partner (i.e. the exchange of benefits in the partnership was perceived to be reciprocal).

We sought to build on these findings by exploring the emergent, key theme of reciprocity in international university partnerships as a focus for this paper. We review how reciprocity has been discussed in the literatures on international relations and sociology, before examining the practice of reciprocity in the global health partnerships of four East African universities. We present the general structures of reciprocity observed in the partnerships and identify what factors led to these.

Relevant literature on reciprocity

The Oxford Dictionary of English (2015) defines reciprocity as "the practice of exchanging things with others for mutual benefit, especially privileges granted by one country or organization to another". This definition speaks to how reciprocity is used in the global health and university partnership literature, as discussed above. However, reciprocity has been addressed in greater detail in other literatures in ways that may be useful for partnership research in higher education, especially interuniversity global health partnerships. As global health is often an international subject and international collaborations require international exchanges, examining how reciprocity has been discussed in international relations will be considered. Reciprocity within sociology will also be considered as it is a field that examines the structure and functioning of human behaviour generally and is concerned with social problems. Inequality in society, including health inequality, is a social problem. Considering them

simultaneously may be helpful for examining reciprocity within interuniversity, international Global Health partnerships.

Reciprocity within international relations: Keohane

Keohane (1986) discusses two types of reciprocity in the field of international relations, specific reciprocity and diffuse reciprocity. *Specific reciprocity* refers to situations in which specified partners exchange items of equivalent value in a strict manner. Obligations are clearly specified in terms of rights and duties of particular actors and it is important that they are adhered to. *Diffuse reciprocity* refers to situations where the definition of equivalence, the specific partners and/or the sequence of events are all less precise, although all parties are still expected to operate within "accepted standards of behaviour" [p. 4]. For Keohane, two terms are critical when discussing reciprocity: *equivalence* and *contingency*. *Equivalence* means that rough equivalence in terms of benefits received is usually expected between parties in reciprocal exchanges. Keohane notes that this is the expectation "among equals" although not among unequals. He characterizes reciprocal relationships among unequals as "patron-client" relationships. Within them, he states "there is little prospect of equivalent exchange" [p. 6]. He continues by stating that "Patron-client relationships are characterized by exchanges of mutually valued but noncomparable goods and services" and elaborates and provides examples in a footnote [(Keohane 1986) p. 6] whilst discussing European feudal society. Examples are presented in which the exchange of benefits favours the patron (i.e. the feudal lord) and other times the client (i.e. the vassal). *Contingency* means that an action is taken for a benefit received. Reciprocity depends on contingency in that the exchange of benefits between partners will cease if an exchange of benefit is not forthcoming for a benefit given.

Reciprocity within sociology: Molm

Writing in the field of sociology, Molm (2010) discusses reciprocity in terms of three types of social exchange. The first two types of social exchange are grouped within direct reciprocity. These are exchanges involving only two parties. *Reciprocal exchange* is the first type of *direct reciprocity* and refers to the flow of benefits between two parties that does not occur simultaneously; the flow of the exchange is unilateral at any given moment—one partner initiates the exchange, but the exchange of benefits between partners occurs over time. As the flow of benefits is unilateral, there is no guarantee that the party providing the initial benefit will receive a benefit in return, although in time reciprocity is anticipated. The second type of direct reciprocity is *negotiated exchange*. This refers to negotiated agreements and although the exchange is always bilateral in nature, it is not required that the respective benefits received by each party be roughly equal. Molm's third type of reciprocity is *indirect reciprocity* between parties in a group. As with reciprocal exchange, the flow of benefits is unilateral in nature but with multiple partners; for example, party A receives a benefit from party B who then benefits party C and party A then receives its benefit from party C. [see Fig. 1: The structure of reciprocity in three forms of exchange (Molm 2010)[1]].

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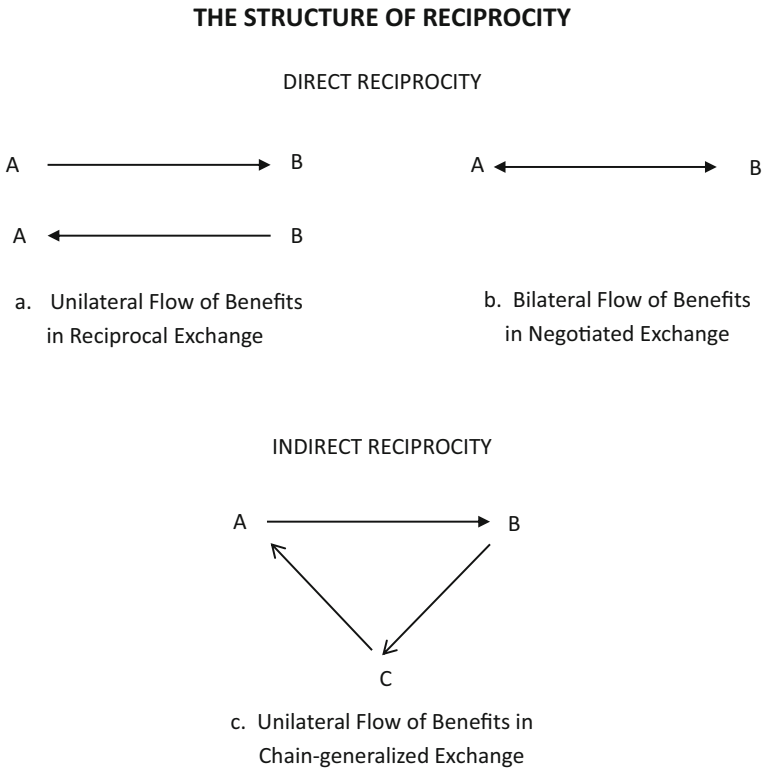

Fig. 1 The structure of reciprocity in three forms of exchange source: Molm (2010), p. 121

Synthesizing concepts of reciprocity set out by Keohane and Molm

Keohane's concept *of specific reciprocity* is similar to Molm's *concept of the negotiated bilateral exchange of benefits within direct reciprocity*. Keohane's description of diffuse reciprocity is similar to Molm's description of unilateral flow of benefits except that Molm clearly distinguishes between exchanges involving only two parties and those with multiple parties (3 or more). This, therefore, gives us two types of diffuse reciprocity: diffuse reciprocity between two partners, which we will call *diffuse bilateral reciprocity*, and diffuse reciprocity between multiple partners (3 or more)—which we will call *diffuse multilateral reciprocity*. This distinction could prove useful when comparing bilateral global health partnerships and multilateral partnerships, including consortia. Keohane's concepts of *equivalence* and *contingency* could also prove useful for developing a more precise and nuanced analysis of partnerships within global health.

This paper examines the exchange of benefits between partners within 125 global health partnerships using the three structures of reciprocity discussed (combining Keohane's and Molm's classifications) and concepts of equivalence and contingency raised by Keohane. It will address the question: how is reciprocity currently practiced within international interuniversity global health partnerships?

Methods

This study, conducted in three distinct phases, used multiple methods to explore the practice of reciprocity in 125 partnerships of four focus universities—see Yarmoshuk et al. (2016, 2018) and Yarmoshuk et al. (2019). The analysis reported here is a secondary qualitative analysis of data collected to examine how international interuniversity partnerships contribute to developing the health professional programmes (HPPs) of four East African universities. Reciprocity emerged as a key characteristic of higher-value partnerships in the original analysis.

Four universities in East Africa—Moi University (MU) and University of Nairobi (UoN) in Kenya and Kilimanjaro Christian Medical University College (KCMUCo) and Muhimbili University of Health and Allied Sciences (MUHAS) in Tanzania—were purposefully selected. In each country, the university with the first medical school was selected: UoN and MUHAS. MU was selected because it housed an unusual international partnership, the AMPATH Consortium led by Indiana University, identified as a "successful" and "unique" partnership by numerous authors (Obamba et al. 2013; Crane 2011; Frenk et al. 2010) and the lead author (AY) had a good understanding of this consortium since he had worked within it. KCMUCo was selected primarily because we wanted to include a private university. All four universities have schools or programmes of medicine, nursing and public health and teaching hospitals, so can be considered Academic Health Science Centres (AHSCs). The reasons for selecting these four universities have been fully described previously (Yarmoshuk et al. 2016). These four universities are referred to as the *focus universities* of this study since it was interested in learning how international partners supported their capacity development in medicine, nursing and public health programmes.

A total of 192 individuals participated in the study. In phase 1, 42 senior (decanal level) representatives from the four focus universities and their affiliated teaching hospitals participated in key informant interviews (KIIs) with the lead author to identify partnerships they considered significant for building the capacity of their HPPs in any one, two or three components (education, research and service (i.e. care) of the tripartite mission of academic health science centres (AHSCs)).

In phase 2, an additional 88 representatives from the four focus universities participated in this study. They were either interviewed or participated in focus group discussions (FGDs) to provide further details about specific partnerships, discuss their participation in specific partnerships and/or discuss the benefits of international partnerships from their perspective.

In phase 3, 59 representatives of the international partners participated in KIIs. These latter interviews were conducted to gain an understanding of why the international partners participated in the partnerships and what benefits they valued. Three government representatives (1 in East Africa, 2 in Europe) were interviewed opportunistically to get additional insights about some of the partnerships. The majority of the study participants in all three phases of this study were men [see Table 1: Sex of study participants by phase], particularly in phase 1 of the study, with more women participating in subsequent phases.

Ethics approval was obtained for the entire study (phases 1, 2 and 3) from the Senate Research Committee of the University of the Western Cape (13/5/15); Institutional Research and Ethics Committee Secretariat of Moi Teaching and Referral Hospital/Moi University School of Medicine; Ethics and Research Committee, Kenyatta National Hospital/University of Nairobi; and National Institute for Medical Research in Tanzania. Research Clearance was received from the Tanzanian Commission for Science and Technology.

Table 1 Sex of study participants by phase

	Female	Male	Total
Phase one—senior representatives at focus universities	12	30	42
	29%	71%	100%
Phase two—professors, lecturers, students at focus universities	43	45	88
	49%	51%	100%
Phase three—representatives of partner international partners	26	33	59
	44%	56%	100%
Government representatives	2	1	3
	67%	33%	100%
Total	83	109	192
	43%	57%	100%

All interviews were conducted by the first author in English and all but two were recorded and transcribed. Two participants declined permission for voice recording but allowed detailed notes to be taken. (More details on methods and other findings can be found in Yarmoshuk et al. (2016), Yarmoshuk et al. (2018) and Yarmoshuk et al. (2019)). The interviews were semi-structured, with guides for each type of respondent and follow-up probes (guides are part of the earlier three publications cited). Semi-structured interviews allowed for standardized information to be collected as well as nuances between partnerships to be identified.

Note that we only examined three memoranda of understandings (MOU) between partners as we had not requested these or contribution agreements for the partnerships. We are unable therefore to comment on the extent of the negotiations between partners in many of the partnerships. The findings are based on the KIIs and FGDs that were conducted and on published and grey literature.

Consistent with a grounded theory approach (Strauss and Corbin 1990; Barney and Glaser 2014a, 2014b), additional literature was reviewed; specifically, global health, international relations and sociology literature that discussed reciprocity. Then, a framework for examining reciprocity within the partnerships was developed, a grid based on the framework was applied to the 125 partnerships to classify them, and the results of this classification were interpreted against the interviews and previous work.

Previous analyses provided the elements for developing the analytic framework and arriving at the findings reported here (Yarmoshuk et al. 2016, 2018; Yarmoshuk et al. 2019). All 125 partnerships were classified using the three types of reciprocity discussed above—(i) specific, (2) diffuse bilateral and (3) diffuse multilateral. In addition, we identified whether the exchange of benefits within the partnership adhered to the two principles identified by Keohane to consider when examining reciprocity: equivalence and contingency.

Thematic content analysis was then applied to the interview transcripts by exploring how reciprocity was viewed and discussed by study participants. One of us (AY) reviewed each transcript and coded then using Atlas.ti 7, in discussion with two other co-authors (DC, CZ). Analysis focused on responses coded as “Reciprocity”, “Mutual Benefit”, “Exchange”, “HIC Benefit”, “LIC Benefit”, “Power”, “Value” and “Value Added”. These themes and the partnership characteristics and activities embedded within the specific examples mentioned by respondents were then considered with regard to the concepts of reciprocity elaborated by Keohane and Molm.

Of note is that the lead author worked previously within the AMPATH Consortium. This experience provided deep insights into that particular partnership, and the process involved in interuniversity partnerships in general. Potential bias associated with such experience was

Table 2 Number of partnerships with each type of reciprocity

Specific/negotiated reciprocity	Diffuse reciprocity—bilateral	Diffuse reciprocity—multilateral	Total
36	94	51	181
20%	52%	28%	100%

Note: Total types of reciprocity are greater than the total number of partnerships ($n = 125$) since different types of reciprocity could be demonstrated in different activities within the same partnership

mitigated through explicit reflection and discussion of possible implications of this positionality, as well as having three co-authors (MM, AG, CZ) who were not involved in the Consortium at all.

Throughout the paper, we have attempted to prevent attribution of specific comments to specific individuals. In those few circumstances where we felt this standard might not be met, we contacted the individual(s) to determine if they wished to include a clarifying statement or rebuttal.

Findings

Challenges in classification within partnerships, and overall distribution

Determining the type of reciprocity for each of the 125 partnerships was often challenging because partnerships often had multiple activities and outputs and the exchange of benefits within them matched more than one form of reciprocity. This was especially true in partnerships with multiple projects or phases, especially those with activities addressing more than one component of the tripartite mission of AHSCs. One project or activity within a partnership may have exchanged the same benefit (e.g. the exchange of students) but another project within it, or even another aspect of the same project, could be characteristic of diffuse reciprocity. Similarly, although partnerships are often viewed as being between two partner institutions, representatives from another university may be involved to some degree resulting in benefits being exchanged between one of the two initial partners and another partner university [see Table 2: Partnerships by type of reciprocity].

The partners in 23 (18%) of the partnerships were considered to have received roughly equivalent benefits, thus adhering to the principle of equivalency, when only tangible benefits were considered. (Findings about intangible benefits are discussed below.) For example, equivalency was considered by this study to have been realized when a research project had co-principal investigators and the work was stated or assessed as shared. Similarly, a student exchange programme was considered to have adhered to the principle of equivalency when the exchange ratio of students exchanged was roughly equal. The partnership between KCMUCo and SRCUC, with an exchange ratio of 1 to 3, was considered to be equivalent. This was because representatives of KCMUCo stated it was a "high-value" partnership although three times as many SRCUC students benefited per year.[2] Contingency, when an action is taken for a benefit received, was observed in 116 of the 125 (93%) partnerships.

[2] This exchange ratio was likely considered "fair" because SRCUC raised all the funds for the exchange. In addition, the exchange ratio of student exchanges at some of the other focus universities was 15:0. (See: Yarmoshuk et al. 2018).

Illustrative examples of reciprocity in practice

Next, we illustrate the types and characteristics of reciprocity identified by our synthesis of Keohane in international relations and Molm in sociology, as well as examples that do not fit the types and characteristics they discuss. We begin with reciprocity in student exchanges, go on to an example of negotiated exchange within a focused consortium, and end with examples from a complex multilateral partnership that includes bilateral partnerships.

Reciprocity within student programmes

Many universities in high-income countries have established global health field placements to respond to student demand (Macfarlane et al. 2008) and we previously identified student exchanges as an activity in many partnerships (Yarmoshuk et al. 2016). We grouped these student exchanges into four types: (1) one-way; (2) one-way—but partnering students; (3) two-way—unbalanced and (4) two-way—*reciprocal.* We illustrate each type here.

One-way student exchanges referred to partnerships in which students from only one of the partner universities benefited from student exchanges at the other partner(s) university(ies).[3] There were many partnerships that contained this type of student exchange. Sometimes this was the only activity within the partnership. Other times there were two or more types of activities within the partnership. When it was the only type of activity within the partnership, study participants from the focus universities stated it was either done out of good will[4] or in the expectation that the international partner would (or at least try to) secure funding in the future to allow some of the focus university's students to benefit from exchanges too. Framed within the types of reciprocity we are exploring, this would be an example of the initial exchange of the *unilateral flow of benefits in reciprocal exchange*. However, study participants from the focus universities often stated that their students either did not have the funding to do an exchange at the partner university or a representative of the international partner was stated to be exploring sources of funding to fund focus university students to do exchanges at their institution. Sometimes exchanges would never materialize, in which case the principle of *contingency* was violated. However, there were also examples where it appeared a focus university benefited from an exchange when an international partner did not; for example, MUHAS sent its nursing to Saint John of God College of Health Sciences in Mzuzu, Malawi (Yarmoshuk et al. 2016).

There was one *one-way* partnership that was viewed more favourably by the focus university. It was between the American University (USA) and UoN. American University students travelled to Kenya and took a course taught by UoN School of Public Health (SOPH) faculty. The instructors signed contracts and received a level of remuneration for teaching the American students that was modest but was considered fair, as one instructor stated they "don't consider it a lot of money" but it was sufficient, although the rate was only about a third of a low rate consultancy. The same respondent stated, "Most of us do consultancies" and then

[3] The singular and plural of "partner" and "university" are used to be inclusive and signify that some the partnerships were bilateral in nature and sometimes they were multilateral (consortia) in nature. We will not do this throughout however. We will only use the singular in this discussion unless we are discussing a specific partnership that was a consortium. However, the reader should note that many of the concepts apply whether the partnership is bilateral or multilateral.

[4] There were study participants from focus universities who stated their universities did not wish to demand reciprocity from their international partners. They valued having international students coming to their university.

offered that "… to do research it is not easy. Because research, unless it is paid for, by the time it puts some bread on your table it is maybe after you are dead". Another UoN faculty member stated that the participation of the more direct American University students gave them the opportunity to teach a type of student who would openly challenge them, which they found valuable. Specifically, the respondent commented:

> *For our staff, the teaching approaches [were beneficial]. The teaching approaches are entirely different. You had students who could actually challenge you. … It's very different from the British [approach], or whatever we inherited, where the teacher is the law. It was very exciting for us. Very useful to us. We have adopted that you must give your students feedback. `And this is the criteria that I used.'*

This is an example of specific reciprocity in negotiated exchange.

One way—but partnering students exchanges are similar to *one-way* student exchanges, but the students from the sending university are formally partnered with students from the receiving university. An example of this type of student exchange was between Cornell University (USA) and KCMUCo. Senior level Cornell undergraduates were partnered with first and second year KCMUCo medical students to conduct 1-month research projects. The Cornell students benefited from an international experience, including cross-cultural learning, research experience and an internship with organizations in Moshi whilst the KCMUCo medical students gained cross-cultural learning, albeit placed within their own cultural context, and research experience. Again, this is an example of *specific reciprocity in negotiated exchange.*

Two-way—unbalanced student exchange meant that there was a bilateral exchange of students but the benefits were skewed to a considerable degree to one partner, usually to the benefit of the international partner. This type of student exchange is very similar to one-way student exchanges, except that at least one focus university student benefited from an exchange to the partner institution. In these exchanges, the principle of *equivalence* was clearly violated. Examples of this included a number of universities that kept sending their students to one of the four universities but did not secure funding to support reciprocal exchanges for students of their partners university more than once.

Two-way—reciprocal student exchanges referred again to the bilateral exchange of students and the extent of the exchange was considered reciprocal in that it was viewed as *fair* by the focus university representatives. The partnerships between Swedish Red Cross University College (SRCUC) and KCMUCo, in which nursing students from each institution participate in exchanges, would be an example of this although the exchange ratio was 3:1 in favour of SRCUC (Yarmoshuk et al. 2018).

Another example of two-way—reciprocal student exchange was a PhD model between Radboud University in Nijmegen (Netherlands) and KCMUCo. A KCMUCo representative voiced approval of it stating:

> *Nijmegen's approach was quite unique. They had [funding to support] about eight* [of our] *PhDs in one project but they had to partner them with Nijmegen* [PhDs too]. *It was a partnership in terms of involving staff* [faculty] *and students.*

KCMUCo PhD students and their KCMUCo supervisors were partnered with Radboud University PhD students and their Radboud supervisors. The groups of four formed a unit that worked together in a collaborative way. A study participant from Radboud University also spoke favourably about this model and added that each PhD student was expected to write five papers for which they were

the lead author. Therefore, each pair of PhDs would produce 10 manuscripts. The graduates were granted their PhDs from their respective universities.

Reciprocity with negotiated exchanges—within a consortium

Negotiated exchange, which we define as firm, binding agreements, and therefore fitting with Molm's description of the *bilateral flow of benefits in negotiated exchange* and Keohane's description of *specific reciprocity*, appeared to be the exception rather than the rule in the 125 partnerships examined in this study.[5] Whilst we had limited access to memoranda of understanding (MOUs), study participants from both the focus and partner universities almost never stated that specific tangible benefits needed to be exchanged or identify specific targets or guidelines that had to be met. There were a few exceptions, however.

Members of one consortium established that PhD candidates would be selected to participate in their programme based on the merit of their application without any consideration of the number of recipients from each member institution. A number of KCMUCo respondents were displeased with this negotiated agreement after only one of their PhD candidates received funding whilst nine PhD candidates from another African consortium member university were selected to participate. Some of the KCMUCo study participants felt the distribution of funding recipients should have been more evenly distributed instead of adhering strictly to merit, based on the review of their applications to the programme using criteria agreed to in advance.

A number of focus university representatives stated, generally, that a benefit of partnering internationally was to gauge one's performance against international standards. That may be so, but this example of PhD training within a consortium shows tension can be created when the resulting benefits are skewed after following the terms of the negotiated agreement, which amounts to *specific reciprocity within a negotiated exchange* in our discussion of reciprocity.

Negotiated reciprocity leading to various form of reciprocity within a consortium—AMPATH

Another example of negotiated reciprocity—this time between international partners supporting a focus university—was within the AMPATH Consortium, a group of North American universities led by Indiana University. The general terms for joining the AMPATH Consortium, an informal consortium since it was not a legal entity, were set by Indiana University (IU), the founder of the consortium. Members of the consortium agreed to adhere to three non-negotiable requirements, in addition to paying annual dues to defray the costs of administering the consortium: (i) Kenyans lead, (ii) bi-directional exchange, (iii) faculty engagement.

In practice, this meant consortium members were required to (i) ensure that Kenyans were co-leads on all grants and publications and consortium representatives in Eldoret answered to and were responsible to the MU head of department; (ii) accept and fund two MU senior medical students to do electives at their university each year; and (iii) lead with faculty participation, including having a faculty member in Eldoret to

[5] By negotiated exchange, we are referring to the written, documents in which the rights and responsibilities of the signatories are clearly agreed upon. They could be considered legally binding. These are different in nature than most memoranda of understandings (MOUs) or agreements (MOAs) in interuniversity partnerships that are general in nature and simply mention that the parties involved are going to work together on activities of mutual interest funding permitted.

supervise any trainee from their institution whom they placed at MU, or secure supervision from another consortium faculty member based at MU, or its catchment area. Indiana's approach led one study participant from a US university to describe the Indiana lead as a "dictator". However, all representatives interviewed stated that the benefits of membership outweighed the costs, in terms of the responsibilities of membership even when they questioned some of the requirements (for example, why a senior resident—still a trainee by AMPATH Consortium guidelines—placed in Eldoret for an extended period required faculty supervision).

However, the interview with the lead of the AMPATH Consortium revealed that he saw himself not as the leader or ruler of a group of universities, but as the "guardian of a shared mission". His concern was that if exceptions were made to the rules then slowly the values and principles guiding the partnership may deteriorate or there would be free-riders. Nevertheless, short-term exceptions to following the rules were sometimes granted when the IU lead considered it was warranted for potential long-term benefit. This happened when another North American university was exploring partnering with MU through the AMPATH Consortium in the mid-2000s, and the Indiana lead permitted one of its students to book accommodation through Indiana House in Eldoret, although the university would have no faculty member from their university in Eldoret to supervise the trainee. This exception to the rule, an illustration of the unilateral flow of exchange, was granted after the IU lead asked one of the university's representatives involved in the establishment of the partnership if having the student placed in Eldoret may assist the university in deciding whether or not to join the consortium.

Once agreement is made between a university seeking to join the AMPATH Consortium and the lead for the AMPATH Consortium, it was observed that its members then benefit from diffuse bilateral and diffuse multilateral reciprocity, in addition to specific reciprocity, both with MU and with the other members of the consortium. The following examples are illustrative.

Specific reciprocity—University of Toronto and Moi University through AMPATH The clearest form of specific reciprocity between Toronto and MU was the exchange of trainees between the two institutions.[6] In the first 6 years of the partnerships, 31 University of Toronto trainees did clinical and research placements at MU and 18 MU students did placements at the University of Toronto, for an *exchange ratio* less than 2 to 1 in favour of the University of Toronto. (OBGYN - University of Toronto 2017).

Research publications would be another type of specific reciprocity within the partnership. By 2014, representatives in the Reproductive Health and Gynaecologic-Oncology components of the Toronto-MU partnership had co-authored at least 10 publications (Spitzer et al. 2014; Hawkins et al. 2013; McFadden et al. 2011; Ranney et al. 2011; Ouma et al. 2012; Khozaim et al. 2014; Kamanda et al. 2013; Embleton et al. 2013a; Embleton et al. 2013b; Embleton et al. 2012). All publications had both Kenyan and North American authors as per the consortium's standard operating procedures. In addition, some of these publications included representatives from other consortium members and faculty from non-members.

[6] It should be noted that this exchange was facilitated through the structure of the AMPATH Consortium and was therefore "negotiated" between Toronto and Indiana. MU made no requirement on Toronto to fund or accept its student in order for Toronto to place its students with MU, although a MU faculty member would have had to accept to supervise any Toronto students while in Eldoret.

Diffuse reciprocity—2 parties—University of Toronto and Moi University through AMPATH In a video on the University of Toronto the Department of OBGYN's website that presents the achievements of the first 6 years of the partnership, thirteen types of activities are mentioned including "hundreds of pregnant women involved in mother and child support groups", "nine courses in emergency obstetrical care provided to 337 physicians and nurse midwives", the provision of "20 new birthing beds", the establishment of a "new post-graduate degree in reproductive health" at MU, the establishment of fellowship in gynaecological-oncology at MU, 50 University of Toronto faculty visits to Kenya "for teaching and research", 17 MU faculty visits to Canada and the respective trainee visits mentioned above under specific reciprocity (OBGYN - University of Toronto 2017). These benefits appear to favour MU, its teaching hospital and communities within the teaching hospital's catchment area; unless the faculty visits were part of the faculty members core job descriptions and they were being paid for them. Based on the in-depth interviews with a number of Toronto faculty members involved in the partnership, this is not the case for all of them. In addition to trainee and research opportunities, one of the benefits for University of Toronto OBGYN from the MU partnership was meeting social responsibility as a departmental objective. A lead representative of the department stated:

> *We initiated our involvement with Moi University …* [when] *we were going through a strategic planning process where we identified social responsibility as one of the key goals to enhance as a department and international global health was identified as one of those components whereby we could contribute to enhancing our social responsibilities activities.*

Indirect reciprocity—multiple parties—members of the AMPATH Consortium Indirect reciprocity was viewed when analysing the interactions among the AMPATH Consortium members. Multiple representatives of the Consortium's universities stressed two issues in the in-depth interviews: (i) access to more funding opportunities, especially since the members were in two countries (Canada and the United States), in addition to Kenya, the country of the focus university Moi University and (ii) a "broader base of experience", as expressed by a lead representative from one of the member universities, resulting from having faculty members from numerous universities in numerous fields. A representative from a different university stated that the interaction between members created a "very stimulating environment", in a beneficial way.

Failure to have holistic reciprocal partnerships

Before concluding our findings, it is useful to present a finding of how the failure to engage in reciprocal exchange can potentially hinder the development of effective partnerships. Whilst Sweden has been supporting MUHAS with capacity building and strengthening for over 20 years, especially with PhD training, it has not included many Swedish trainees in this aspect of the partnership. A Swedish respondent presented this as a problem in an in-depth interview. They stated:

Respondent: *But there has never been a real component of how do we get young Swedes interested in this* [type of work]*? And how do we train them in this? And how do we as Swedes become a good counterpart? … that's never been sort of part of the agenda.*
Interviewer: *You see that as a shortfall?*
Respondent: *I think you can hear it within my voice that I think it's a serious flaw.*
Interviewer: *Because?*
Respondent: *You have a generation of enthusiasts* [right now]. *… And when they run out, you run out of a national program.*
Interviewer: *Okay. That's interesting. So you … build capacity on the Tanzanian side which is good but for the continued growth of the partnership, you're not going to have that then.*
Respondent: *No. Well, you're always going to have enthusiasts right? I mean there are always people driven by similar ideas that I and [the current project lead] have. I mean they're always these kinds of people but it's not something to build a program on.*
Interviewer: *Do you need to build a program if you've been successful in building the capacity in Tanzania?*
Respondent: *That's a whole different philosophical question. It's if… what is this sort of partnership and aid good for?... It's a very different story. Suppose that you think that we can contribute and that Sweden has something to contribute, yeah it's bad. … And I think we really do. We have an attitude to science and people that seems to fill a niche.*

The viewpoint of this Swedish academic was supported by a representative of the Swedish International Development Agency (SIDA), who responded when asked if there is "new blood coming up (to replace the 'very active' generation of academics in international cooperation who were now retiring)":

I think not enough …. But it's something that we talk about and we need to make concerted efforts. … and it may not be just a SIDA issue … Swedish Research Council is part of this conversation.

Discussion

Applying the combined theoretical frameworks for reciprocity of Keohane and Molm proved analytically useful for exploring reciprocal exchange between the four East African focus universities and their international university partners. University partnership activities and outputs can be examined well using the three types—(i) specific/negotiated reciprocity, (ii) diffuse reciprocity—bilateral, (iii) diffuse reciprocity—multilateral—and two principles of reciprocity—(a) equivalence and (b) contingency—identified by Keohane and Molm from the fields of international relations and sociology theory, respectively. Considering whether the principle of equivalence is being adhered to seems especially important when so many student and research partnerships between universities in high-income countries (HIC) and low- and middle-income countries (LMIC) have been historically unbalanced (Jentsch and Pilley 2003). Monitoring the partnership's exchange ratio of benefits is a useful tool to assist with this. This study's finding that an exchange ratio of 1 to 3 for a student exchange programme between KCMUCo in Tanzania and SRCUC in Sweden was equivalent reciprocity is generally

consistent with a finding from an examination of mutuality in international university partnerships in Cambodia. Leng (2016) found that exact equality was not required to achieve "acceptable harmonious relationships" [p. 273]. However, when it comes to student exchange programmes, tangible benefits in the form of the active participation of multiple students from each member in the partnership are expected.

Whilst neither Keohane nor Molm presented a structure of reciprocity that is consistent with consortium partnerships in global health, we were still able to examine a consortium that KCMUCo participated and the AMPATH Consortium with the types and principles they did present.

Keohane's discussion of patron-client reciprocity is useful to consider within asymmetrical partnership in which the benefits favour the less resource-rich partner, such as MU's partnership with the AMPATH Consortium. Adherence to guidelines of membership that are consistent with social responsibility largely explain why the IU representatives started the partnership and why the representatives from the other members joined the AMPATH Consortium. Whilst the North American representatives also benefit from research and trainee opportunities, social responsibility appears to be a real value and not merely a publicity tool, as demonstrated by the North American partners' willingness to adhere to what some may consider onerous obligations of shared leadership and responsibility, and because the Kenyan university partners are consistently included as co-authors and in research and training placements valued by them. This value-based approach, combined with attention to operationalizing the values in practice, is not an exception however. Yarmoshuk et al. (2019) found the same types of values and principles appeared to guide other HIC universities in partnering with the focus universities, including Ludwig-Maximilian University of Munich-UoN, the Karolinska Institute/Uppsala University/Umea University–MUHAS, Radboud University-KCMUCo; Linköping University-MU. This would seem to illustrate that global health ethics, as described by Benatar et al. (2003), and the idea of global health solidarity, as described by Frenk et al. (2014). All of these partnerships, except for the North American universities that have joined with Indiana University to partner with Moi Universities since 2000, started in the last century. There are therefore long-standing examples of high-income country universities demonstrating global health ethics and solidarity.

Whilst the AMPATH Consortium shows the value of working within a coordinated group, the question remains: who should coordinate the partners of a university? It can be argued that Indiana University plays too large a role in coordinating the international partners. Indiana may also be over-protective of MU. This could hurt the sustainability of some of the benefits realized by MU in the longer term. None of the respondents suggested that the AMPATH Consortium-MU relationships were neo-colonial in the sense of being extractive, disempowering or about the control of resources. Indiana University especially, but also other members of the AMPATH Consortium have brought many resources to MU and empowered many of its staff. However, the setup could potentially be considered "neo-feudal" in terms of Keohane's analysis [footnote 25, p. 6].

Finally, KCMUCo, the only private university in the study, had two of the three most mutually beneficial student partnerships. The exchange ratio between KCMUCo and SRCUC, 1 to 3, was one of highest of the four focus universities and, although lacking in reciprocal exchanges, it appears that the student partnership programme between KCMUCo and Cornell was structured to be mutually beneficial for all students involved. The only partnership involving students that achieved the same level of reciprocity over multiple years was the Moi–AMPATH Consortium partnership. As KCMUCo is a private university and largely

dependent (90%) on student fees [(Mallya et al. 2013), p. xv], this may mean it needs to be more careful to ensure its partnerships are benefiting it sufficiently when compared to public universities such as MU, MUHAS and UoN which were found to allow a greater number of less reciprocal student partnerships to exist.

Strengths and limitations of this study

Strengths This research, and the overall research project of which it was a part, has five authors with a broad range of academic, professional and cultural backgrounds. The lead author (AY) has a first degree in Political Science from a Canadian university, a Masters from a British university, and a doctorate from a South African university. He managed multiple interdisciplinary, interuniverity, international partnerships between the University of Toronto and universities in Africa including Namibia, Nigeria and Zambia, in addition to Kenya and Tanzania, between 2004 and 2014. The other two Canadian authors (DC, CZ) are both physicians involved in numerous international health research partnerships. They have taught students at multiple Canadian and sub-Saharan African tertiary institutions. The Tanzanian author (MM) is a senior lecturer and social scientist for one of the health professional programmes of one of the focus universities and has worked with representatives of two of the other focus universities and has undertaken several international education and research projects. The Kenyan (AG) is a pharmacist and served at the decanal level of one partner university, including as Dean of the School of Pharmacy. Hence, a rich set of appropriate experiences were brought to the research, from high-, middle- and lower-income countries. Additional strengths are the inclusion of a wide-range of partnerships between four universities in East Africa and their international partners, being part of a research project that provides details about the partnerships through three other peer-reviewed papers, and consideration of the perspectives of representatives from both sides of bilateral partnerships and multiple sides of some of the consortia partnerships.

Limitations There are a number of limitations to this study. Gender analysis was not conducted. Whilst respondents were asked questions about partnership finances, budgetary information about the partnerships was not collected systematically. Finally, the perspectives of senior university administrators from outside the health sciences, except in one case, were not consulted.

Directions for further research and analysis

This paper has focused on presenting how reciprocity has been discussed in international relations and sociology and applying it to the Global Health interuniversity partnerships of four universities in two countries in East Africa. The study findings should facilitate analysis of other Global Health partnerships and other university partnerships in other regions of the world, as it discussed a range of types of reciprocity to a variety of partnerships. Further research on the specific nature of each university involved in the partnerships is warranted, including the benefits of the partnerships and the corresponding nature of reciprocity through other theoretical lenses, including centre-periphery theory (Altbach 2007). This examination should consider global as well as regional centres and their corresponding peripheries.

Other research could consider the influence of specific national development approaches used by any specific high (e.g. Sweden) and middle (e.g. India or China) income countries in addition to the emerging literature on collaboration among low- and middle-income countries.

Issa et al. (2017) make some initial comparisons between the models used by governmental agencies in Norway and the UK and exchanges with LMICs, but in-depth analysis is required. The examples of the SRCUC and the unnamed university representative of another Swedish university illustrate that different approaches are followed by universities even within a relatively small country like Sweden. Application of both the framework used in this study and centre-periphery theory to considerations of reciprocity in other Global Health partnerships and university partnership in other regions of the world would be beneficial.

Conclusion

In an era when partnership is championed to address global challenges and strengthening institutions is considered crucial to achieving development goals, this paper illustrates that more rigorous examination and assessment of reciprocity in interuniversity global health partnerships is warranted. Too often partners claim that their partnerships involve reciprocal exchange and are mutually beneficial without providing details or considering the priority needs of each or all partners. Diffuse reciprocal exchange will often be necessary to accommodate the asymmetry of partners, if mutual benefit is to be achieved. The principle of equivalence should be adhered to or favour the less resource-rich partner in asymmetrical partnerships, especially if reducing global inequalities is an objective, as is often the case in Global Health partnerships. Partners within interuniversity partnerships should keep track of key outputs of the partnerships to better measure the reciprocal nature of them. Finally, we suggest that theoretical approaches to reciprocity from the fields of International Relations (Keohane 1986) and Sociology (Molm 2010) can inform both the conceptual and the empirical analysis of international interuniversity global health partnerships, and may contribute to enhancing reciprocity.

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Compliance with ethical standards

Conflict of interest The lead author (AY) was employed by the University of Toronto as its Program Manager - AMPATH-UofT when much of the data for this study were collected.

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