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When the snowball fails to roll and the use of 'horizontal' networking in qualitative social research.

ABSTRACT

Snowball sampling is frequently advocated and employed by qualitative social researchers. Under certain circumstances, however, it is prone to faltering and even failure. Drawing on two research projects where the snowball failed to roll, the paper identifies reasons for this stasis. It goes on to argue that there are alternative forms of networking that can be developed by the qualitative social researcher in lieu of snowballing. Specifically, when research momentum fails to build, rather than drilling down vertically through social networks, we argue that the researcher can move horizontally across social networks and cast the sampling and recruitment net wide and shallow rather than deep. This change in emphasis can, we argue, make the difference between a project failing and a project succeeding, and points to the importance of a variegated understanding of the social networks on which our social research depends.

Keywords: interview; network; qualitative; recruitment; sampling; snowball; ties.

Word count: 7,305

Introduction

In many academic methods textbooks, 'snowball' sampling is billed as a profitable means of recruiting research participants, though at the same time it tends to be profiled in a rather limited and superficial manner. This said, recent specialist papers, including a number in this journal, have provided more detailed (Browne, 2005; Noy, 2008) and in some cases cautionary accounts (Atkinson and Flint, 2001; Waters, 2015) of snowballing. For qualitative social researchers interested in sampling and recruitment, we suggest the need for greater attention to the actual experiences of snowballing. In particular, we argue that snowball sampling can, for various reasons, falter or even fail, but that when this occurs there are alternative networking possibilities available.

Central to accounts of snowballing is a 'referral' model of 'using one contact to help you recruit another contact, who in turn can put you in touch with someone else' (Valentine, 2005, p. 117). This involves a form of vertical/ deep social networking that usually starts with a multiple (though relatively small) number of initial contacts and then uses these to establish links with other research participants and thus build up sampling momentum and sample size. In other words, through what might be termed 'social capital' (Bourdieu, 1984), the snowball is able to roll. The sampling strategy is variously described in academic texts as convenience (based on the contacts available), non-random and non-probability (not necessarily reflective of a broader population, making wider inferences difficult) and often purposive (targeting certain groups or types). Further, the expectation is often that the researcher will continue interviewing until a saturation point is reached i.e. until no more significant new information can be gained by further sampling (known as saturation sampling).

The aim of this paper is to identify the circumstances under which snowballing may falter or fail and to outline an alternative networking strategy for when this occurs.

Specifically, and drawing on our own research experiences when the snowball failed to roll, we will argue that the strategy should be viewed as one of two main types of qualitative network-based sampling and recruitment. Researchers can network vertically via relatively strong initial ties and build momentum through these (usually via the trust, rapport and reciprocity with which they are associated). However, it is also possible to move horizontally; using both strong and weak ties to bridge into new social networks, in effect casting the sampling and recruitment net wide rather than deep.

The two research projects we draw on where the snowball failed to roll focus on: 1) worker exploitation in the UK food industry, using a network of 11 'peer' researchers to interview exploited migrant workers; and 2) culture, identity, mobility and hyper-masculinity amongst men and women who had recently left the UK armed forces. These two projects both set out with the intention of building up momentum from a relatively small number of initial contacts and strong ties, but in the end also became dependent upon a host of additional research entry points, and what we term 'horizontal' networking through both strong and weak ties.

Snowball Sampling: A Review of the Literature

Snowball sampling exists in two main forms within the extant literature, reflecting two distinct epistemological positions. First, from the 1950s and 1960s snowball sampling was associated with the tracing of an initial contact's social networks through to a natural end point. For Goodman (1961, 2011) and Coleman (1958), the purpose of this form of snowballing was specifically linked to the study of communal and social structures and a desire to study these with minimum sample bias.

More recently, and building in part on this tradition, there has been considerable work to consolidate the principles of snowballing as a means for making statistical

inferences. For Heckathorn and Cameron (2017), the preferred term is 'link-tracing', as snowballing has become associated with 'a sample that does not provide the basis for validly inferring from the sample to the population from which it was drawn' (p. 102). Heckathorn is particularly known for extending link-tracing to make inferences for hard to reach populations through 'respondent driven sampling' (RDS) (Heckathorn, 1997). RDS is described as a form of 'network sampling' integrating link-tracing with 'multiplicity sampling', another form of network sampling so-called because of its use of multiple network links to increase the efficiency with which rare populations may be estimated. The impact of this line of development has been impressive, as the citation summary in Heckathorn and Cameron (2017) goes to show.

Second, and as noted above, snowball sampling is specifically used by qualitative researchers (especially interviewers) as a form of non-random sampling. Waters (2015, p. 371) characterises this form of snowballing as follows:

'The researcher would identify and interview a number of suitable individuals who were either friends or colleagues, or had been identified by friends and colleagues. Then, after hopefully building a reliable and trusting relationship through the interview process, these initial interviewees would themselves be asked to recommend friends and acquaintances that matched the research criteria. The researcher would then chase these leads up (and) a chain can be continued until it either comes to a natural end or reaches saturation point'.

Prominent research methods texts (see, for example: Bryman, 2015; Clifford, French & Valentine, 2010; Flowerdew and Martin, 2005; Gray, 2004; Hay, 2016; Hoggart, Lees & Davies, 2002; Kitchin and Tate, 1999; Robson and McCartan, 2015; Sarantakos, 2013) largely focus on this second type of snowballing. In reviewing these texts, we found, however, that coverage of snowball sampling was limited, usually

restricted to lines rather than pages. Bryman (2015) gives snowball sampling most coverage (3 pages) of the nine texts we examined, though only Robson and McCartan (2015) note that the strategy can be prone to failure (drawing on Waters, 2015).

Noy (2008, p. 328) is critical of the more general lack of reflection around qualitative research sampling strategies. This is despite the fact that sampling reflection is undoubtedly a key component in establishing research rigour (Baxter and Eyles, 1997). In relation to snowballing, 'the most widely employed method of sampling in qualitative research' (Noy, 2008, p. 330), Browne (2005, p. 48) laments that: 'Although snowball sampling is used extensively…there are few reflexive accounts of how it has been employed. Moreover, although snowball sampling is mentioned within methods/ methodological sections of papers, books, and book chapters, there has yet to be a sustained discussion regarding the technique of snowball sampling'.

There have been numerous snowball studies, many targeting hard-to-reach groups and/ or sensitive topics. For example, on drug use (Becker, 1963; Biernacki & Waldorf, 1981; Griffiths, Gossop, Powis & Strang, 1993; Willems, Iguchi, Lidz & Bux, 1997), prostitution (McNamara, 1994), gangs (Petersen & Valdez, 2005) and serious illness (Sudman & Freeman, 1988). It is important to note, though, that snowballing is a technique that is also widely used in mundane and everyday research contexts. Moreover, it is a technique used in ethnography as well as in in-depth interviewing, where research opportunities often open up following contact with key informants.

Noy (2008) offers a compelling argument for turning closer attention to snowballing as a key research moment in which: 'unique social knowledge of an interactional quality can be fruitfully generated' (p. 328). According to this view, knowledge of topics obtainable via snowball sampling is tied not only to the interviews carried out with recruited respondents, but is also shaped also by 'movement' of the

research through participants' social networks, as the snowball chain-referral process develops. 'Sampling knowledge' from snowballing comes about through the particular intersections between movement in social networks and interactions with individual participants (Noy, 2008, pp. 331–332). However, although referrals are crucial towards snowballing progressing and momentum-building, it is more questionable that they always constitute 'positive information' (Noy, 2008, p. 332), or that they calibrate with the requirements of the research. Instances of interviewees giving spurious contacts in a bid to deflect the research, preserve or enhance their own status, or to shield others, have been discussed in more depth elsewhere (for example Groger, Mayberry & Straker, 1999).

Waters (2015) is one of the few scholars to reflect in-depth on the limitations of snowball sampling. She identifies four sets of limiting factors faced in her attempt to reach older adult drug users (Waters, 2015, pp. 374–377). A first issue relates to the topic under study, with the proposition that some topics may be too sensitive to broach. The older adults whom Waters was able to contact regarded their drugs-taking as highly private and a personal matter and did not feel comfortable enough either to talk openly about it or to consider divulging knowledge on others. Secondly, Waters argues that snowballing will be more effective when potential participants perceive few risks of participation, notably to themselves, but potentially to others as well. Risk perception in snowballing can link to the topic being examined, and to assurances of participant anonymity and confidentiality. On the one hand a participant may control referrals they provide, yet on the other hand they may sense a lack of control over how such contacts may be used subsequently. Waters argues that her interviews showed that the respondents did not feel defined by their drug-using, nor did they see themselves as open advocates of it. Noy (2008, p. 331) attempts to draw the distinction between topics considered more

socially acceptable, yet which are 'hidden-by-choice', and those which are hidden more by processes of stigmatisation, marginalisation or exclusion.

Third, the positionality of the researcher may resonate in particular ways in snowballing, in terms of the time and effort involved in trust-building and obtaining referrals. Waters contends that her own differences in age and nationality from the older drug users she was studying were barriers in this regard, and that snowballing is likely to proceed better if the researcher is like, or part of, the population being studied. In other words, just as affiliation patterns exist among research participants and others they refer, so their existence among researchers and participants may favourably influence prospects of developing sampling momentum.

Fourth, and finally, Waters concludes that snowballing is likely to work where there is actually a network of social relations between individuals. This may seem a self-evident requirement, yet it points to interesting questions concerning the configuration of networks and the strength of connections, or 'ties', between individuals which are necessary for snowballing to proceed effectively. Waters argues that 'the closer the ties between individuals the better' (p. 378) and it is clear that research is helped when the topic under investigation has a social/ communal basis.

Browne's (2005) use of snowballing in a study of non-heterosexual women provides additional points germane to the present study. Browne recounts how snowballing supported her use of a varied set of other methods beyond one-to-one interviewing, including couple interviews, focus groups, diaries and photo-based autobiographies. In a similar vein, scope for extending snowballing beyond a 'sole researcher' model is also discussed, such as in the case of Duncan and Edwards (1999), who in their study hired additional investigators with links into the social networks they were interested in. However, increasing numbers of researchers is not a simple matter of

expanding the scope or scale of snowballing, as it also influences the interpersonal relations that are (per)formed during sampling and drawn on in generating accounts of people's lives (Browne, 2005, pp. 47–49). Such considerations were important to us as in one of our own studies; we likewise drew on the multiple-researcher model, recruiting 'peer researchers' based on having similar characteristics to the study population.

Research Experiences of Snowball Sampling

Waters (2015, p. 372-3) notes that 'it is not necessarily the case that rolling snowballs will continually grow and pick up speed'. Our two research projects, which we will now discuss, underline this point. Both projects centred on researching workplace experiences and identities: the first among exploited migrants and the second among ex-forces personnel. In both cases, snowball sampling was the initial strategy deployed, drawing on the advice from key methodological texts. In the event, however, snowball recruitment failed to deliver the target sample size for both research projects.

The first project in which snowballing failed to gain momentum was funded by a leading social policy charity and addressed the topic of workers' experience of exploitation in the food industry (Scott, Craig & Geddes, 2012). The requirements set by the funders were for a UK-wide study, across several industrial sub-sectors, from agriculture to food retailing, and focussing primarily on conditions and practices in low-wage jobs filled increasingly by migrant workers. To meet these requirements, the project included three British academics (two of the present authors plus a colleague) and five different UK study locations. For each of these locations we employed one or more 'peer researchers', each tasked with using their own respective networks to identify individuals with experience of exploitation, conducting interviews subsequently, and then delivering

to us the translated interview transcripts. We recruited 13 such interviewers for this with an overall target sample size of 60 interviews.

We refer to these interviewers as 'peer researchers' following Edwards and Alexander (2011, p. 269) as 'People who live within, and have everyday experiences as a member of, a particular geographical or social 'community', and who use their knowledge in a mediating role, helping to gather and understand information from and about their peers for research purposes'. We sought out those who were themselves 'migrant' non-UK nationals, taking this as a good indication that they had 'insider status' (Ryan, Kofman & Aaron, 2011) within the migrant groups across the study locations. We also wanted people who were ostensibly at key 'junction points' in migrant communities and networks and who were bilingual in their own language and in English. To identify suitable candidate interviewers, we contacted an array of local state and third-sector organisations and other initiatives focussed on migrants' rights and on supporting migrant workers. Most of the researchers recruited this way were already working in some capacity for such organisations.

The 13 peer researchers were therefore regarded as key intermediaries, positioned on the fringes of our own research networks but centrally located within migrant social networks, networks we did not have access to. Moreover, by including so many peer researchers, we were optimistic about the prospects of creating multiple entry points for snowballing, which would also help to reduce bias arising from using a single entry point. To enhance the odds of the approach working, we designed a two-day training workshop that most of the interviewers attended, also giving them the opportunity to share ideas about how and where to begin the search for potential interviewees. To facilitate continued cross-fertilisation, we stayed in regular contact with the researchers by phone, email, and through progress meetings arranged for each study location. The peer

researchers were also paid at a flat rate based on completed interview transcripts and though the level of pay itself raised issues, notably after the snowball was failing to roll, we have reflected on this elsewhere (Scott & Geddes, 2016).

Despite this preparation, and the initial enthusiasm shown by the peer researchers, only three interviews were completed by the initial six-month deadline, with no indication that snowballing was gathering any sort of momentum for any of the peer researchers. At that stage, two of the researchers left the project, neither having completed any interviews. Both of these researchers were males, and while one worked for a local authority, neither appeared to have as strong roles in specialist migrant groups or networks. Of the 11 remaining researchers, 10 were women. They went on to complete between 3 and 17 interviews each, although none included 'deep' snowball chains. In other words, while most interviews came about by the peer researchers spreading the word about the research project, very few of them were the direct result of referrals from one interviewee to others in the manner most associated with snowballing.

Reasons for this lack of momentum are similar yet not identical to factors which were seen to govern the only partial success of snowballing in other research contexts (Waters, 2015). A first factor was the subject matter of exploitation and forced labour. Not only is this topic a sensitive and often hidden one, but it is also difficult to define and detect in practice. Put another way, we were asking our peer researchers to recruit people who had been exploited; when this is not something individuals usually openly advertise, or even divulge privately, nor is it something that it easy to articulate to prospective research participants; who may in fact not even see themselves as victims despite suffering exploitation.

A second reason for the limited success from snowballing concerns the 'insider' status of our peer researchers within the different local migrant groups under study. As

noted above, we went to some length during the recruitment of the researchers to ascertain that they were well networked. Subsequently, however, it became apparent that the characteristics against which we had reached such decisions, while they were necessary conditions for capitalising on insider status, they were not of themselves sufficient. To elucidate, our selection criteria included whether the researcher was from the same country of origin as the migrant groups under study, whether they spoke the same language, and the extent to which they appeared to us to be well known within the migrant 'community'. Less easy to judge at the outset, but which appeared to prove influential in retrospect, was the difference in class position between researchers and the target group (see also Ganga & Scott, 2006). Many of the researchers were young, middle-class professionals and this appeared to create a gap in terms of the willingness of the potential interviewees (who had largely been exploited whilst working in low-wage occupations) to trust that the interviewers; who we thought of as insiders, but were actually not always obviously 'on the same side' as prospective interviewees. It meant that, whilst our peer researchers generally had ample social capital, this was not able to provide access to the required individuals or their social networks.

Thirdly, and we believe probably most importantly, another reason for the lack of development of snowballing in this study related to our inability to judge in advance the degree to which work experience and occupational status were actually a basis for formation of social networks that could subsequently be drawn upon to obtain 'referrals' and develop sampling momentum. Put simply, our target population (exploited workers) did not appear to maintain contact with others who had suffered whilst at work. In some cases, there was even an unwillingness to disclose information through a fear of various forms of reprisal being meted out by employers, despite our assurances of anonymity and confidentiality. In other situations, the sense of unwillingness was generated more by a

feeling of shame and embarrassment, that interviewees felt they had brought on themselves (and brought to their families) as a result of ending up in poor employment situations. It also became apparent that the interviewees had little time or energy to look for sources of support, and/or had little faith in gaining justice. They were largely isolated, and usually silent, in their experiences of exploitation; yet we had assumed that there would be some loose networking and associated social capital between victims.

Finally, there may be a distinction between research being carried out by a Principal Investigator(s) (PI) using his/ her social contacts versus the research being managed by a PI but reliant on the social contacts, and insider status, of peer researchers (for reflections on this, see: Edwards and Alexander, 2011; Ryan, Kofman & Aaron, 2011; Scott & Geddes, 2016). The distance between the PI and the community under investigation may well affect research momentum, and it could be that part of the failure of snowballing was due to this. Put another way, snowballing may work more effectively through the strong ties and associated social capital of the PI than anyone else, though more reflection on the effectiveness of different types of research configuration is clearly needed.

The second qualitative research project involved one of the current authors, who received university funding, examining military workplace identities, focussing specifically on themes of culture, identity, hyper-masculinity and mobility. Military populations have been cited as, and critiqued for, being a breeding-ground for hyper-masculinity; while 'mobility' in the context of the military is imbued with particular meaning: such as around tours of duty, deployment in zones of conflict, or being stationed on particular bases. Taking these two dimensions together, there are important questions over how (well) military personnel negotiate the differences between such locations, in which hyper-masculine identities are formed and foregrounded, and other environments

where there are different norms and expectations around identity and behaviour, such as in domestic environments experienced during periods of leave at home. For this second project the specific interest was in negotiation of identities following discharge from the military and permanent return to 'Civvy Street'.

For this study the recruitment of 40 participants who had left the military within the previous two years was seen as achievable target within an 18-month study period. The intention was to snowball from the researcher's own family network, as two members of the family had recently left the forces. Both family members did become initial 'seeds', were interviewed successfully, and provided several other contacts to approach. Interviews with five others were carried out subsequently, within a few weeks of one another. However, promises of information from among those five never materialised, despite multiple requests, and as a result further snowball chain-building stalled. New interviewees were only recruited upon a change in approach that did not involve going back to the same family members for more names. Instead, the search was spread more widely, by talking about the project in other circles and following up leads from there.

It is easy to see how the interactions between female academics and recent ex-military males (all original links and initial interviewees were male) may have contributed to the re-production and enactment of different identities, which in turn may have inhibited the latter from providing more information. The researcher was informed by some of the initial male interviewees, for example, that other potential participants would be 'too rude', 'crude', 'improper' or 'aggressive' to interview on the study topic. Going further here, the interviews with the five second-stage respondents gave hints of mutual interactions. Firstly, in contrast to the labour exploitation study, there were clear indications of strong social networks between members of the study population – unsurprisingly a sense of there being a military 'brotherhood' – and this allegiance to

military cultures and a desire not to 'rock the boat' may have outweighed feelings of obligation towards assisting the research(er) by naming other contacts. In other words, military and ex-military can be viewed as an 'elitist group' (Noy, 2008), with the interviewees feeling social pressure not to open access to non-elites. Secondly, it is interesting that all the participants did indicate that they were busy 'moving on', establishing lives and new careers outside military. Hence not providing referrals may also be seen as a way of resisting social pressure exerted by the network, an active attempt to loosen network connections to former military acquaintances.

From Vertical/Deep to Horizontal/Wide Networking

In two different qualitative research projects snowball sampling faltered, and there was little advice from the extant literature concerning what to do in such circumstances. In the event, we resorted to thinking about recruitment and sampling from the perspective of horizontal (largely weak-tie) networking. This meant a recognition that momentum would be unlikely to build through the strong ties of the researchers and peer researchers; and that we would instead need to cast a wider and shallower recruitment and sampling net, that relied not only on existing strong ties but also on a looser network of weak tie contacts.

To put this in a conceptual frame, Granovetter (1973, 1983) draws attention to the importance of 'weak ties' both towards the production of 'macro-level' patterns and phenomena, such as the (in)ability of communities to organise themselves against events that negatively affect them, and in terms of structuring opportunities for individuals, such as opportunities for social mobility. The paradoxical assertion that weak ties perform functions which might otherwise be ascribed to close interpersonal relationships ('strong ties') derives from regarding weak ties as important 'local bridges', connecting differing

high-density clusters of relations (see also Putnam, 2001; Ryan, Sales, Tilki & Siara, 2008). In other words, through 'local bridges', weak ties can act as horizontal pathways into desired new networks of potential research participants. Thus, network-based sampling and recruitment need not always depend upon the researcher mining his/ her established and proximate social networks.

As far as our research on migrant worker exploitation is concerned, the question that remains is how the peer interviewers were eventually able to access so many appropriate individuals after such an unpromising start? Previously we have argued that this change of fortune followed our decision to increase the payment rates for the interviewers, in response to unhappiness that emerged among some of the peer researchers over the original level of pay against the amount of effort required (Scott & Geddes, 2016). For example, one of the interviewers who was strongly of this view had claimed that it was taking between 20 and 22 hours to translate and transcribe a single transcript, excluding the significant time spent on recruitment, and also on the interview itself. We note the insightful work of Head (2009) on the ethics of research payment more generally, and in our case simply want to point out that interviews stalled first and foremost because horizontal sampling is much more labour intensive than snowball sampling, and the financial rewards on offer to researchers need to reflect this.

As already noted, the peer researchers we employed were 'inside' their respective ethno-national communities, but most of them were not inside social networks of low-wage migrant workers (Ganga & Scott, 2006). However, this class dynamic was not apparent at first, and instead and understandably the original efforts to disseminate news about the study and to identify potential interviews focussed on the peer researchers' own strong ties. These were both their existing personal contacts, and contacts via the organisations and businesses they were linked to. Across the range of 11 interviewers, for

example, connections were evident with, to name but some: Citizen Advice Bureaux, Council run advice and other services, trade unions, international women's groups, Polish clubs, law centres, churches, drop-in advice centres, local police forces, the Gangmasters Licencing Authority, Polish and Eastern European shops, and local libraries (where migrant workers were known to use computers for free Internet access).

We would contend that this original attempt to recruit interviewees was close to the model of the snowball sampling method which is popularised in academic textbook accounts. However, in order to grow interviewee numbers past the very modest numbers this method produced, the peer interviewers had to think about how to cast their recruitment nets wider and aim for sampling breadth rather than just depth. For several of the interviewers, it became clear that this entailed a shift towards drawing much more on extensive networks of weak ties either they had themselves, or via their friends, and friends of friends, to identify contacts. One interviewer, for instance, drew on the help of a friend who was able to drive to 'fields with caravan places' to talk to some of the friends' contacts there. Meanwhile, in another of the study locations, a few contacts were made as a result of posting on websites and discussion forums for Polish nationals living in the UK. Even then, however, onward referral chains were rare.

In short, most progress was made not by snowball sampling and the development of momentum from initial *a priori* strong-tie contacts, but instead through the willingness and tenacity of (most of) the interviewers to fall back on the extensive networks they could develop and horizon-scan from these. This horizontal approach to networking involved the use of both strong and weak ties 'bridges' into quite diverse groups of workers, some of whom had direct experience of exploitation. This is not to argue that the organisations the peer researchers were linked to were not important. However, rather than providing the entry-points for snowball sampling and the development of

momentum, they provided the entry-points for a looser form of horizontal networking that often involved a number of stages of contacts before an interviewee was uncovered. Moreover, once an interviewee cooperated in the research he/ she then rarely provided additional contacts and referral chains were short.

It should also be apparent that this shift in approach was both labour intensive and time consuming, hence the peer researchers' worries over payment noted above. This goes beyond the question of the appropriate means and level of financial rewards for the interviewers themselves, however. Additionally, we had no means to include a further financial reward for those 'friends of friends' who assisted the peer researchers in crucial ways. This is an important point because, when snowball sampling occurs, there can be moral obligations and trust associated with strong-tie relationships that can underpin a 'duty' to deliver contacts without any remuneration. In contrast, horizontal networking is much less likely to have this characteristic. Thus, the delivering of research contacts via weak ties may well have to be facilitated in some way (possibly financially).

For the second project, and unlike the first, there was a strong alignment between the topic and social capital; in the sense that being a member of the military appeared more likely to unite than being a victim of exploitation. Here, the issue was about research participants' reluctance, for various reasons, to provide further contact details. The solution, though, was a similar one. In order to address the preponderance of 'dead-ends' one needed to find more entry-points to the armed forces and network through these to find recent leavers who were willing to cooperate (even if they were rarely willing to refer on).

Rather than peer researchers needing to cast a wide and shallow sampling net, it was the PI who directly adopted this strategy. For example, leads to new interviewees emerged due to the PI: being involved in a parent-child group; overhearing a conversation

in a local gym; and, asking work colleagues for leads. Again, however, similar to the other project, this switch to a more extensive and diverse (often unconventional) range of different entry points did still not lead to the development of subsequent referrals and sampling chains. Clearly, the group under study is very different from that of exploited migrant workers, and whilst military identity may unite more than victim status, the point remains the same: snowball sampling is not always successful and it is important to be aware of other forms of network-based recruitment available to the qualitative researcher.

Most obvious here, and drawing upon our experiences outlined above, we distinguish between two ideal types of qualitative network-based recruitment (see Table 1). On the one hand, there is snowballing that is characterised by the development of vertical sampling chains and the development of momentum through these (usually initiated by *a priori* strong-tie contacts) such that social networks are relatively deeply mined. On the other hand, there is horizontal sampling that is characterised by a wide and shallow network of respondents, accessed by both strong and weak ties, and an absence of momentum and chain-based recruitment. The nuances of qualitative network-based sampling characterised in Table 1 were simply not evident to us in advance of the two projects and we feel they represent an important blind-spot within the extant literature.

Table 1: Snowball and horizontal sampling: key characteristics, strengths and limitations

Snowball Sampling	Horizontal Sampling
• Vertical/ deep networking	• Horizontal/ wide networking
• Starts with mainly strong ties and mines these for subsequent contacts	• Uses strong and weak ties as 'bridges' into new social networks where contacts are found
• Sampling opportunities emerge based on referral	• Sampling opportunities often emerge through cold-calling
• Momentum builds and referral chains become deep	• Limited momentum and referral chains remain shallow
• Relatively few entry points into sample population	• Relatively large number of entry points into sample population
• Intensive sample frame results (that may be more prone to bias)	• Extensive sample frame results (that may be less prone to bias)
• Relatively efficient in terms of time and effort	• Relatively inefficient in terms of time and effort
• Friendships, trust and rapport (social capital) often more important in driving delivery of contacts	• Pecuniary motive more important in driving delivery of contacts
• Saturation point may be easier to reach given focused nature of sample	• Saturation point may be more difficult to reach given relatively disparate sample

Conclusions

There is limited critical reflection given to qualitative research sampling (Noy, 2008) and this is especially true with respect to snowballing (Browne, 2005). The majority of textbook accounts of this network-based recruitment strategy can be measured in terms of lines rather than pages. Moreover, only a few scholars have reflected on the issues, barriers and problems one can encounter when using the snowball technique (Atkinson & Flint, 2001; Biernacki & Waldorf, 1981; Waters, 2015). Similarly, our understanding of social networks and their role in opening up new research possibilities and methodological strategies is relatively poorly developed (though see: Ryan, Mulholland & Agoston, 2014; Ryan & D'Angelo, 2017). As a result, there is currently no advice given in the literature as to what to do when the momentum associated with snowball sampling fails to build.

The paper is designed to address this research gap. It discusses why snowballing may falter, or even fail, and identifies a solution when such circumstances arise. Through two qualitative research projects we have learnt, first, that snowball sampling can depend upon the subject under investigation having a social basis. What we mean by this is that, even if one's initial contacts are socially embedded and have a high level of social capital this does not mean that the communities they are part of will align with the topic under investigation. So, the topic of workplace exploitation, for example, did not in the event (and to our surprise) seem to draw people together into networks within and through which snowballing could take place. Second, even when people may draw together around a research issue – such as forces personnel, who tend to be in touch with other military and ex-military staff – this does not mean that the snowball will gain momentum. Possible barriers and checks here relate to researchers being deemed outsiders (also an issue in the exploitation research), the research community being tight-knit and loyal, the issues covered being deemed sensitive and possibly problematic in nature (also an issue

in the exploitation research), and, related to the above, participation in the research being deemed a risk by potential informants (also an issue in the exploitation research).

Whatever the explanation for the snowball failing to roll, it is clear that the researcher must be prepared to adapt, and an awareness of other qualitative sampling and recruitment possibilities is key. One solution has been advanced in this paper to combat sampling stasis: horizontal networking. We have highlighted the role of extensive social ties in grounding effective interviewee recruitment. In short, when the snowball method falters, one can look further and cast the net much wider and shallower drawing on both strong and weak ties in the process. It is this re-orientation that prevented our two research projects from failing, but it was a strategy that we found was barely mentioned in the literature.

In terms of future qualitative research and reflection, we would suggest more investigation into the pros, cons and characteristics of snowball versus horizontal networking (as presented in Table 1). In addition, there are questions over whether the qualitative researcher should be prepared to deploy both techniques from the outset, or whether one or other technique is preferable, and under what circumstances this judgement holds? In our experience, both of the two research projects discussed above would have been smoother and failure less of a threat had we appreciated that horizontal networking was an option from the very beginning. Whilst this form of sampling and recruitment may well have limitations, in that it may be more time consuming, labour intensive, and costly, this certainly does not mean, in our opinion, that researchers should see it as a technique of last resort. Indeed, there is a case to be made for vertical (snowballing) and horizontal networking being complementary. Most obviously, where snowballing can sometimes narrow the sample frame, horizontal networking can widen recruitment. Correspondingly, concerns over bias can reduce (if these are deemed

relevant). Regardless, then, of whether or not the snowball rolls, academics should be aware, from the start of any research, of the complexity of social networks and the varied possibilities for sampling and recruitment that result from this.

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