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Trust, quality, and the network collection experience: A tale of two studies on the Democratic Republic of the Congo

Patrycja Stys [a,*], Samuel Muhindo [a], Sandrine N'simire [a], Ishara Tchumisi [a], Papy Muzuri [a], Bauma Balume [a], Johan Koskinen [b]

[a] Centre for Public Authority and International Development, Firoz Lalji Institute for Africa, London School of Economics and Political Science, United Kingdom
[b] Melbourne School of Psychological Science, University of Melbourne, Australia

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ABSTRACT

Data collection in social network research has advanced to include online questionnaires, digital metadata mining of internet sites, and the use of remote-sensing technologies. Some scholars however call for more attention to nuanced understandings of ties and contexts in studies of social structure and relationships, evoking practices that characterise the field's foundational works. This article's two studies reference these earlier efforts, drawing on ethnography and primary data collection. Both were undertaken in conflict-affected eastern Democratic Republic of the Congo (DRC) and broadly aimed to refine understandings of public authority and governance. Such research strives to inform humanitarian interventions to support social structures and actors which benefit their communities – however unexpected and unconventional. The first study (2016) employed a novel link-tracing design to examine personal support networks entwining purportedly hostile sub-populations, from combatants to unaffiliated civilians. The second (2018–20) focussed on access to essential social services across different governance arrangements, areas dominated by tenuous alliances of domestic or foreign militias and other actors. Leveraging an egocentric network design, it yielded multilevel relational network chain data. Each study was rife with obstacles related to accessing participants, sampling, reliability, and validity. We reflect on this network collection experience, foregrounding the interdependence between trust and data quality brought into stark relief by the setting's instability and insecurity. This interdependency impacts all social network research, especially when it involves precarious contexts or sensitive topics.

Introduction

I was leading this interview and translating for my white colleague, but my mind wandered. I was back with the broken vehicle in the mudslides. Searching in a field for a tire that had spontaneously shot off the car and looking all over for the lug nuts. We only found three. I thought of the roadblocks, equal odds of being interrogated, welcomed, or waved through. We tried to navigate these by calling ahead, acquaintances of friends many times removed. Another game of chance: mobile service and phones with at least 'low batt'. It was hard to concentrate.

We were in Kavugho's[1] *home. Outside he was drying corn to grind and sell as flour in the market. This town was as stressful as the journey here, dominated by a new armed group. Kavugho discussed abductions and a self-imposed curfew, unknown authorities, and reinvented taxes on merchants. He was honest and unguarded. I was surprised. We had no idea he was blind until we asked Kavugho to map out how he navigated these dangers – through people, connections, and multiple stages. His son came in to help. He said nothing about my colleague, which could have raised suspicions of us being spies or aid workers. It happened in the past; study participants tailored their replies in response. This time, Kavugho's son bonded with my colleague over art, showing his illustrations that decorated their small home. I remembered other times, when participants literally fled from us or insisted on interviewing us before consenting to being interviewed themselves. I got used to being vetted and accepted that an interview was actually a series of encounters. Each built on the last and*

* Corresponding author at: Centre for Public Authority and International Development, Firoz Lalji Institute for Africa, London School of Economics and Political Science, Houghton St, London, WC2A 2AE, United Kingdom.
E-mail address: p.m.stys@lse.ac.uk (P. Stys).

[1] Pseudonym adopted to preserve anonymity.

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helped make sense of it, like the patchwork of sketches on Kavugho's wall that became their story only when his son narrated them.[2]

Such reflections on context and setting are routinely shared in informal exchanges with colleagues and in presentations. They include candid discussions of research design decisions *taken by* and those *made for* investigators. These accounts, however, rarely make it into final published texts, despite being integral to earlier formative studies in network research (Harries-Jones, 1969; Mitchell, 1969; Whyte, 1943). Mixed methods for social networks (Bellotti, 2015; Domínguez and Hollstein, 2014) hold some promise, demonstrating how e.g. ethnographies can inform formal analysis and vice versa (de Nooy, 2009). In his examination of Elizabeth Bott's (1957) ground-breaking work, Jones (2018) also elaborates on the methodological implications of ethnographies in network research, and data collection. An account of the data collection experience however is not synonymous with an ethnography; it need not be confounded with the analysis of data. It provides a format to assess challenges and responses to them – successes, failures, and lessons learned – without being prescriptive or idealising what is actually extremely difficult data collection.

As social network research continues to gain popularity across different disciplines and new settings, such frank discussions will be increasingly beneficial if not crucial to the evolution of the field (Adams, 2019; Robins, 2015). We aim to contribute to this discourse by providing one such example and offering our experience from designing and implementing two social network studies. The empirical setting of the two studies discussed – predominantly remote areas in conflict-affected eastern Democratic Republic of the Congo (DRC, henceforth the Congo[3]) – makes for challenging conditions. Garnered insights, whilst being amplified by them, are not restricted to them, and remain relevant to social network data collection generally – particularly in terms of the interplay between trust and data quality.

The context, as alluded to in the opening reflection, amplifies these themes. They are of central importance regardless of whether one seeks to elicit collaboration ties in an organisation (e.g. Brailly et al., 2016), friendship ties in schools (e.g. Kitts and Leal, 2021), or, as in the first study here, support ties between past and present combatants and civilians in rebel-influenced territory. Similarly, issues relevant for accessing ties to resources apply both to the Congo, as in the second study here, and, for example, to the Netherlands (e.g. van Der Gaag and Snijders, 2005). Trust between researchers and participants and regarding the research study itself affects levels of disclosure and the precision of elicited responses. It impacts data quality in the social and behavioural sciences more broadly but arguably is of particular concern in social network research. Acquiring quality social network data, and establishing the trust necessary to do so, is especially challenging in a context where years of conflict and political instability have eroded trust and complicate the data collection process. These conditions only serve to make more generally applicable issues more salient.

Social network research straddles the traditions of anthropology and the behavioural and social sciences. The issues we speak to in this article are network specific as (a) social networks were of central interest in both studies, and (b) social networks were the core part of the sampling design. Historically, there are many prominent examples of the former (a), i.e. network studies in Sub-Saharan Africa. There are also a number of recent examples of the latter (b), such as studies using respondent-driven sampling in Sub-Saharan Africa (Walther, 2017). Combining these two facets however presented numerous logistic, organizational, and methodological challenges. Our experiences, as we go through the (i) process of research design and refinement, (ii) sampling design and access, (iii) considerations of trust and data quality, and finally conclude with (iv) lessons learned, are consequently seen through a network perspective. The skeins of trust and quality are woven through the entirety of this network collection experience. To contextualise our own discussion, we begin with a non-exhaustive overview of pertinent trends in social network research which leverage ethnographic approaches and address these themes, and a brief background of the Congo where our own studies were undertaken.

Stage setting: trust and quality in mixed methods social network research

The social network studies discussed in this article entailed extensive primary data collection, leveraging mixed methods from surveys (tablet-based structured interviews) to participatory strategies, participant observation, and more formalised social network analyses. We believe such methodological decisions, even if predominantly determined by context and culture, impact trust and thereby quality. Instead of adopting technological advances which enable remote or digital data collection, we drew on ethnographic approaches dating back to the advent of social network research that were more appropriate for conditions in the Congo.

Eliciting quality data is a concern of social and behavioural sciences in general and much has been written about reliability, validity, interviewer effects, measurement error, and other issues related to empirical research. Putting aside discussions of actor accuracy (Batchelder and Romney, 1988; Romney et al., 1987, 1986; Weller, 1987, 1984), what are the added aspects of quality associated with network data?

Combining formal methods with ethnographic research yields 'thick data' (Geertz, 1973; Robins, 2015, p. 228), enhancing data quality through context and meaning that span the various social circles (Simmel, 1908) that participants inhabit. What are the network-relevant factors involved in unveiling this thickness? Simmel (1906) suggests that the likelihood of disclosing information about yourself is contingent on trust in the receiver. He describes it as an arc that depends on how much information the receiver already possesses. On the one extreme, the receiver has absolutely no knowledge, and on the other, the receiver has complete knowledge. In the former case trust is impossible and in the latter trust is needless. Between those extremes, disclosure is a function of trust. How is trust established?

Whilst trust may be reduced to individual trustfulness, it inherently involves expectations of others (Hardin, 2005). Network research on trust thus goes beyond the individual and the dyadic (Simmel, 1906) and focuses on extra-dyadic elements (Allcott et al., 2007; Burt, 1992; Coleman, 1994, 1988; Granovetter, 1985). Network research itself is *by definition* extra-dyadic: eliciting ties from respondents is disclosure about third parties. Furthermore, in ethnographic research the researcher *is* the third party to every dyad they investigate. Without necessarily adopting a meta-network perspective, considering the researcher as part of the network they research, what can we learn from Social Network Analysis (SNA) on trust? SNA might be able to guide our focus by spotlighting the notion of reflexivity (Easterby-Smith and Malina, 1999). Some network scholars have even explicitly reflected on trust processes in ethnographic research, such as Bott (1957, pp. 6–51) and Kapferer (1972, pp. xx–xxii). For example, having the assistance (like Kapferer) of local informants, helps foster trust in the Coleman sense.

As Freeman (2004) outlines in his exposition on the origins of the field, mixed methods, including ethnography, were a defining feature of social network research, even predating some canonical works. Moreno and Jennings' collaboration with Lazarsfeld was however pivotal and the first to exhibit all the elements of social network research; it also leveraged longitudinal systematic observation and interviews (Jennings, 1943; Moreno, 1934, 1932). In his foreword to an edited volume on the subject, Russell Bernard even posits that 'mixed methods is the natural order of science' (Domínguez and Hollstein, 2014, p. xxvii), reinvented

[2] Congolese co-author's fieldnotes, Oct. 2018, referencing Fieldwork Site B (see Fig. 1).

[3] Henceforth the Congo in timeless reference to the state's previous existence as Republic of Congo (1960), then Zaïre (1971), subsequently Democratic Republic of the Congo (1997).

in response to the ill-founded 'qual-quant war' (Domínguez and Hollstein, 2014). Bott's (1957) pioneering work – heralded as the methodological origins of SNA (Jones, 2018) – epitomizes the innovation and interdisciplinary collaboration that Bernard associates with mixed methods research.

Trust, a fundamental aspect of many social processes (Burt, 1992; Coleman, 1988; Lin, 1999) appears prominently as a subject of study in mixed methods social network research. In the early 1960s, Clyde Mitchell's supervisees adopted ethnographic approaches in their research in Africa (Freeman, 2004). Amongst them, Boswell (1969) and Kapferer (1969) used participant observation alongside unstructured and semi-structured interviews to investigate how social networks are mobilised in times of personal crises and professional conflict, respectively. Kapferer (1972) returned to the same site in present-day Zambia and conducted another 10 months of research in the clothing factory. He found that trust is crucial in how workers compete for power and influence. Trust establishes conditions for receiving services on credit, creating imbalanced obligations whose fulfilment (and recreation) over time stabilises relationships. Trust can also be transitive, extending from those already deemed trustworthy to their referrals. Boissevain (1974) likewise spent over a decade revisiting his doctoral fieldwork sites in Malta, and later Sicily, to produce an ethnography-based longitudinal social network study of coalitions.

White and Johansen's (2005) seminal contribution – a network analysis of a Turkish nomad clan's social organisation over 40 years – is correspondingly based on Johansen's research with the group since his doctoral days. The ethnographer systematically collected genealogical data through participant observation, sequential interviews, oral histories, and photo elicitations. During each visit, Johansen cross-checked, updated, and corrected the data. White's contribution of state-of-the-art network modelling resulted in a nuanced kinship theory and contextualised understanding of how networks affect social organisation and adaptation. Echoing Kapferer's (1972) findings, the study demonstrates that honour and trust make exchange at a distance possible, and that trust is forged through prior experiences, personally lived, or learned from (trusted) others.

White and Johansen's (2005) work exemplifies the potential of pairing ethnography with formal network analysis. The former provides a wealth of complex, multifaceted data and contextual understanding whilst the latter renders its patterns, interdependencies, and structures intelligible. The complementarity of ethnography and formal network analysis is supported by subsequent longitudinal studies – of symbolic interactionism using literary criticism records (de Nooy, 2009); migrants' personal networks as they adapt abroad (Lubbers et al., 2010); social influence and discourse similarity in student workgroups (Saint-Charles and Mongeau, 2018); and structure and materiality in artists' collectives (Basov, 2020, 2018).

Mixed methods social network research that focuses much more explicitly on trust examines social capital (Burt, 2000, 1999; Coleman, 1988; Granovetter, 1985). Burt (2005, 2001) elaborated his model by proposing that the added value hidden in structural holes is capitalised through closure which lowers risks associated with transaction and trust. To reach these conclusions, he drew on social network data from detailed interviews with five study populations of managers (Burt, 1992), personnel records of a large financial organisation, (Burt et al., 1998), and Rosenthal's (1996) participant observation and network surveys of a large manufacturing firm. Subsequent investigations also considered the role of cultural values and homophily in addition to transactional norms of reciprocity, structural holes, and embeddedness (Avenarius and Johnson, 2014; Gluesing et al., 2014; Igarashi et al., 2008).

Other research integrated elements from game theory to further explore how trust emergences through social condemnation and commendation in networks (Buskens, 2002; Buskens et al., 2010). One of these studies compared two disparate populations – pastoralist livestock herders in eastern Kenya and small-scale merchants in Ghana's capital – and found that indegree and betweenness centrality, indicators of social capital (Freeman, 1978), were predictors of trustfulness and trustworthiness in both rural and urban settings (Barr et al., 2009). Trust has also been further disaggregated into general and relational, the former associated with tie creation and the latter with maintenance (Igarashi et al., 2008).

Even this brief overview attests to the long history of ethnographic approaches in social network research and of trust as subject of study. Much less common – in this body of work and generally in social network research – are accounts of trust as not only subject of study but aspect of network data collection itself. In addition to contributions in this issue, like Roden et al.'s (2020) work on collaborations in innovation projects and Weissinger's (2020) research with IT-Security firms, notable exceptions include Bott's (1957) exploratory study of familial networks. Bott and her team combined ethnography, relying on extensive engagement with participants in their daily settings over an extended period, with sequential interviews, group discussions, systematic comparison, and reflexive analyses of the study's impacts on participants, researchers, and relations between them. The approach allowed more sensitive questions about interactions to be introduced once rapport – and trust – had been developed between the families and the team. It also enabled continuous cross-checking of network data. According to Jones (2018), in tandem these techniques enhanced the quality of collected network data. According to Bott (1957, p. 310), a questionnaire could not be devised to elicit data of such 'completeness and subtlety'.

Similarly, White and Johansen (2005) devote an entire chapter to a thorough review of the fieldwork and ethnography, and another to how they were used to reconstruct the nomadic clan's past from overlapping shared memories and oral tradition. The authors also explored their collaboration, a partnership between a traditional ethnographer and a mathematical anthropologist, in an edited volume on long-term field research (Johansen and White, 2002). This unconventional work is presented as a conversation between them, disclosing Johansen's efforts to model the clan's social structures on taped sheets of graph paper, a 40-foot-long scroll and episodes of serendipitous success and unforeseeable failure in data collection and analyses. The unabashed, insightful attention to context and trust-building make these unique contributions. Few studies award such consideration to context, which impacts both the collection of network data and the data that are collected.[4]

As 'the rise of remote methodologies' (Duffield, 2014, p. S86) converge with renewed interest in understandings of lived contexts and the meaning of relationships (Adams, 2019; Pattison, 2017), this article contributes to the increasingly rare literature which examines the network collection experience. Neither of the two network studies we discuss focussed on trust as a subject of research, but trust was integral to data collection and inextricable from the quality of data collected. The first study (henceforth Study 1) examined social support networks of current and former combatants and civilians; it employed a novel link-tracing design which inevitably gave rise to a partially observed network. The second study (henceforth Study 2) necessitated a purposive sample to investigate how women and men of different socioeconomic strata (SES) access basic social services across four sites: two characterised by governance arrangements dominated by different counter-state armed movements (one national and the other foreign); one marked by a tenuous agreement between non-state armed groups and national security forces; and the fourth by the national government itself. This study leveraged an egocentric network design yielding multilevel relational network chain data. Residents access social services through processes, chains involving numerous individuals and organisations, the latter actors in and of themselves as well as – depending on the context – attributes of individuals.

[4] We thank an anonymous reviewer for this insight.

Both Study 1 and Study 2 aimed to nuance understandings of governance and public authority in conflict-affected states and inform development programmes and peacebuilding initiatives to support social structures and actors which benefitted their communities – however unexpected and unconventional they may be. Neither study would have been possible without trust; the setting that is the eastern Congo amplified its necessity. We briefly introduce this context and the two studies before turning to our journey through (i) research design and refinement, (ii) sampling design and access, (iii) trust and data quality, and (iv) key takeaways.

Scene setting: two social network studies in the eastern Congo

The Congo's history is marred by more and less known periods of war and conflict, currently as sporadic as it is prolonged. This reality, lived and remembered, impacts our methodology and fieldwork. We seek only to provide an overview of the context here, without undue violence to the historical record. Even to area non-specialists, the First and Second Congo Wars (1996–1997 and 1998–2003, respectively) remain infamous. Following in the wake of the 1994 Rwandan Genocide, these regional wars involved up to nine African states and dozens of armed groups, reportedly marking the deadliest conflict since World War II (Coghlan et al., 2007; Dusenge and Sibomana, 2004). The rebellions and smaller scale clashes that followed were increasingly less renown and more concentrated in the turbulent east, the Kivu provinces bordering Uganda, Rwanda, and Burundi. State and non-state armed actors compete and collude over territorial influence, economic sway, political control, and their regulation. Composed of over 120 armed groups, the resultant 'rebel kaleidoscope' (Hoffmann and Verweijen, 2019, p. 352) casts these shifting patterns of influence over the landscape, drawing into them a range of other authorities: state and customary government representatives, religious leaders, businesswomen and men, and civil society members. Armed groups remain woven into the very fabric of social life (Stys et al., 2020).

The complexity of these rapidly changing dynamics creates a challenging environment for data collection; research designs must necessarily be flexible and adaptive. In addition to prolonged sporadic conflict, thereby suspicion of strangers and general mistrust, eastern Congo is characterized by poor telecommunications and dilapidated roads – some impassable during the rainy season – outside of major cities. Even in urban centres, water and electricity provision are inadequate and their access is supplemented by various delivery services and costly generators. Considering the conditions, the greatest surprise may be that we have any data at all, and that despite the precariousness of the context, residents manage not only to survive but to live, in however dire circumstances.

Scholarly efforts to understand these dynamics evolved into a body of work concerned with order and authority in regions where governance structures stray from the Weberian ideal type (Arjona et al., 2015, 2015; De Herdt and Olivier de Sardan, 2015; Lund, 2006; Meagher et al., 2014). These studies also matter profoundly, as they inform peacekeeping and state-building interventions (and strive to counter their consecutive failures). In what they coin fragile and conflict-affected states (FCAS), aid and development organisations often struggle to find national implementation partners for their programmes. Strong, effective, and accountable state institutions, civil society organisations, and private firms are weak, absent, or dangerously under-resourced – whilst less conventional potential partners often remain unidentified (Hoffmann and Kirk, 2013). Attempting to work with a state organ which lacks popular legitimacy may bring worse results than partnering with an informal association of businesspeople led by a former warlord (Trefon, 2011). Research concerned with how these governance arrangements actually function, and which actors they comprise, are slowly prompting development practitioners to programme for contexts as they are – not as they think they ought to be (Bright et al., 2013; Levy, 2014; Punton and Burge, 2018).

The two studies discussed in this paper build on this literature whilst leveraging social network research, including statistical analysis, to empirically examine governance and authority structures across multiple sites in the Congo's conflict-affected North Kivu province. Governance arrangements in such states all entail individuals, institutions, and the connections between them – social structures – but research in this field has predominantly employed networks as metaphors (Themnér and Utas, 2016; Utas, 2012; Vigh, 2012). However contentious, these studies strain to render intelligible the existence and functions of unconventional institutions and actors as part of governance arrangements. An ancillary aspect of the conundrum is which of these arrangements provide public goods, for whom, and how – research questions that have preoccupied scholars, policymakers, and practitioners. A few studies have addressed these dynamics in the context of the Congo, examining resources like education, security, and water (de Herdt and Titeca, 2019; Eriksson Baaz et al., 2018; Schouten, 2016; Trefon, 2016, 2011).

The network studies discussed in this article engage with these debates but do so through a social network approach. Table 1 provides a summary table of these two studies.

Fig. 1 shows the approximate locations of the field sites selected for the two studies.

Site selection entailed a number of considerations beyond the presence of populations and phenomena of interest: stability without violent conflict over at least the previous 12 months; presence of physical infrastructure (at minimum dirt roads passable by vehicle during the dry season); cellular coverage if not reliable internet connection; and established contacts to assure security, access, and permission to carry out research activities (representatives of the national army, police, and intelligence services[5]; customary, territorial, and provincial administrations; and civil society).

Both studies were undertaken over periods of many months in remote locations where governance arrangements were tenuous and predominance in them transient. Our categorisation of them is inevitably messy, evoking Mohr and White's (2008) descriptions of institutions as overlapping, coexistent, and struggling for control. Determination of actors and dominance in these arrangements was based on popular perception, residents and their representatives' testimonies, and area experts' analyses. Studying complicated social interactions in such contexts cannot be done using digital methodologies or from afar. It also takes time – to gain access, understand community dynamics, and most importantly to build trust, without which all research efforts are fated to fail. The next section outlines our struggles to design social network studies to suit the realities of this context.

Research designs and their refinement: the journey begins

The research designs for both studies entailed contributions and input from numerous individuals: members of the social network community; foreign and Congolese area experts; community, customary, and state representatives; and participants. Research was based on designs that were sequentially modified[6] and revised – as much in response to contingencies of context as by intentional flexibility built into those designs in anticipation of it. The following sub-sections examine the design of each study in turn.

[5] *Forces Armées de la République Démocratique du Congo* (FARDC), *Police Nationale Congolaise* (PNC), and *Agence Nationale de Renseignements* (ANR), respectively.

[6] We are grateful to one of our anonymous reviewers for suggesting this term.

Table 1
Summary of Study 1 (Mobilisation, personal support networks, and livelihoods) and Study 2 (Authority, governance, and basic social services).

	Study 1: Mobilisation, personal support networks, and livelihoods	Study 2: Authority, governance, and basic social services
Aims	Ascertain how participation in armed groups (state and non-state) affects social support networks and livelihoods	Investigate social service provision in different governance arrangements and how socioeconomic strata (SES) affects access to those services
Period	May – Dec. 2016	Aug. 2018 – Mar. 2020
Location	• Site A (see Fig. 1) and environs, with population of civilians and current and former members of state and non-state armed groups[a]	• Site A (see Fig. 1): Five armed groups, dominated by state-affiliated ones • Site B: Foreign armed group • Site C: National non-state armed group • Site D: Goma, provincial capital; state-controlled
Samples	• 404 members of targeted population subgroups (women and men civilians; demobilised combatants; and active combatants in state and non-state armed groups)	• 120 members of targeted population subgroups (men and women of low, middle, high SES) • Sites A-C: Data on access to social services (Aug.-Nov. 2018) • Site D: Data on access to social services, personal support networks (Feb.-Mar. 2019 and 2020)
Sampling designs	• Respondent-driven sampling (RDS); seed set of 22 (most different purposive sample determined through consultation with community representatives) • Complete egocentric[b] network (ego-net) data on all participants; unlimited nominees, not all followed up • Maximum 10 waves (resource constraints) • Ego-net data used for recruitment, yielding partially observed network	• Most different purposive sampling; potential participants identified through initial group interviews and semi-structured individual interviews in each field site with community representatives
Tools[c]	• Participatory sociograms: whiteboards, dry-erase markers to collect ego-net data • Exchange approach with name generators to delineate personal support networks • Participant observation • Cognitive interviews • Tablet-based structured questionnaire akin to life history	• Participatory sociograms: whiteboards, dry-erase markers to collect ego-net data • Exchange approach with name generators to delineate personal support networks • Participant observation • Cognitive interviews • Group interviews and semi-structured individual interviews to conceptualise SES • Participatory sociograms and power-mapping: whiteboards, dry-erase markers, Legos to collect network data on accessing social services • Resource generators (including position generators via actor attributes) to delineate social services and access

[a] Civilians, those who had never participated in an armed group, were classified as those who knew no one in an armed group, those who knew some members, and those who supported armed group(s) as non-members. Participation in an armed group was disaggregated into being civilian members, militarily trained members, and leaders or founders. Former armed group members refer to combatants who either self-demobilized or did so through a formal process.
[b] Focused on the structure, function, and composition of network ties around a specific social actor, here an individual participant.
[c] Name generators and resource generators are discussed in the following section.

Study 1: mobilisation, personal support networks, and livelihoods (2016)

In all honesty, none of the team had experience in social network research when we began designing Study 1 in 2015. Being well-versed in the literature and having conducted fieldwork in Central Africa on similar topics, we knew that social structure was imperative to our research questions. In its investigation, we wanted to go beyond metaphors and post hoc network constructions of data collected for other purposes. Embracing the humble reality of our ignorance (and the hubris of our ambitions), we sought the advice of experts.[7] We considered various approaches to collecting network data. Tablet-based and/or computer-assisted applications like VennMaker (Gamper et al., 2012), Egonet, Nodexl, and Network Canvas (Complex Data Collective, 2016; Hogan et al., 2016), seemed very attractive. These were at various stages of development (Network Canvas in its nascent stages in 2016) but had all been demonstrated to be useful tools in standard empirical contexts where network data are typically collected. Computer-assisted network data collection gives researchers (and participants) the ability to visualize complex social structures and to code them automatically. The intended empirical context, however, posed some very specific problems for using such tools. The scarcity of electricity, non-existent technical support in remote areas, and low computer literacy could compound suspicion and mistrust, making these unviable options.

We heeded advice that a low-technology participatory approach to network data collection may be most appropriate in our context. The Ketso kit (Tippett, 1995) – marketed as a 'workshop in a bag' comprising a large felt blanket of branches, laminated leaves, and Velcro – seemed like a plausible alternative until we discussed possible reactions of former and current combatants to participating in an activity that evoked primary school. Paper and pen, markers, or sticky notes seemed burdensome in terms of the quantity we would need and too susceptible to adverse weather conditions. The idea to use whiteboards and dry-erase markers to collect participant-aided network diagrams (sociograms) (Hogan et al., 2007) resolved many of these difficulties (Davies, 2002; Sall, 2003). In particular, this approach addressed three issues of central importance: the boards provided a visual cue for prompting for further names ('you have mentioned these, can you think of any more'); being able to group alters facilitates recall; and the free format meant that function could easily be modified during pilot testing (Hogan, 2016; Hogan et al., 2016, 2007).

Several colleagues in Australia informed our approach to delineating personal support networks; we lacked the resources, time, and experience to purse a whole network approach and had no natural boundary to define it. It was through these discussions that we settled on the exchange approach, positing that its specificity would minimise errors of cross-cultural translation much more than interaction, role relation, or affective approaches (van der Poel, 1993). Question design focused on exploring participants' reliance on others and received social support, defined as 'helpful functions performed for an individual' by friends, relatives, co-workers, neighbours, etc. (Thoits, 1985). The goal was for participants to describe interactions that were instances of social support suitably specific to be interpreted in the same way. Interactions would not be limited to a defined period to avoid potentially omitting relationships in which no recent supportive interactions have occurred. Instrumental, social companionship, and emotional support – the three dimensions of personal support – would be respectively operationalised through questions about 'loans' and 'work/jobs', 'visiting/spending recreational time together', and 'advice with a major change in your life, like changing jobs or moving to another area' (Crossley et al., 2015, p.

[7] These initial phases were guided by the advice, consultation, and input of Dr Filip Agneessens (University of Trento), Dr Daniel Tischer (University of Bristol), Dr Bernie Hogan (University of Oxford), and Dr Susan O'Shea (Manchester Metropolitan University).

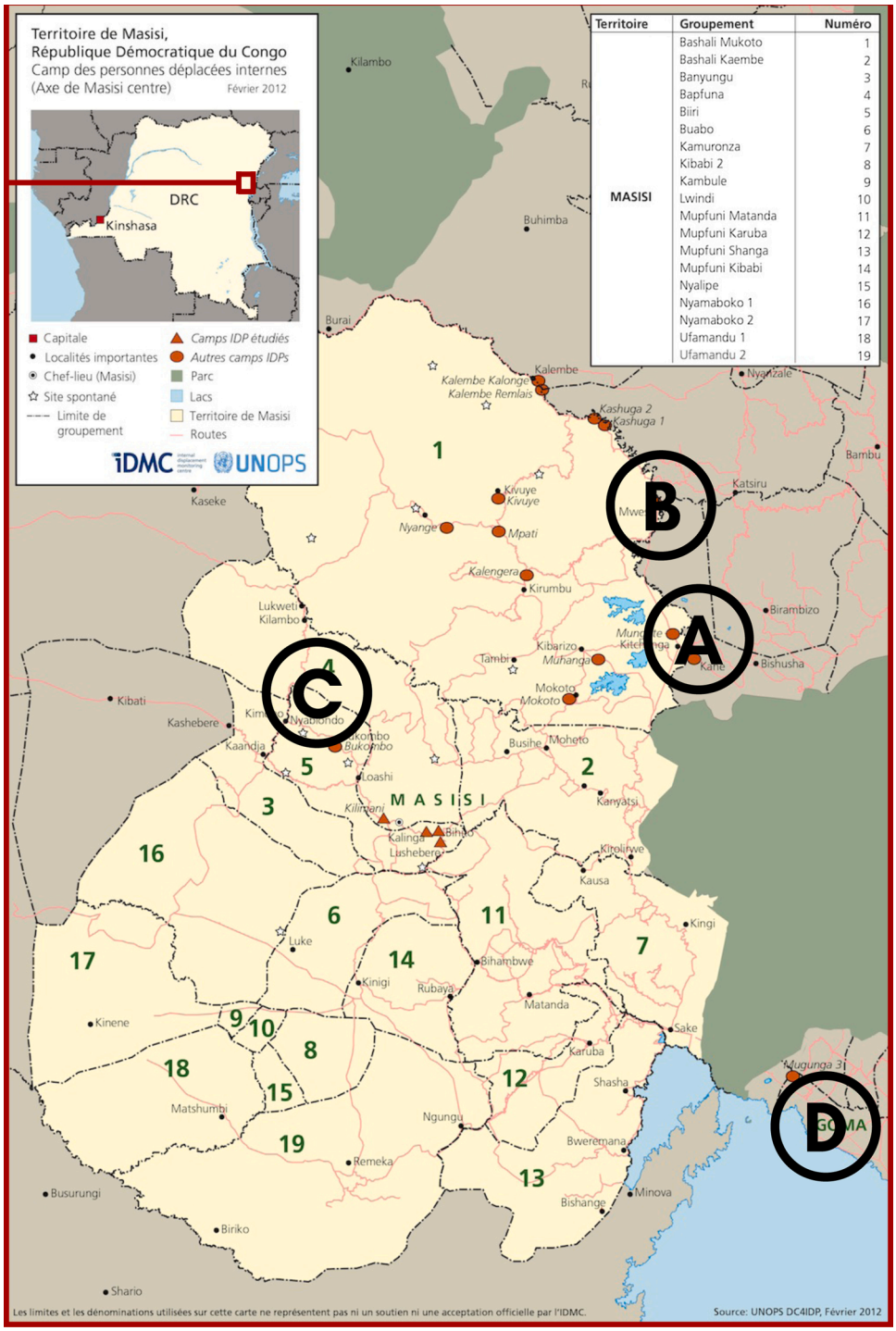

Fig. 1. Approximate locations of field sites. Both studies were conducted in Site A and environs, where five armed groups vie for control but those affiliated with the Congolese state dominate the governance arrangement. Study 2 also undertaken in Site B (whose governance arrangement is predominantly influenced by a foreign armed group), Site C (where a Congolese non-state armed group dominated the governance arrangement), and Site D (Goma, the provincial capital of North Kivu). Maps sourced from UNOPS.

53). These became the three name generators used in Study 1, carried out in 2016. Initially, sociograms were to be collected from a sub-set of the sampled population, following a most different design (King et al., 1994).

This vetting process continued in Kigali, Rwanda, with expert reviews and cognitive interviews by professionals working in demobilisation. We repeated the process in Goma during a training workshop with Congolese researchers, a team of two women and four men who went on to carry out the study. They developed a culturally appropriate, conversational approach (Niang, 2000; Sall, 2003; Wane, 1969) to introducing sociograms, discussing first communities and then members' roles within them in terms of connections and support. We also decided that social companionship was best introduced by discussing what participants did in their free time, then with whom and why with those specific individuals rather than defining this ourselves. During the workshop researchers also posited that in the Congo social companionship coincides with emotional support,[8] and the tie we ought to be eliciting to capture this cultural reality is that of '*rafiki proche*', a mixture

[8] There is no such thing as a superficial off-the-record socializing. If drinks, food, or time are shared, they are invested, with a goal in mind beyond inconsequential chatter. To spend free time together, people are usually bound by a deeper connection which includes asking for and giving counsel.

of Swahili and French signifying close friendship. Emotional support resonated most with counsel and life-changing decisions whilst instrumental support also included securing official documents, in addition to finding work and borrowing money.

Congolese researchers also verified the name interpreters designed whilst in Australia. The tablet-based questionnaire preceding social network data collection would provide a wealth of information concerning the participant, ego, so we proposed a number of name interpreters to collect alter attributes like sex, current residence (location), duration of the relationship and its origin (how long ego and alter have known one another and how they met), employment (income-generating activities), education level, age (relative to ego), religious affiliation, and organisational membership.

These refinements were affirmed in the pilot study, conducted in Mugunga whose residents represented all populations of interest. Participants comprised 13 individuals (civilian women and men, demobilised women and men, and militarily active men); militarily active women withdrew their consent. The sociograms collected during the pilot revealed homophily based on sex and the disproportional presence of civilians in all personal support networks, even those of former and current combatants (Stys et al., 2018). This insight guided the future selection of a seed set for the study.

Participants in the pilot mapped individuals who provided them with social support and the connections between them on the whiteboard with ease, specifying the ties that bound them, how, and why. Concentric circles were used to gauge social distance between ego and its alters as well as between the alters themselves. The sociogram was built up gradually and participants were permitted to revise it until they were satisfied with this visualisation of their personal support network. Participants also grouped their alters into categories by encircling those

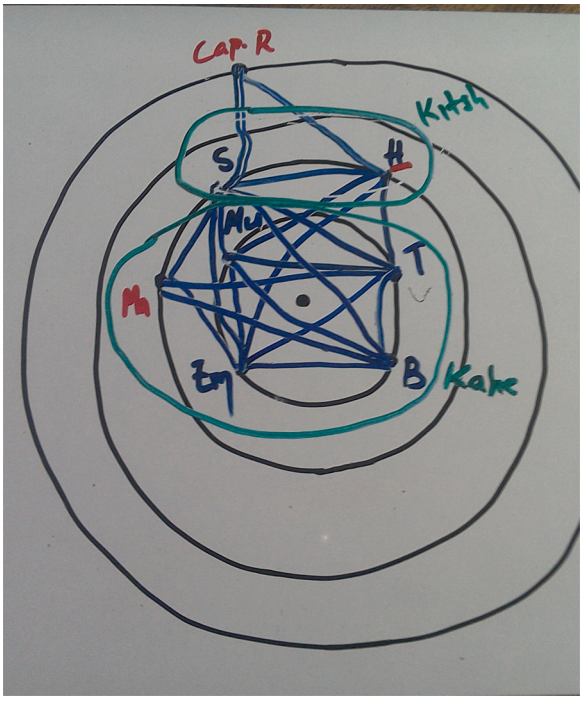

Fig. 2. Network-centric participant-aided sociogram. The representation on the whiteboard was created with a participant in 2016 (Study 1).

contained in them, depending on their personal evaluations of who fit together and how. The completed sociogram was photographed with the tablet and the image stored digitally, as it would be in study implementation. Fig. 2 shows an example of a sociogram created by a participant in 2016. It conveys the constraints of the size of the whiteboard relative to the thickness of the markers and the grouping of alters, here by their geographical locations (towns). Researchers recorded social network data in notebooks and later in Word and Excel, working in teams of two and verifying the coding separately through dual entry.

In the pilot, as in the workshop, participants tended to draw as they narrated their relationships as stories of their past and present, putting ties in context and giving them a timeline, starting and end points, making their networks explicit by articulating and transmitting meanings of actors and connections that bound them (White, 1992). It was however only at the end of the exercise, when participants were faced with their completed sociogram, that many understood its purpose. Reworking sociograms to better reflect their social worlds created rich tapestries from threadbare narratives. Their recollections of histories with alters revealed participants' own pasts, the latter more at ease discussing others than themselves (Thompson and Collins, 2002; Wiebel, 1990). The conversational, participatory approach prompted both parties to disclose information and experience, softening unequal power relations between participants and researchers whilst building trust (Simmel, 1906). Such interactions were crucial to the articulation and materialisation of these social worlds, a dialogue usually precluded in remote methodologies and digital approaches to data collection.

The pilot also highlighted the importance of effectively introducing the study to participants and reiterating its purpose as necessary, especially when some expressed concerns that we were gathering their and their contacts' data to imprison or recruit them in the national army or non-state armed groups. Participants' reactions augured heightened levels of suspicion we encountered implementing the project. To enter Mugunga, we had to first secure the buy-in and support of a host of organisations and civil society representatives, a social structure invisible until we had to navigate it (Godart and White, 2010). Every level of authorisation had to be effectively negotiated to carry out the pilot, involving provision of hard copies of all data collection instruments, mock demonstrations of interviews, and vetting of the research team through various channels (some which remain unbeknownst to us). Building trust, nurturing it, and maintaining it seemed crucial to successfully implementing the study.

Social network research was but one part of this first study, but it came to drive data collection in practice. The use of a link-tracing design was planned from the onset but elicitation of ego-nets with alter-alter ties was meant to be a contained, complementary sub-study to appraise the efficacy of the link-tracing design. The need to be referred to potential participants, the level of disclosure achieved through narrating others' histories and connections, and the facility of the exercise suggested added value in expanding this portion of the project.

Study 2: authority, governance, and basic social services (2018–20)

The second study, informed by the first, began in 2018. Data collection concluded in March 2020. This time the research team included two men and a woman, all of whom had conducted Study 1, and an additional four men and another woman for data collection in Site D, Goma (see Fig. 1). Study 2, focussing on authority, governance, and basic social services, likewise employs a conversational, participatory approach and sociograms using whiteboards and dry-erase markers. Considering insights from extant research on the topic, we anticipated that services and their providers in this context would stray from Weberian ideal types. We posited that these resources would be acquired through social contacts, connections, and interactions rather than (directly) by the state, similar to how an 'umbrella' would offer non-state or state protection but also access to scarce resources in post-Perestroika Russia (Varese, 2001).

We began training workshops in Kigali and Goma with unstructured discussions ('brainstorming') around how social services were conceptualised in the Congo, with a consensus that 'these services are systems supplying public needs'. Such needs were identified as security,

healthcare, education, and justice. In some understandings, linked to diverse readings of the Congolese Constitution, water, employment, housing, electricity, and infrastructure were also cited. Whilst researchers held 'the state' responsible for their provision, they noted that actors like international non-governmental organisations (INGOs) and churches could also be involved. Considering the possibility of unexpected responses concerning anticipated social services and their providers, we decided to begin interviews in the pilot study by asking participants to share their conceptualisations of basic social services, as we had asked participants to nuance their understandings of personal support ties in Study 1. Semi-structured questions focused on which social services were anticipated, from whom, and why, and then which services were accessed and how.

In this research, we used a resource generator to investigate accessed social resources (Snijders, 1999; van Der Gaag and Snijders, 2005). Its composition was predominantly determined by the specific participants engaging in the study. In the pilot, carried out in Goma, 17 of the 21 participants cited employment as a social service expected to be provided by the state. Considering the diversity of the governance arrangements across the four field sites, what services residents anticipate and from whom could also differ by site, the presence and dominance of certain actors and organisations (armed and not), and identified needs viewed as being neglected – all essentially related to the notion that 'some social resources are more *prevalent* than others' and that 'social resources also differ in their *visibility*', the ease with which individuals can identify them in their social networks (van Der Gaag and Snijders, 2005, p. 25). Likewise, providers may differ across sites due to their presence as well as their prevalence and their visibility. Just in Goma, pilot participants cited 'the state' as the entity responsible for public service provision (21/21), as well as institutions like INGOs (5/21), churches (5/21), customary administrations (1/21), civil society organisations (1/21), armed groups (1/21), and *Bazungu* (1/21) (Swahili for white people). In social network terms, it is likely that these groups of ties were differently understood, and based on different interactions, which we could capture due to our exploratory research design (Bott, 1957).

Pilot participants used whiteboards and coloured markers to map out the mechanisms through which they secure these services, and in exchange for what (be these favours or social obligations from relatives, promises of future repayment, money, payment in kind, etc.). In most cases, the exercise yielded relational network chain data which is akin to collecting data on paths in an unobserved whole network (Granovetter, 1974; Lee, 1969; Milgram, 1967), here of beneficiaries, sought services, and steps taken to secure them. This data is multilevel as chains include both individuals and organisations, the latter as actors in their own right or attributes of individuals (e.g. Koskinen et al., 2019). The interviews focused on participants themselves and their recollections of these fairly individualistic processes involving numerous intermediaries (Ferru, 2014; Ferru et al., 2011; Neal et al., 2015). The target was access to the social service(s), usually associated with an organisation or an individual actor, and successfully accessing that service denoted a complete chain. Thus, independent starters in a specific field site may share intermediaries as well as targets. We collected alter attribute data on all intermediaries, leveraging name interpreters used in Study 1 and broadening them to include household size, whether the participant was the head of the household, and perceived socioeconomic strata (SES) as pilot results indicated that those of higher SES accessed more resources (services) through single individuals, whilst those of lower SES accessed fewer resources through various intermediaries.

Since alter attributes include income-generating activities (occupations), organisational membership, and SES, the resource generator implicitly includes position generators (Lin, 2001, 1982; Lin and Dumin, 1986). Due to the diversity of the field sites and the paucity of data on job prestige and its relation to access to resources in these settings, we needed to first understand which occupations or affiliations facilitated access to resources and thus could not construct a position generator in advance. Our methodology also obfuscates the differences between 'access' to social capital, here resources to secure social services, and the actual 'use' of social capital, the mobilisation of those resources in order to create returns. After discussing which social services they access and how, participants were asked about specific instances of that access, the processes through which they used individuals and/or organisations to secure those services. The specificity of those follow-up questions allowed a much more granular understanding of how participants accessed social services, which by no means entails straightforward processes in the eastern Congo. Fig. 3 provides an example of a sociogram produced during this study, illustrating the adaptation of the approach used in Study 1.

Participants ranked alters in importance of securing their access to each basic social service using stacked Lego blocks. The proportions of the Lego blocks attributed to each alter (per service accessed), and reasons for that distribution, were recorded in notebooks and later transferred into Excel to be used as proxies for tie strength in subsequent analyses.

Before settling on using Lego blocks, we investigated other options of signifying tie strength in participant-aided sociograms. In Namibia, South Africa, and Ghana scholars have used found objects, multicoloured chess pawns, and action figures in participatory approaches examining power relations (Geenen, 2016; Schiffer, 2007; Schiffer and Hauck, 2010). We needed to consider portability, facility of use, and differentiation between alters associated with different services. In our discussions, researchers and related stakeholders found action figures like the Hulk, Godzilla, or King Kong difficult to identify with and to place in any hierarchical order. We decided that trying to use them to signify importance would prolong interviews; participants would need to devise a hierarchy and explain it and may invest significant amounts of time matching personality traits and physical attributes of alters to the figures. The use of these figures would also most likely not be standardised across interviews, complicating data coding. Lego blocks were conveniently colour co-ordinated with markers; are available in larger formats in Goma and thus not completely alien; and are easily stackable. In the workshop as well as during the pilot even participants who have never seen them before learned quickly how to manipulate them, which resonates with Gauntlett's (2007) endorsement of Lego to represent identities. The Lego towers were easily comparable and facilitated discussions of their relative height and thus importance of alters in securing different services. This study drew on the previously tested and refined approach to collecting personal support network data, modifying it with Legos.

In Study 2, personal support network data was collected only in Goma (site D in Fig. 1), leveraging the approach developed in the first study. This data was collected in February and March 2019 and again 12 months later in 2020, having been incorporated into a broader research project. Changing security dynamics and resource constraints made it unfeasible to collect both types of network data in other sites. In addition

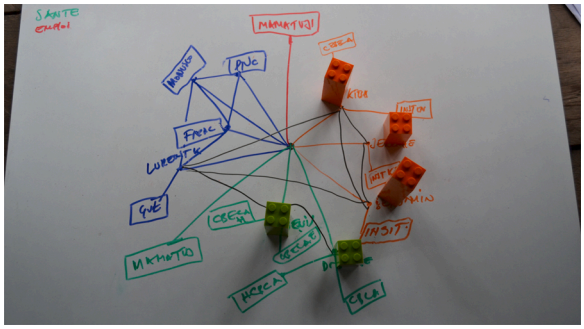

Fig. 3. Network-centric participant-aided sociogram with power mapping. The representation on the whiteboard was created with a participant in 2018 (Study 2).

to general challenges like unreliable mobile reception and shortages of electricity, water, and other key resources, one of the research sites proved to be extremely dangerous, evidenced by a self-imposed curfew from dusk until dawn. Another site was emptied of residents who fled violence associated with a split in the area's dominant armed movement, with displaced people fleeing to the neighbouring town. Heightened insecurity, uncertainty, and apprehension hampered further data collection.

The process of research design for both studies and their sequential modification foreshadowed the challenges we would encounter in implementation, highlighting trust as a critical aspect of data collection. The following sections demonstrate its importance in accessing field sites and participants, managing risks for researchers, and above all gaining quality data and thus contextual understanding of investigated social phenomena.

Sampling designs and access to potential participants: navigating roadblocks

Any research in the Congo requires a document called *ordre de mission* (Eng: 'mission statement'; that in our case serves as a research permit). It must be endorsed by various institutions from the army, police, and intelligence services through ethno-linguistic communities' governing committees and customary administrations at every level. Sometimes this authorisation entails unconventional authorities like non-state armed groups. It is difficult to know whose permission one must secure, and in what hierarchical order, in advance.

Negotiating these stamps and signatures entails overcoming quite understandable misgivings. In our case, in some field sites, this process was facilitated by trust built over past interactions between a range of authorities and ourselves as researchers (Kapferer, 1972; White and Johansen, 2005). At times these very authorities had participated in research design or modification, which aided in countering distrust as they had in Weissinger's (2020) study with IT-Security professionals. The process of securing authorisation was nevertheless arduous and time-consuming, and repeated at each field site. Once secured even that authorisation did not guarantee access to potential participants or their consent to take part in the study. The support of these various authorities, however, aided in gaining that of their constituents, much as the hard-won buy-in of the league administration, club administrators, and coaches did in Lusher et al.'s (2014) sporting team study.

The uncertainty of access further complicated already difficult sampling strategies. We had no up-to-date, accurate sampling frame for either study. For Study 1 on mobilisation, personal support networks, and livelihoods, we strove to produce a sample stratified by sex, armed group membership (past and present), and current mobilisation status (militarily active, demobilised, and civilians with no military history). The objective was to survey 30 or more members of these sub-populations. For Study 2, focussing on access to basic social services, the aim of the sampling strategy was to produce a sample of at least 30 residents in each of the four field sites, stratified by SES (low, middle, and high) and sex. Even had the last census in the Congo been more recent than 1984 (Brandt and De Herdt, 2019; Trefon, 2012), there would still be no ready-made listing of all ex-combatants, armed group affiliates, or members of specific SES in target communities. These realities preclude conventional sampling designs – based fully on a priori information and fixed before the study begins (Thompson and Collins, 2002). The sensitivity and social stigma associated with some of these attributes heightens general mistrust. The following subsections discuss how we adapted sampling strategies to navigate these challenges in the two studies and accessed members of targeted populations.

Study 1: mobilisation, personal support networks, and livelihoods (2016)

Researching the effects of participation in armed groups on personal support networks and livelihoods entails working with members of hidden and hard-to-reach populations. These are usually accessed through adaptive sampling designs like link-tracing and respondent-driven sampling (RDS), where sampling designs adapt based on information gathered as the study progresses (Thompson and Collins, 2002). Our seed set of 22 individuals, representing the target populations, was a purposive sample (Etikan et al., 2016). Its members were chosen following careful deliberation with various community representatives, some of whom had signed the *ordre de mission*. Their guidance was instrumental in selecting initial participants who were indeed members of the populations of interest; understood the project and consented to participation; and were popularly acknowledged as community leaders capable of vouching for the project vis-à-vis their constituencies. A member of a co-operative of demobilised combatants, for example, would refuse to participate if their president did not advocate for it in advance. Our experiences illustrated Kapferer's (1972) and White and Johansen's (2005) insights concerning the transitivity of trust (and mistrust) (Coleman, 1994) in practice, as an aspect of data collection as opposed to the subject of study. When some initial seed set participants withdrew and had to be replaced, misgivings spread to their constituents. We thus participated in various meetings, provided examples of questionnaires, explained methodology, and answered countless questions. Trust is hard-earned, particularly in these contexts.

The precarity of this process and the unpredictability of its outcomes led us to again modify the research design. Buy-in of residents and their representatives, and the ability to be vetted successfully, were imperative in this context. Decades of recurring violence and displacement, negative views of INGOs and outsiders generally, and the gradations of insecurity faced daily made communities understandably wary if not suspicious. Giving up one's contacts in a setting like the war-torn Congo is dangerous. Participants know that these data could be used to track down individuals, imprison them, coerce them into military service, target them for robbery, or withhold social services and resources. Considering the risks, it is unsurprising residents would be sceptical about participation and circumspect in their responses. When pertinent authorities, those who had endorsed our *ordre de mission*, introduced the project and researchers to potential participants, it seemed to alleviate many of their concerns. Participants trusted their representatives, and by extension – if not to the same extent – us as researchers. We decided to leverage the influence of such endorsements and relied heavily on the recommendations of previous participants to select subsequent ones, drawing them from alters found in their personal support networks. Participant-aided sociograms used to collect social network data steered the RDS. They were innovatively used as recruitment tools – as much by design as by necessity.

For the same reasons we decided to collect complete network data for all participants, including alter-alter ties, which is rarely the case with RDS. Not all alters, however, were followed up as they would have been with a snowball or a full cascade sample. Of the 404 participants who completed the survey portion of the interview, 396 created sociograms, yielding 2,360 alters before entity (or identity) resolution. A by-product of this hybrid sampling design was a partially observed network which clearly illustrates the coexistence of current and former combatants and civilians in the same space, bound by social support. They are clearly not disparate blocks separated by antagonism – despite the volatility of the conflict-affected context.

Evaluation of sampling design in Study 1

Whilst effective in recruiting participants, questions remain concerning the quality of the sample produced using this approach. This section provides a heuristic and qualitative appraisal of our hybrid sampling strategy, one that differs from assessments of reach and coverage presented in the statistical and theoretical literature on link-tracing designs. There is a plethora of sampling techniques for contexts where standard designs are not viable. These range from ad hoc adaptions of traditional sampling approaches (Rydgren et al., 2013) to

full blown adaptive sampling (Thompson, 1990) designs (Kabaghe et al., 2017; Ott et al., 2019). While incredibly flexible, these approaches still require a random seed set, i.e., that the initial participants have been selected using a probability sample, to be accurate. While the influence of biased seed sets may attenuate with the length of chains (Fellows, 2019), the number of waves is oftentimes determined by available resources. Furthermore, decisions weighing number of alters followed up versus the length of chains (Gile and Handcock, 2010) entail numerous considerations. In Study 1, we faced severe geographical, logistical, and security constraints. To assess the quality of the sample produced we could phrase its quality in terms of bias or inclusion probabilities (Särndal et al., 1992). Given the indeterminacy of the target population, however, a more fluent notion of coverage is more apt. Since the seed set is restricted to a small geographical area in one of the largest countries in Africa, we might thus examine *geographical coverage*.

Fig. 4 shows the geographical location of the 22 seed nodes, making their confinement obvious at least in terms of their current residence (size of the label, largest), where most were surveyed. Goma and environs, like major population centres worldwide, tend to attract people from afar, and participants' birth places (smaller, condensed labels) – which tend to coincide with where they experienced violent conflict (light squares) – are clearly more dispersed than the surveyed locations. The totality of current and past locations of the seed nodes meant that their portfolios of alters in their social support networks, and the totality of locations of their alters' alters, is considerably more dispersed than the locations of the original sites. Fig. 5 illustrates this geographical dispersion of seed nodes, egos, and alters distinctly. The location of seed nodes, egos (participants), and their alters, while covering a considerably larger part of the Congo than the regions of interest, does not immediately reveal whether the outlying nodes are part of the support network in any meaningful way, or whether they are accidental appendices of some egos. Mapping the ties between actors in different locations after several waves (a maximum of six) in Fig. 6, shows that the ties, and thus the social networks, are not just local but span considerable distances and reveal the way the setting makes contacts gravitate towards the eastern Congo.

Several studies have used a pure form of RDS in Sub-Saharan Africa. Ross et al. (2016) studied HIV and sextually transmitted infections in men who have sex with men (MSM) in Tanzania; Cowan et al. (2013) investigated sex workers in Zimbawe; Sandfort et al. (2015) and Burnhams et al. (2016) studied MSM at risk of HIV and illegal poly-substance users, respectively, in South Africa. There are also a number of studies in the Congo on sexual violence (Greiner et al., 2014; Johnston et al., 2017; Scott et al., 2015). Here, like in these RDS studies, depth of the network was achieved by avoiding a complete snowball sample wherein every alter would have been followed up. This resulted in a diversity of the total node set that was not constrained by the choice of initial seed nodes. What the cited RDS studies do not afford however is the network data itself because alter-alter ties are not elicited and often only recruited alters are recorded.

Of course, this is but a heuristic evaluation of the quality of the sample collected in Study 1, and the distinction between self-reported ties (ego-alter) and perceived ties (alter-alter) should be noted (also discussed in a similar setting by White and Watkins (2000)). The final sample, considered a multilevel snowball sample, has some variability due to the stratification of the seed set but also due to the intricate tapestry of social interconnectedness and interdependence. The final sample connects not only people in different geographical locations, but also individuals affiliated with rivalling former and current armed groups, maybe not directly but in a relatively few steps.

Using participant-aided sociograms as a recruitment tool in this link-tracing design and collecting full social network data on all participants (including alter-alter ties) resulted in a partially observed network. Adapting the research design in this fashion was a necessity in terms of identifying subsequent participants as well as securing their buy-in to participate in the study. Initial participants' introductions of the project and the researchers to potential participants, recommended alters from their personal support networks, was crucial to overcoming their apprehension. The trust already established between ego and alter was partly extended to us as researchers; egos' recommendations were simultaneously those of alters, the research, and the team conducting it. This endorsement was essential.

Some of the questions we asked were quite sensitive, particularly concerning military history and especially so in this unstable context marked by insecurity and suspicion of outsiders. This modification of the research design facilitated access and permitted comparison of egos and alters-cum-egos' reports. Perhaps most importantly, it revealed the complex enmeshing of seemingly opposed populations – members of warring armed groups, for example – through the interconnectedness of their personal support networks. Such data permit demonstrating the multilevel brokerage of actors (Stys et al., 2020) that contributes to better understandings of the characteristics of potential negotiators in processes of peace and war. Had we not pursued this sequential modification of the research design to enhance trust and access, our understanding of this social world would have been vastly different – 'not so much incorrect as [much more] partial' (Davies, 2002, p. 88).

Study 2: authority, governance, and basic social services (2018–2020)

The second study necessitated a purposive sample stratified by socioeconomic strata (SES) and sex. The goal was to develop a grounded understanding of how these subgroups access basic social services in four areas marked by different governance arrangements (or at least the institutions that dominate them). The first of these sites was also where Study 1 had been undertaken. Contacts now established and rapport developed over half a year living and researching in this area facilitated the formalities of securing research clearance. This process was also used to solicit the participation of authorities in semi-structured interviews and group interviews about SES in their areas. We needed to devise criteria from which to select our participants and leveraged stakeholders' expertise to do so. Time constraints, curfews and related insecurity, as well as communication issues (intermittent service, problems keeping mobiles charged, and their sharing between individuals) rendered formal focus groups unfeasible (Davies, 2002). Participants described SES in terms of attained education, professions (doctors, teachers, aid workers), positions of leadership in various organisations, property ownership, and the physical characteristics of residences. Middle SES was usually associated with owning and running boutiques, and high SES with larger business ventures in combination with holding leadership positions. We vetted these understandings in subsequent interviews until each successive examination of sources yielded only redundant information without usefully reinforcing previous results (Guba and Lincoln, 1981).

Despite these stakeholders' endorsement of the project, identifying potential participants and securing their consent was problematic. We did not have the luxury of participants' recommendations to guide us in their selection and broker trust, as we had had in Study 1. Residents marked by high SES were inevitably most wary of our research and most inclined to refuse participation; they also had the power to banish us from certain areas. This already demonstrates how certain individuals' resources make them socially central actors, granting them the ability to allow and deny access to those within their area or social network. As a result, they are also quite visible. Identifying members of other SES was much more difficult. Researchers used participant observation and unstructured and semi-structured pre-interviews to find suitable participants who consented to participation. This modification of the research design was a response to necessity, but it inevitably entailed a sequential interviewing approach through which rapport (and trust) could be built and sensitive questions introduced once it had been established (Jones, 2018).

In the site where we carried out Study 1, residents were acquainted with our team. This familiarity facilitated research authorisation but

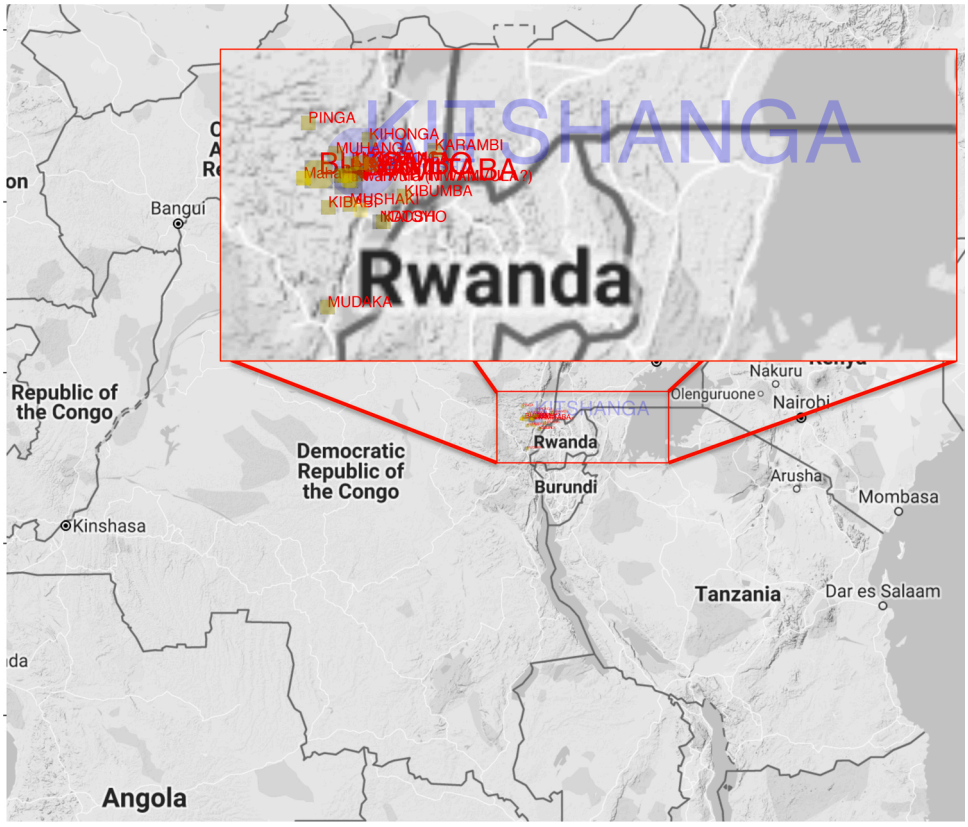

Fig. 4. Geographical locations of seed nodes. Where they were surveyed (largest label size); where they were born (smaller, condensed labels); and where they had experienced conflict (light squares). Size of label proportional to the number of participants in location.

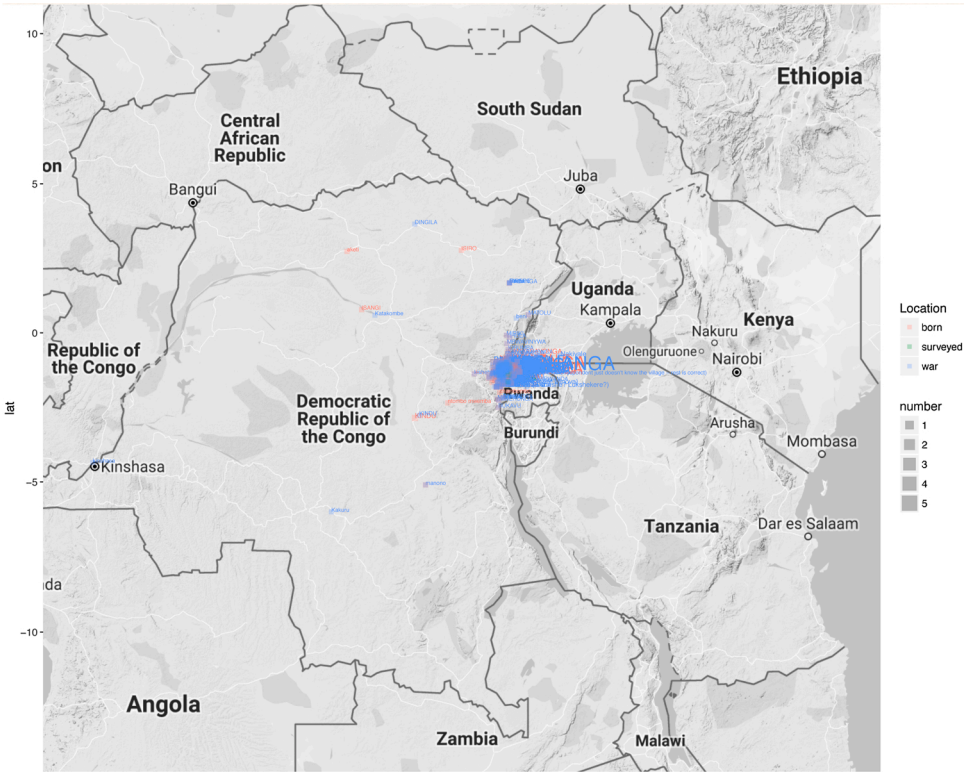

Fig. 5. Geographical locations of seed nodes, all egos, and all alters. Size of label proportional to the number of participants in location.

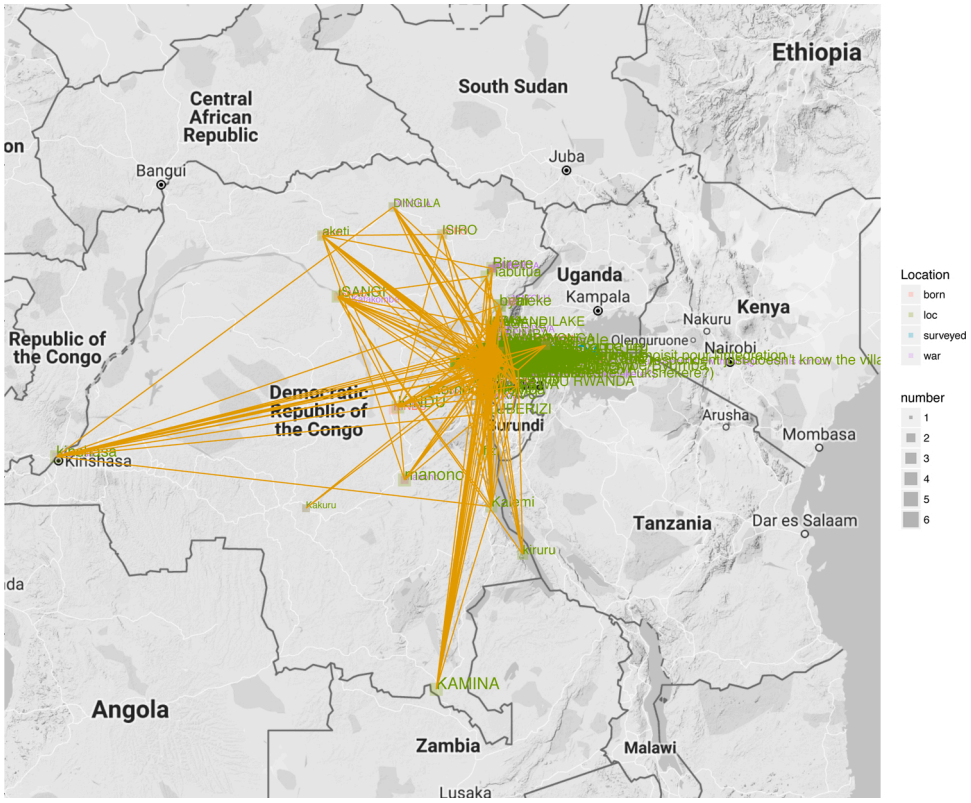

Fig. 6. Geographical spread of ties between actors. Elicited personal support ties between actors in different locations sourced from participant-aided sociograms.

also associated specific researchers with certain communities, enabling access to their members whilst precluding research with other communities. Inter- and even intra-community tensions reified mistrust generated through protracted, sporadic, low-level conflict. The area is nominally controlled by actors and institutions predominantly loyal to the national government, but that block includes former rebels integrated into the national army and police in 2009. It is far from cohesive and mistrust of strangers and their intentions – even known ones – is understandable. Equally evident is that 'being there and specifically *being there repeatedly over an extended period of time*' (Bott, 1957, p. 235) slowly counters suspicion.

We repeated this process of negotiating access; constructing and verifying conceptualisations of and criteria for different SES; and interviewing participants in stages in each field site. In the other two remote sites (B and C in Fig. 1), we lacked the pre-established presence and accrued trust that facilitated authorisation and access in the first field site. We thus invested much more time mediating identities, motivations, and power differentials during negotiations of access and interview encounters. Drastic security developments in these sites also necessitated further modification of the research design.

In site B, the governance arrangement disintegrated as the prominent actor, a Congolese non-state armed movement, split into separate warring factions. In response to ensuing violent conflict, the town filled with people displaced from neighbouring areas. Water shortages became frequent, and markets were routinely empty. We did not flee, but we never reached our actual second field site. It had been abandoned when fighting erupted, and its residents took shelter in the town in which we were staying. The initial instability and uncertainty rendered any efforts at data collection unethical and dangerous. When calm resumed, we faced difficulties discerning residents from those forcibly displaced. Participants discussed and mapped access to basic social services before their recent flight from conflict, as opposed to in their current state of displacement.

The governance arrangement in site C was mainly influenced by a foreign armed group. National army and police presence numbered too few individuals to do anything but arrange a tense co-existence. Despite the curfew and being prohibited from staying overnight in the town due to instability, we managed to co-design a framework for SES with these stakeholders and recruit participants. The governance arrangement, however, was recent and not well established. Its precarity also dominated the daily lives of residents and participants, all of whom discussed shifts in power and security, the uncertainty of living a transition where identities of authorities and service providers are in the process of being negotiated. Participants strained to explain chains of access they failed to terminate or were too fearful to attempt, especially relating to justice and security, and often deferred to nostalgia over how such access functioned under the previous dominance of a national non-state armed group. Instead of studying basic social service provision under the dominance of a foreign armed group, we found ourselves researching it in a state of flux and transition. We also struggled to identify residents of high SES: those who could, those with the means to do so, had already relocated to Goma. The few who stayed and consented to participation tended to offer vague, terse responses. Some abandoned interviews part way through. One woman, a merchant in the town market, had rescheduled our meeting four times. At the end, seeing us waiting for her behind her stall, she hitched up her skirt and literally ran away down the road.

Goma (site D) is vastly different from the other sites, a sweeping urban metropolis and the provincial capital of North Kivu. It is also home for many of us. Familiarity and pre-established trust facilitated research clearance and access, as they had in site A. The sampling design was unaltered, with participants recruited based on specific understandings of SES in Goma. This process, however, was at times instrumentalised by the same authorities who informed, vetted, and facilitated the research, aiming to include their relatives in the study in the hopes of financial gain or other benefits. Participants themselves were accustomed to large surveys routinely undertaken by NGOs and INGOs, for which they are compensated. The sheer magnitude of such

organisations' presence in the city exacerbates socioeconomic inequalities between citizens and (mostly white) foreigners (Büscher, 2012; Vlassenroot and Büscher, 2013). The association of the latter with humanitarian organisations is nearly impossible to counter and accompanies expectations of aid (Hardin, 2005). Europeans on the team in Goma were for the first time unable to participate in data collection due to the bias generated by their confusion with aid workers. The participatory approaches we embraced from the start became remote methodologies for some of us. Research in Goma was further hampered by electoral violence and protests related to the 2018 Presidential elections, the Ebola outbreak, and most recently the COVID-19 pandemic. These periods rendered all of us remote researchers (Duffield, 2014), relying on mobile telephones and poor connections to try to carry out fieldwork. Despite these challenges, we managed to collect data on personal support networks and access to basic social services at two points in time, a year apart.

We leveraged data garnered from participant observation, group interviews, individual semi-structured interviews, and later cognitive interviews to complement data from participant-aided sociograms and refine understandings of missingness in both Study 1 and Study 2. Trust, in gradations of magnitude, impacted all phases of our network collection experience. These impacts are particularly pronounced in the quality of data collected along this journey. The following section provides examples from both studies to demonstrate the dynamics between ethnographic approaches, trust, data quality, and contextual understanding in social network research.

Trust and quality: pausing in places and getting to know people

Validity and reliability have a long tradition of investigation and verification in the social and behavioural sciences, perhaps livelier in some disciplines than in others. Social network research has a more conflicted relation to measurement ever since the Bernard, Kilworth, and Sailer (BKS) (Bernard et al., 1979; Kilworth and Bernard, 1979) bombshell (Pattison, 1994). While individuals' apparent inability to recall their interactions induced much disquietude, social network researchers took solace in the fact that individuals were biased towards long-range, stable patterns of interaction (Robins, 2015). Even Krackhardt (1987) stressed the importance and distinction, from a network perspective, between actual behaviour and the cognitive representation of one's social network. Indeed, this was the focus of research for Sue and Lin Freeman when they sought to establish how surfers conceived their allegiances on a California beach. In fact, not only Newcomb (1961) but also Moreno et al. (1943) employed the cognitive social structures data collection paradigm. Whilst variation in responses can be interpreted as measurement error, evoking the BKS studies' contention that participants report their interactions inaccurately, that variation can alternatively be used as a source of information. In grounded cultural consensus analysis, for example, the same measurement framework was used to discern what participants agreed upon, less so whether that was accurate (Batchelder and Romney, 1988; Romney et al., 1987, 1986; Weller, 1987, 1984).

Inadvertently, precisely these tensions between the accuracy of recall, actual behaviour, and cognitive representations of social networks became increasingly evident as we used participant-aided sociograms in the eastern Congo. The discord resonated as much with levels of established trust. These discrepancies could have been intentionally or inadvertently ignored, but instead researchers queried them while participants independently re-engaged with the research. Some participants gradually revealed their social world in stages, as the studies progressed and rapport developed between them, researchers, and residents through interaction. Simmel (1906) makes the almost trivial observation that, in such exchanges, if the other partner already has full knowledge, no trust is needed but if, on the other hand, the other partner has a complete lack of knowledge, trust is impossible. Consequently, he argues, the amount of disclosure between those extremes is where trust operates. Furthermore, the act of disclosure is not exclusive to one particular sphere (Simmel, 1908). Either through inference on the part of the other or by virtue of what is being disclosed, ancillary information about other spheres is automatically divulged.

Cognitive biases may also be at play, where certain relations are more foremost in participants' minds, while others, potentially very important, remain supressed. Finally, it is not unlikely that individuals need some time to adopt a social network perspective and use it to reflect on their relations. Simultaneously, researchers need time to learn to understand those reflections, how participants narrate their networks (Crossley et al., 2015). Many participants indeed reworked their whiteboards extensively, with final versions differing substantially from earlier ones. This process of unveiling more and more information over time – and presumably increasing levels of trust related to assertions of researchers' ability, integrity, and benevolence[9] (Mayer et al., 1995) – is clearly evident in the three ego-nets presented by one participant at three different interview encounters over the first month of data collection for Study 1 (Fig. 7).

The figure provides the alter-alter ties elicited at these occasions, represented as a multi-layered network (Kivelä et al., 2014) with nodes present at different occasions linked across layers. Fig. 7 makes evident how, over the course of the three interviews, the participant reclassified group memberships, nodes, and the ties that bind them. This network narrative's evolution can be considered in the context of the BKS studies and related analyses of the validity of name generators, name interpreters, position generators, and resource generators (Robins, 2015, pp. 91–92). These studies, however, have mostly focused on a single source of variation. The differences in reports visualised in Fig. 7 potentially reflect a combination of informant inaccuracy (BKS); interviewer effects (Marsden, 2003; van der Zouwen and van Tilburg, 2001; van Tilburg, 1998); and cognitive mechanisms that determine which alters and ties are privileged over others (Bayer et al., 2020).

The additions of new nodes and ties between previously unconnected nodes at the second and third measures (interviews) could reflect processes associated with informant accuracy. The expansion of the alter set may also evince processes related to interaction between interviewer and participant. While van der Zouwen and van Tilburg (2001) found no evidence for learning (the 'Socratic' effect), they did find that explicitly referencing previous interviews in subsequent ones resulted in fewer lost ties. In a similar vein, Marsden (2003) proposed that the extent of probing could affect the number of alters nominated. He also demonstrated that the interviewer rating of participant co-operativeness strongly determines variation in the number of alters reported. This latter measurement could be associated both with quality, as judged by the interviewer, as well as with trust on the part of the participant.

It is unclear how these different processes may interact in the unfolding narrative depicted in Fig. 7. The reclassification of groups, nodes, and ties suggests that recall and interviewer interactions operate on cognitive mechanisms that determine what people (alters) are salient (or activated) at a given moment and how the connections between them are perceived. Bayer et al. (2020) distinguish between goal activation, habitual activation, structural activation, and incidental activation. Across the three measures of this participant's personal support network, we discern both people and groups being mentioned because of the resources they might provide ego (goal activation); because they appear in many of ego's daily interactions (habitual activation); because they belong to a group or mental set (structural activation); and because they are linked to other mentioned alters (incidental activation).[10] The following discussion describes how the participant engaged in these

[9] Researchers should always assume that participants discuss their experiences of participation as well as information some might have acquired about the research team.

[10] We are grateful to Tasuku Igarashi for presenting a discussion of Bayer et al. (2020) in the Melbourne Social Networks Lab.

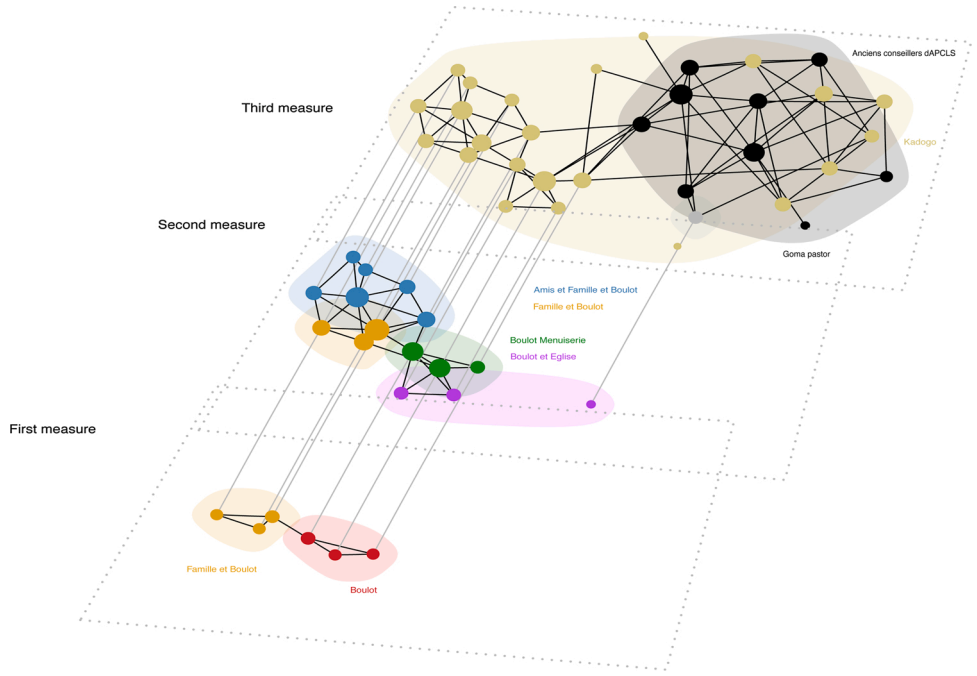

Fig. 7. Three participant-aided sociograms created by a participant in Study 1. The first is at the bottom; second is in the middle; the third and final sociogram is at the top.

activation processes, illustrating that they were prompted both by a Socratic effect as well as increasing trust.

In the first interview, the participant reported six sources of social support, categorised into two distinct but interconnected groupings, '*Boulot*' (work colleagues) and '*Famille et Boulot*' (relatives who are also work colleagues). In a second interview, a few days later, the participant asked to revisit these groupings, further elaborating how they fit into an overall social structure. Reflecting on the exercise of the first elicitation, he augmented and nuanced these categories, revealing more individuals who provided him with social support. He discussed acquaintances from church who provide him odd jobs ('*Boulot et Eglise*'); specified that work colleagues are fellow carpenters ('*Boulot Menuiserie*'), and added a grouping for relatives with whom he works who are also his friends ('*Amis et Famille et Boulot*'). He explained these distinctions and the overlaps between them at length – how these individuals fit into his life and one another's – further contextualising and refining ego-alter and alter-alter ties.

Now that he had satisfied himself that this was how the mapping was to be understood, having established that we had understood how he conceived of social support and the social foci, he felt confident that we would understand how his social support network was really organised. This resulted not only in several new individuals in his network but also a re-categorisation of what social roles were salient to him and why. It was only after another three weeks, as our interactions increased and trust was created slowly through mutual disclosure, that he commanded a larger whiteboard to be brought from Goma and asked us to block out a Sunday. He explained child soldiers ('*Kadogo*') and wise civilian counsellors of a community self-defence group of which he had been part since adolescence ('*Anciens conseillers d'APCLS*'). He spoke of his family and different appreciations of 'work' and responsibilities associated with them, civilian and military. This last network was not only the network most relevant to him, but also the network that, in the sense of Simmel (1906, 1908) revealed most about himself.

Each of these iterations was a different sliver of this participant's social world, relating different identities comprising his 'person', each associated with a distinct 'style' of behaviour and practice appropriate to that specific social network (White, 1992, p. 166). The social world was revealed less in parts than in layers of its composite networks. Specific identities were forged through ties with others in those networks. The first social network is a guarded one of a civilian with few contacts, limited to family members and co-workers. The second sociogram builds on this network and enrichens it, introducing diversified business contacts and intense overlaps between family, friendship, and co-workers, including demobilised combatants. The third social network is layered on the previous two, populated with many other individuals, all recategorized into their identities in the community self-defence group, arguably another network. Here, he also reveals his own identity, never negating the others but simply exposing more of his person.

This example was certainly not the only one in either study of a social world that was revealed piecemeal, or in layers of sensitivity starting from the mundane and over time bringing to light features that were more personal or guarded. Likewise, in Study 1, a participant who we thought was a farmer, a civilian prone to philosophizing about the origins of the state, turned out to also be a sharpshooter and a commander on leave. A youth who purported to be a child soldier was actually a neighbourhood firebrand who wanted to impress us and confessed as much weeks after our interview, at the behest of his mother. Whilst certainly his mother could have encouraged him to withdraw this divulgence, other participants who nominated him as an alter identified him as a civilian without a military history. Many people in these areas participated in conflict in one way or another and being or being recognised as a civilian, combatant, or demobilised combatant are identifiers accompanied by prestige, stigma, or vulnerability in perhaps unanticipated ways. How these identities are perceived is situational, dependant on the other, the location, and the time. Certain identity is guarded for good reason. Discussing this confusion, a resident stressed collusion as well: 'In this area we don't know what regular army and rebel army signify, we have the impression that they live together and eat together. Who controls who and who hunts who, who protects who and who threatens who?' (2018).

The instability and uncertainty of this context breeds mistrust, particularly vis-à-vis outsiders, and it manifests in misperceptions that spread quickly and are difficult to counter (Ellis, 1989). We were suspected of coming to register people to bring them to justice; arriving to raise a militia in the name of the president; and launching a new development programme – all extremely dangerous misunderstandings.

We invested substantial amounts of time countering these misperceptions and renegotiating our identities to be researchers. Even as trust was tenuously nurtured, certain features of participants' social worlds tended to be obscured from us (Fujii, 2010). Polygamy, mistresses, and lovers were sources of social support and intermediaries in securing social services routinely guarded by participants. Husbands whose wives supported them and their households never included these women in their sociograms; the situation was socially unacceptable and pretended away. Certain paths in chains of accessing security or alters providing instrumental support were likewise delicate topics. Independence is highly valued, and needing intermediaries contradicts it. Furthermore, revealing one's alters might be used against ego. More poignantly, these are priceless contacts and knowing how to engage the actors and navigate the mechanisms necessary to accomplish your ends in this context makes you irreplaceable – as long as you guard your secrets.

In Goma (Study 2), we collected social network data on personal support networks as well as access to basic social services at the start of the project in February and March 2019 and again a year later. Between these dates, as part of a broader project, researchers visited participants every two weeks and interviewed them about their household revenues, expenditures, and management of unforeseen shocks like deaths, illness, robbery, and arrest. Rapport developed over this period and social network data collected in March 2020 led us to re-evaluate data collected at the beginning of the project. Certainly, network composition changed as nodes were added or removed, but it also changed because of the addition of alters not disclosed in the first interviews. Continuing sequential modification of the research design, we conducted cognitive interviews focusing on disentangling actual change in network composition from initially missing data. In terms of the latter, we wanted to identify what kinds of alters were routinely undisclosed in interviews, by what kinds of participants, and why.

Data gathered over the course of the year through participant observation complemented this exercise. During household visits, researchers observed interactions, guests, and life events. Detailed notes allowed us to include this information in later cognitive interviews. This was only possible because of the relationships forged over this period through mutual disclosure and interaction, a fundamental aspect of in-depth ethnographic research. Had we not adopted sequential modification and relied solely on network data collected in 2019, our understanding of personal support networks would have precluded actors like lovers and elites in business and government. In the same vein, accessed social services would have been fewer as some participants initially portrayed their situations as more dire in hopes of receiving aid or benefiting from a development project. The chains through which they accessed these services would also be less detailed, lacking intermediary paths and actors and the contexts in which they were mobilised.

Time, passed in these places with people, outside interview encounters, inevitably entailed inadvertent as well as conscious disclosure. Sharing the same spaces, frequenting the same markets and bistros, was also a form of participant observation during which undisclosed relations and individuals manifested themselves unwittingly. Such developments could be discussed later, as long as they were not shared, evidencing participants' lack of disclosure and perhaps (understandably so) incomplete trust towards us. It was through such random exchanges, for example, that we discovered that the merchant who literally ran away from an interview, skirt in her arms, did so to protect her relations with the new, dominant armed group. To continue commerce during this transition, one had to negotiate its terms with these new authorities. Revealing such contacts could have endangered her, her family, and her business. These insights shed light on behaviour we initially found inexplicable (albeit comical in the moment).

Certainly, the data we collected in both studies remains wrought with ambiguity: completed chains lack certain links and intermediaries; services accessed through dubious means might have been posited as inaccessible; and alters whose identification could result in them refusing future assistance may have never been revealed. Relationships, as intermediaries in accessing resources, are interconnected. 'Individuals in order to safeguard their investments in as many relationships as possible will concentrate their time and effort in protecting key relationships' (Kapferer, 1973, p. 101). As Kapferer (Kapferer, 1973, p. 107) notes further in his seminal work based on research in urban Zambia, 'it is assumed that investments and relationships of trust are exposed to greater risk if they are part of a highly interconnected set of relationships'. Jeopardising a crucial relationship may endanger one's entire network. In this context, where such relationships are the key to survival, the risk would simply be too great.

Considering the sensitivity and value of such information and the precariousness of everyday life in the eastern Congo, it is perhaps most surprising that we managed to collect the data we did. Initially shrouded in suspicion and mistrust, the social worlds participants revealed were incomplete and limited to innocuous actors and ties. Through time, interaction, mutual disclosure, and certainly chance, enough trust was nurtured for participants to reveal other, previously hidden features and strata of their worlds. In taking control of the narrative and explaining their worlds in their terms, participants communicated the people and relationships most salient to their lives and their needs. Revealing that relevance is a risk, and so doing necessitates trust, but it is through this mutual investment that data are more complete – thicker (Robins, 2015, p. 228) – and thus the understandings gained from them richer.

In conclusion: lessons learned along the way

In literature on social network research, discussions of the data collection experience are rare and at times unconventional. They convey the realities of research design and implementation, challenges encountered and efforts to overcome them, successful or not. Such discussions are increasingly important as ever more scholars engage in social network research – spanning disciplines and breaching new horizons. Our account contributes to this body of work. In this final section we reflect on the key takeaways from our experience conducting two social network studies in the eastern Congo. Broadly they encompass the advantages of a team-based process; sequential modification in research design; and multiple ethnographic approaches to data collection. These insights stem from a careful consideration of the interdependence between trust and data quality, whose salience is amplified in social network research that entails trust-sensitive settings or subject matter.

The discretion and distrust that characterise such settings are reasonable reactions to past or present political instability, insecurity, or conflict. Crafting the adaptive research designs that such environments necessitate requires specialised expertise, from social network researchers and statisticians through regional experts, national researchers, and practitioners. A team-based approach thus assures (to the extent possible) that methodologies are theoretically sound, culturally and contextually appropriate, and feasible. Implicitly, this process is one of continuous validation from multiple angles and at various points from design through implementation. In cases where all data is collected digitally or remotely, it may be extremely difficult if not impossible to sequentially modify research designs, particularly in response to changing conditions on the ground and participants' insights in remote regions with poor network coverage.

Training workshops and pilot studies are crucial in the sequential modification of research designs. They are not only trials of concepts and data collection instruments, but also opportunities for researchers to practice their utilisation and engagement with participants. When pilots include cognitive interviews (meta-interviews), they leverage participants' experiences of being interviewed to further refine research design. In trust-sensitive settings, it is imperative to assess the facility of access, participants' potential concerns, and methods which invoke misgivings or suspicion early on and continuously throughout data collection. Neglecting to do so may result in low participation rates and security risks for the research team. As labour-intensive as this process

seems – and is – it identifies problems that can be resolved, avoiding their scale-up along with the studies themselves.

Context affects data collection efforts as well as the data that is collected generally. Moreover, social network data is rather private – and its collection can seem intrusive. The implications of these realities are magnified in trust-sensitive settings where residents are wary of strangers and cautious in the information they share, when they choose to disclose anything at all. Contacts and connections are means of securing access to resources including capital and protection, and not always through licit channels. Guarding them is essential to survival in precarious settings; divulging them may jeopardise one's safety. Furthermore, discussions of social networks often inadvertently touch on topics of money and sex – delicate subjects in any context. The complexity of these dynamics casts doubt over whether any data collected in an environment of suspicion and secrecy can be trusted, exacerbating familiar concerns over validity and quality.

This conundrum is most effectively confronted through extended personal presence in the field and first-hand data collection, leveraging an array of ethnographic approaches. Trust is forged over time, through mutual disclosure during interview encounters and everyday interactions outside them. Collecting data first-hand entails participant observation and a certain amount of embeddedness or immersion in field sites, even if implicit by design. The former provides a means of triangulating collected network data whilst the latter reinforces trustworthiness and thus facilitates (further) disclosure. Additionally, reflexivity and on-going team consultations allow researchers to appraise incoming data in real-time, through one another, very much as Bott (1957) had done. These experiences, when researchers are astute to them, are replete with ancillary data that provide contextual insight. Unstructured, follow-up, and cognitive interviews can be used to enhance understandings of context and incomplete or potentially missing data by illuminating delicate facets of social worlds and elucidating reasons for their concealment. In tandem, such ethnographic approaches can render collected network data and their at times confounding results intelligible.

Most importantly, holistic, complementary ethnographic approaches enhance extended, personal engagement with residents, participants, and their communities. As trust grows, it is diffused through recollections and recommendations to others (Coleman, 1994; Kapferer, 1972; White and Johansen, 2005). Social worlds are intentionally revealed in layers of sensitivity from the mundane to the more private or guarded, and unintentionally through daily encounters where undisclosed relations and individuals present themselves by chance. In-depth ethnographic approaches can discern how disclosure of certain alters and ties over others is also determined by interactions of processes associated with informant accuracy and cognitive mechanisms, in addition to researcher-participant exchanges. Increasing trust and an aspect of learning were crucial in the interaction of these processes. Considerations of trust and quality in how social networks are constructed and narrated – and social worlds revealed – reflect the active tradition of appraising the validity and reliability of network measurement. In trust-sensitive settings, these considerations are made possible by ethnographic approaches that combine extended, personal presence in the field with first-hand collection of in-depth network data. The experimental and exploratory nature of sequential modification lends itself well to the methodological innovation and adaptation necessary to obtain quality (or even valid) social network data in such settings.

Our discussion of network collection in contexts marred by suspicion and seclusion demonstrates the intricate interdependence between trust and data quality, echoing processes of disclosure of secrets (Simmel, 1906). It also posits methodological approaches that can overcome apprehension, increase levels of disclosure, and nuance meanings of ties, yielding 'thick data' (Robins, 2015, p. 228) that reveal the delicate facets of social worlds that enable survival against all odds. Without such understanding, policies to support political stabilisation and further socioeconomic development have slim chances of succeeding beyond doing no harm. This socio-structural understanding requires thick network data, and obtaining it in such settings necessitates nuanced, reflexive research designs. The present and future crafting of research in trust-sensitive contexts benefits greatly from our community's past experiences, which are arguably discussed and disseminated too rarely.

The unique value of accounts of the network collection experience are exactly these candid considerations of obstacles in research design and implementation, inextricable from trustworthiness and trustfulness, and how they affect data and quality. The shared and examined experience of collecting social network data contributed to – and was an integral aspect of – the data we ultimately accumulated. This account is thus more than a tale of two studies; it is part and parcel of them.

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Declaration of Competing Interest

The authors report no declarations of interest.

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