How many is enough?
Reporting and justifying sample size in qualitative interviews

Mark NK Saunders

Presentation to the Academy of International Business's Research Methods SIG's Responsible Research Methods Symposium, Birmingham, 7 June 2019

Overview…
- Nature interviews, issue and responsibility
- Overview of the literature on:
  - Physical access –difficult and daunting
  - Use and reporting of interviews
  - Empirical studies of number of participants
  - Recommendations by experts
- Evaluations of published studies
- Recommendations (with caveats) for:
  - Reporting
  - Norms (as a range)
  - Planning (as a range)

The nature of qualitative interviews
- Used in qualitative, multiple and mixed methods designs
- Unstructured and free-flowing interchange between two or more people
- Conversation with a (research) purpose between unequal partners controlled by the researcher
- Rich, authentic insightful accounts to help make sense
- Provide:
  - means of finding out
  - realistic tales

The issue...
In planning and operationalizing qualitative interview research need to choose sufficient participants, yet…

Paucity of discussion (across social sciences) regarding gaining physical access (Saunders et al., 2017) and, once gained, how many are likely to be deemed sufficient (Baker and Edwards, 2012)...

Received far less attention than it deserves (Curtis et al., 2000, Robinson, 2014)

Acknowledge what is methodologically valid differs between communities of scholars, and that B&M and IB are diverse communities
...and responsibility

Those reading research need to be able to assess the credibility of claims in terms of the data on which based.

Part of this assessment is based upon the interface between the question being answered, researcher’s epistemological views and how:
- potential participants chosen
- access gained
- sample selected
- associated justifications/explanations for choices

Also issue of enabling future researchers to learn.

Note: sometimes possible to collect data from all cases/participants/elements

Responsible reporting of qualitative research should:

- Justify method in relation to purpose (Robinson 2014)
- According to neo-positivistic publication conventions ( Alvesson and Ashcroft, 2012) provide a concise and precise description of method:
  - How physical access gained (Saunders et al., 2017)
  - How participants selected and data collected
  - Reflexive acknowledgements to aid transparency
  - Number and characteristics of participants
  - Strategies/ies used in selection
  - Reasons for these choices (Miles et al., 2013; Patton, 2015; Marshall et al. 2013)

Often need to plan (and justify) before research undertaken.

What do we mean by gaining physical access?

- Reaching potential participants or respondents so you can ask them to take part…(Saunders et al., 2017)
- Obtaining permission to collect data (Brannick and Coghlan, 2007)
- Stage enabling researcher –research participant relationship to occur –the initial opening of the door (Feldman et al., 2003)
- A bargain between researcher and hosts regarding what will happen (Becker 1971)
- Can be staged (Saunders et al., 2016)
- Sometimes referred to as primary access (Cunliffe and Alsaidipere, 2016)

Physical access can be difficult…

"Researchers must thoughtfully consider whether they have the personal sustenance and resilience for the countless phone calls, follow-up emails, and ‘courtship rituals’ required in order to get access to their chosen scene of study”

Tracey (2013:12)

"Gaining access to organizations …is rarely a logical, smooth, and seamless process. So let us acknowledge this, share experiences, and learn from each other.”

Saunders et al., (2017: 22)
...and daunting

“Fieldwork is permeated with the conflict between what is theoretically desirable on the one hand and what is practically possible on the other. It is desirable to ensure representativeness in the sample, uniformity in interview procedures, adequate data collection across the range of topics to be explored, and so on. But the members of organisations block access to information, constrain the time allowed for interviews, lose your questionnaires, go on holiday, and join other organisations in the middle of your unfinished study. In the conflict between he desirable and the possible, the possible always wins.”

Buchanan et al. (2013 [1988]: 53–4)

Physical access in methods
texts

- Tends to be dealt with as a practical un-reflexive stage
  - find much more written on cognitive access
- Need for organisational buy in
- Role of gatekeeper to enable/block physical access
- Highlight politics
- Combination of planning, hard work and luck
- Researcher’s role as an insider/outsider
- Tend to focus on access to single organisations and (implicitly) to collect interview / observation data
- We need more insider accounts telling it as it actually is

Source: Saunders et al., (2017)

Physical access in literature

- Access and freedom of information laws provide increasing access to a wealth of secondary data
- Personal, social, professional, institutional networks
- Cold calling, hanging around, enrolling in the organization
- Informed consent requirements mean… Informal consent and covert undercover research no longer a possibility
- Gaining access is complex, political, ethical and relational and goes far beyond ethical review
- We need more access stories from which we can learn

Source: Cunliffe and Alcadipani (2016)

Key features of gaining
(physical) access

<table>
<thead>
<tr>
<th>Immersion</th>
<th>Drama</th>
<th>Deceptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obtaining approval to do research (in organization)</td>
<td>Front stage: public performance</td>
<td>Being aware of how researchers and organisations present their work</td>
</tr>
<tr>
<td>Knowing formal and informal gatekeepers</td>
<td>Being aware of organisational politics</td>
<td>Ethical choices – revealing full purpose of research</td>
</tr>
<tr>
<td>Connecting with interests of organization (rhetoric of access)</td>
<td>Knowing potential (political) controversies</td>
<td>Addressing (or evading) conflicting expectations</td>
</tr>
</tbody>
</table>

Source: Adapted from Cunliffe and Alcadipani (2016)
...but rarely discussed

- 169 empirical articles published in 2015
- 29 (17%) used a survey strategy, rest (nearly all) interviews
- Very few report how physical access gained:
  - “access was granted”
  - “we compiled a list”
  - “we interviewed…”

Saunders et al., (2017: 22)

Qualitative research access – reporting reality (in part)

“Data were collected from a sample of day-case patients and their caregivers (a patient’s relative or close friend) over the period of their chemotherapy treatment, in an English tertiary cancer treatment centre between February and November 2014… The research site provided access to patients with experience of primary, secondary and tertiary healthcare, many having consented to surgery before being referred to this hospital. Having obtained NHS Research and Ethics approval, data were collected…”

(Doltery et al., 2017)

Single organization qualitative research access - reality

- Health Foundation funded project. Access granted in writing prior to project and part of bid
- Health Trust Chief Executive friend of lead researcher
- Appointed a project champion in the Trust and a steering group
- NHS Research Ethics approval took nearly a year
- Numerous meetings to explain (sell) project to different clinicians, nurses etc.
- Political infighting meant service managers (in some cases) tried to blocked access to patients
- Patient groups very supportive
- Access dried up when Trust Chief Executive left

Multiple organization qualitative research

“Data collection was undertaken within the West Midlands. As the UK’s most important region for automotive manufacturing…

“Due to limitations of access imposed by the organisations involved, these consisted of 5 lecturers representing courses taken by both foundation and advanced modern apprentices in automotive engineering, motor sport engineering and generic engineering at further education college in the West Midlands; six of their students completing courses that would enable them to commence advanced level modern apprenticeships; and two experienced multi skilled assembly team workers in a major component manufacturer. In addition, interviews of approximately 1 hour duration were conducted with the production manager and the team leader of the assembly workers at the components manufacturer.”

(Saunders et al., 2005)
Empirical evidence from literature – existing practice

<table>
<thead>
<tr>
<th>Author</th>
<th>Focus</th>
<th>Findings</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collins et al. (2006)</td>
<td>42 MM studies in 4 School Psychology journals 2001-4</td>
<td>57.1% reported sample size, but not discussed further</td>
<td>Sample size should be reported for all MM phases</td>
</tr>
<tr>
<td>Collins et al. (2007)</td>
<td>121 MM studies in unspecified Health and Social science journals</td>
<td>98.4% reported sample size, for qual. and quant. phases, but not discussed further</td>
<td>None re sample size</td>
</tr>
<tr>
<td>Marshall et al. (2013)</td>
<td>83 qual. interview studies in 5 Information Systems journals</td>
<td>&quot;many&quot; invoked idea of data saturation but only few provided evidence</td>
<td>20-30 interviews for Grounded Theory and 15-30 for case studies. Can establish precedence</td>
</tr>
<tr>
<td>Safman and Sobel (2004)</td>
<td>93 qual. studies (57 interviews) in a Health Sc journal</td>
<td>60% reported sample size; varied 2-720, median 50</td>
<td>Sample size should be reported. None re sample size</td>
</tr>
</tbody>
</table>

Empirical evidence from literature – data saturation

<table>
<thead>
<tr>
<th>Author</th>
<th>Focus</th>
<th>Findings</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Francis et al. (2010)</td>
<td>14 general medical practitioners, 17 patients/relatives</td>
<td>Saturation after 13 (practitioners), 14 (relatives)</td>
<td>Specify criteria for saturation in advance and report in findings; evidence needed to establish convention</td>
</tr>
<tr>
<td>Guest et al. (2006)</td>
<td>30 Nigerian and 30 Ghanaian females - high risk HIV</td>
<td>Saturation after 12 interviews; 6 sufficient for meaningful themes</td>
<td>6-12 enough for saturation in homogenous population, but be cautious</td>
</tr>
<tr>
<td>Marshall (1996)</td>
<td>10 medical leaders, 24 medical practitioners</td>
<td>Saturation after 15 interviews, acceptable interpretive framework after 24 interviews</td>
<td>None</td>
</tr>
</tbody>
</table>

Literature – unsubstantiated recommendations

<table>
<thead>
<tr>
<th>Nature of study</th>
<th>Size</th>
<th>Source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qualitative</td>
<td>&gt;15</td>
<td>Bertaux (1991)</td>
</tr>
<tr>
<td>Interview</td>
<td>12-60</td>
<td>Adler and Adler (2012)</td>
</tr>
<tr>
<td></td>
<td>1 may be enough</td>
<td>Becker (2012)</td>
</tr>
<tr>
<td></td>
<td>5-25</td>
<td>Brinkmann and Kvale (2015)</td>
</tr>
<tr>
<td>Homogeneous population</td>
<td>8-8</td>
<td>Kuzel (1992)</td>
</tr>
<tr>
<td></td>
<td>4-12</td>
<td>Saunders (2012)</td>
</tr>
<tr>
<td>Heterogeneous population</td>
<td>12-20</td>
<td>Kuzel (1992)</td>
</tr>
<tr>
<td></td>
<td>12-30</td>
<td>Saunders (2012)</td>
</tr>
<tr>
<td>Ethnographic</td>
<td>Usually c. 36</td>
<td>Bernard (2000)</td>
</tr>
<tr>
<td></td>
<td>1 cultural group</td>
<td>Creswell (2007)</td>
</tr>
<tr>
<td></td>
<td>30-50</td>
<td>Morse (1994)</td>
</tr>
<tr>
<td></td>
<td>20-35</td>
<td>Creswell (2007)</td>
</tr>
<tr>
<td></td>
<td>c. 35</td>
<td>Morse (1994)</td>
</tr>
<tr>
<td>Case study</td>
<td>3-5 per case</td>
<td>Creswell (2007)</td>
</tr>
</tbody>
</table>
Literature on sample selection (in summary)...

- Absence of reporting of number of participants/sample size in many studies
- Limited empirically grounded evidence
- Few published recommendations, often not obviously based on evidence (summary of others' views?)
- Methodological and practice caveats
- Emphasise need to work within communities' particular expectations
- Evidence from across social sciences... paucity of studies organisation and workplace based

But... some argue justifying participant numbers and method detracts from storey being told (Janesick, 2000)

Coding or articles

- Precise number of interviews
- Justification of participant selection by reference to: purpose – explicit / implicit / none recommendations previous studies saturation
- Population from which participants selected: single organisation / multiple organisations (one sector) / multiple organisations (different sectors)
- Analysis of participants as: single group / multiple groups
- Conduct of interview: one-to-one / face-to-face / online / group etc.
- Degree of structure of interviews: structured / semi-structured / unstructured

So are researchers being responsible in their reporting?

<table>
<thead>
<tr>
<th>Field</th>
<th>Journal</th>
<th>Editorial base</th>
<th>ABS</th>
<th>ABDC</th>
<th>Int.</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>JMS</td>
<td>USA / Netherlands / Australia</td>
<td>4</td>
<td>A*</td>
<td>46</td>
</tr>
<tr>
<td>Management</td>
<td>BJM</td>
<td>UK</td>
<td>4</td>
<td>A</td>
<td>25</td>
</tr>
<tr>
<td>HRM</td>
<td>IR</td>
<td>USA</td>
<td>4</td>
<td>A*</td>
<td>6</td>
</tr>
<tr>
<td>HRM</td>
<td>USA/UK</td>
<td></td>
<td>4</td>
<td>A*</td>
<td>17</td>
</tr>
<tr>
<td>VEES</td>
<td>UK</td>
<td></td>
<td>4</td>
<td>A</td>
<td>43</td>
</tr>
<tr>
<td>HRM</td>
<td>Ireland/Australia</td>
<td></td>
<td>3</td>
<td>A</td>
<td>20</td>
</tr>
<tr>
<td>Organisation</td>
<td>HR</td>
<td>UK / USA</td>
<td>4</td>
<td>A*</td>
<td>47</td>
</tr>
<tr>
<td>Studies</td>
<td>G&amp;OM</td>
<td>USA</td>
<td>3</td>
<td>A</td>
<td>2</td>
</tr>
<tr>
<td>TOTAL</td>
<td>Organization</td>
<td>UK</td>
<td>3</td>
<td>A</td>
<td>22</td>
</tr>
</tbody>
</table>

Note: low number of studies for North American based

Overview of data

- 244 articles reporting 248 studies
- 197 studies used 1 form of interviewing
- 47 studies used 2 forms of interviewing
- 4 studies used 3 forms of interviewing
- 'Conduct' stated for 85% of interviews
- 91.1% one-to-one interviews of some type)
- 'Structure' stated for 39.9% of interviews
- 89.3% semi-structured interviews
- 53.2% provide indication of duration
Reality: reporting participant numbers

<table>
<thead>
<tr>
<th>Total participants</th>
<th>Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>reported precisely</td>
<td>76.6%</td>
</tr>
<tr>
<td>approximate indication</td>
<td>4.8%</td>
</tr>
<tr>
<td>no indication</td>
<td>18.5%</td>
</tr>
<tr>
<td>Total studies (=100%)</td>
<td>244</td>
</tr>
</tbody>
</table>

“...the number of respondents interviewed between the companies ranging from six to 16”
“...over a dozen interviews”
“...personal interviews the author did over the course of a decade with numerous people at Delta from top executive level to the ramp and cabin level”

Reality: justification in relation to purpose

- 13.7% of studies stating number of participants explicitly justified this
  “In total, 58 interviews were undertaken in addition to interview conversations and discussions through personal observation in the single in-depth case. The selection of interviewees was made on the basis of including key figures involved in the strategy creation issues”
- 35.2% of studies stating number of participants implicitly justified this through a description of participant’s characteristics
  “…a major British symphony orchestra”

Reality: justification in relation to purpose (2)

“37 GLBT [Gay, Lesbian, Bisexual, Transgender] people who had trained for ordination by obtaining the Master of Divinity Degree and applying for admission to the formal candidacy process in their respective denominations…”

“...three product lines within the grocery supply chain, notably fish processing, vegetable processing and distribution and warehousing. Within each of these three product lines, three in depth case studies were undertaken.”

Reality: justification using saturation

- 4.2% of studies justified participant numbers using data saturation (none provided evidence of saturation)
  “However, we felt we did not need more, because interviews with our informants nicely fitted into the categories we built during the last phase, and we felt that category saturation had occurred (Strauss and Corbin, 1998)”
Reality: justification citing recommendations or other studies

- 2.6% of studies justified participants chosen by citing recommendations
- 2.6% of studies justified participants chosen by citing other studies

"... a research approach which focuses on the development of rich descriptions and is sensitive to the 'subtleties and situated nuances of leadership practice' (Kempster and Cope, 2010, p. 11) has been adopted. However, small-scale, qualitative studies in the interpretivist tradition do not allow for generalizability; their strength lies in their capacity 'to provide insights, rich details and thick descriptions' (Jack and Anderson, 2002, p. 473)."

Are there possible epistemic norms?

<table>
<thead>
<tr>
<th></th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>46.9</td>
</tr>
<tr>
<td>Median</td>
<td>32.5</td>
</tr>
<tr>
<td>Std Deviation</td>
<td>48.6</td>
</tr>
<tr>
<td>Lower Quartile</td>
<td>18.75</td>
</tr>
<tr>
<td>Upper Quartile</td>
<td>57.25</td>
</tr>
<tr>
<td>Interquartile range</td>
<td>38.5</td>
</tr>
<tr>
<td>Number of Studies</td>
<td>190</td>
</tr>
</tbody>
</table>

Suggests greater variability than other work... a wider norm of between 15 and 60?

Possible norms (2)

<table>
<thead>
<tr>
<th></th>
<th>Median</th>
<th>Lower Quartile</th>
<th>Upper Quartile</th>
<th>Possible Norm?</th>
</tr>
</thead>
<tbody>
<tr>
<td>One organisation</td>
<td>27.0</td>
<td>15.0</td>
<td>49.0</td>
<td>15 to 40</td>
</tr>
<tr>
<td>Multiple organisations (1 sector)</td>
<td>48.0</td>
<td>21.5</td>
<td>89.5</td>
<td>20 to 80</td>
</tr>
<tr>
<td>Across multiple sectors</td>
<td>35.0</td>
<td>21.0</td>
<td>63.0</td>
<td>20 to 65</td>
</tr>
<tr>
<td>Participants as a single group</td>
<td>29.5</td>
<td>14.0</td>
<td>45.0</td>
<td>15 to 45</td>
</tr>
<tr>
<td>Participants as multiple groups</td>
<td>36.0</td>
<td>22.0</td>
<td>66.5</td>
<td>20 to 80</td>
</tr>
<tr>
<td>One-to-one interview</td>
<td>30.0</td>
<td>15.75</td>
<td>46.00</td>
<td>15 to 45</td>
</tr>
<tr>
<td>One-to-one face-to-face interview</td>
<td>30.0</td>
<td>16.00</td>
<td>59.00</td>
<td>15 to 60</td>
</tr>
<tr>
<td>Semi-structured interview</td>
<td>30.5</td>
<td>17.25</td>
<td>56.75</td>
<td>15 to 60</td>
</tr>
<tr>
<td>ALL Studies</td>
<td>32.5</td>
<td>18.75</td>
<td>57.25</td>
<td>15 to 60</td>
</tr>
</tbody>
</table>

Suggests number of participants fewer for heterogeneous populations

Discussion: reporting

- Reporting of how physical access gained rare
- Reporting of number of interview participants not undertaken in nearly a fifth of studies.
- For studies using two or more forms of interviews approx. three quarters do not report numbers for each type of interview
- Yet, this detail is important to help ensure authenticity and credibility

Recommend: Wherever practicable, researchers should:
1. Outline how gained physical access
2. Report participant numbers precisely
3. Outline participants' characteristics fully, detailing nature of population from which selected
Discussion: justifying

- For the majority of studies reviewed justification is either non-existent or implicit.
- Most frequent justification is implicit inference that those chosen meet the research purpose from a discussion of participants characteristics.
- Recommendations / Similar studies / Saturation rarely used as justifications.

Recommend: Researchers should:
4. justify the participants chosen explicitly in relation to the research purpose and…
5. consider the potential utility of justifying by citing expert opinion, citing similar studies and, the meeting of data saturation (supported by clear evidence).

Discussion: norms or collective wisdom?

- Data collected indicates far larger variability than the literature.
- Variability is less (slightly) for single organisation studies and greater for multiple organisation studies.
- For some research purposes, one or two participants are sufficient.
- Large numbers indicate, possibly, a quantification of the qualitative.

Recommend:
- Recognising there will be exceptions, researchers should:
  6. consider a norm of between 15 and 60 participants.
  7. adopt an initial planning estimate for single organisation studies of around 30 participants.
  8. adopt an initial planning estimate for multiple organisation studies of around 50 participants.

Selected references (1)


Selected references (2)

- Saunders, M.N.K. (2012). ‘Choosing research participants’ In G. Symon and C. Cassell (eds.) Qualitative Organizational Research: Core Methods and Current Challenges. 35-52.
- Saunders MNK and Townsend K (2016) ‘Reporting and justifying the number of interview participants in organisation and workplace research’ British Journal of Management 27.4, 836-852.