

THE PROBLEM OF SAMPLING IN QUALITATIVE RESEARCH

Steward Harrison Oppong

Graduate School for Social Research,
Polish Academy of Sciences, Warsaw,
POLAND.

stewardhan@yahoo.com

ABSTRACT

Sampling problem can be contextualized as one of selecting a sample adequate for a given research problem. In most qualitative investigations, the problem associated with sampling is ever present and needs to be addressed in order ensure the credibility of research findings and undertakings. It happens to be the case that in most qualitative research, it is either impossible or costly prohibitive to study all cases of a phenomenon depending on the object of one's research. This situation places limitation on the researcher in which she is compelled to select a certain proportion as the sample of study. The notion of adequate sampling comes into play, in the sense that a sample can be viewed as adequate if and only if the sampling errors that result from the use of the stated sample size is so small as not to nullify conclusions reached by the researcher. Sampling problem may be addressed in a number of ways. That is, to ensure that the sample size for a given study is adequate as well as representative of the universe of research study, the researcher needs to ensure that the sample is adequate so that conclusions drawn from the investigation would not be invalidated as a result of intolerable level of sampling error.

Keywords: Sample, Sampling error, Sample bias, Gatekeeper bias, Convenience Sample, Judgment sample, Stratified sample and theoretical sample

INTRODUCTION

In most qualitative investigations, the problem associated with sampling is ever present and needs to be addressed in order ensure the credibility of research findings and undertakings. It happens to be the case that in most qualitative research, it is either impossible or costly prohibitive to study all instances of a phenomenon depending on the object of one's research. This situation places limitation on the researcher in which she is compelled to select a certain proportion as the sample of study.

The notion of adequate sampling comes into play, in the sense that a sample can be viewed as adequate if and only if the sampling errors that result from the use of the stated sample size is so small as not to nullify conclusions reached by the researcher. As Marshall (1996) suggests that some scholars may give create impression that the key distinction between qualitative research and hypothetical deductive model revolves around the tool of data collection and how it was collected. The key source of disagreements and area where there is little or no consensus among scholars is the process of sampling as applied in qualitative research.

The issue of dearth of literature on this issue, and absence of consensus on definitions and delineation of basic concepts only help to deepen the problem. On a related development, some authors coinage of new words that in most cases add little to clarification of confusion in the field, but rather help to complicate the already clouded understanding of qualitative research especially in the context of the process of sampling. This rest of this essay will proceed as follows: sampling in qualitative research, sampling technique, the problem of sampling in qualitative research and counter measures to deal with the problem of sampling.

SAMPLING IN QUALITATIVE RESEARCH

Broadly speaking, sampling is a process of selecting subjects to take part in a research investigation on the ground that they provide information considered relevant to the research problem. Mack, et al (2005) note that in most cases it is not possible to collect information from all members of target population of a research inquiry, for instance, all residents of a Metropolitan City. Suppose, it is possible to do so, it is not essential to collect information from everyone in this hypothetical Metropolitan City in order to come up with valid and credible findings. The notion of sampling as applied in qualitative research entails that only a subset of the population known and referred to as sample is selected for a given research enquiry. Basically, the aims of a particular research as well as the features of the study population influence the decision of which individuals and the number of individuals to select for a given research enquiry.

SAMPLE TECHNIQUES

Generally, researchers adopt three sampling methods while conducting a qualitative research namely: convenience sample, judgment sample and theoretical sample. Convenience sample appears to be the least demanding methods given that the researcher has to select the most reachable subjects. It is less demanding in terms of costs, time and effort, but, there is risk of gathering poor quality data, resulting in poor research outcomes and as such, difficult to convince others to accept the findings of research based on poor foundation. One cannot rule out an element of convenience in most methods of sampling selection involving qualitative research, but, a well thought out sampling procedure may be justified and be more credible than a less demanding sampling method such as convenience sampling (Marshall , 1996, P. 523). Moreover, another sampling technique is the so called judgment sample or purposeful sample. It seems to be the most widely used sampling method especially in the context of qualitative research. Basically, it is a method of sampling in which the researcher select subjects who have experience or knowledge of the issue/s being addressed in the research. Mack, et al (2005) notes that the application of purposive sampling entails categorizing subjects in accordance with ex ante identified criteria based on the research problem. The sample size is more of function of available resources, time constraints and objectives of a researcher's study. This implies that sample size may or may not be fixed ex ante prior to data collection. Generally, the sample size that is selected based on purposive sampling strategy is determined in line with theoretical saturation. Theoretical saturation conveys the notion that purposive sampling has an element of process attached to it, given that, it implicitly involves a data collection process that goes hand in hand with data review and analysis and data collection terminates when new data collection yields no additional insight to the research problem being addressed. Marshall (1996) notes that purposive sampling may take the form of maximum variation approach in which the researcher identifies varied characteristics of the target population and then select sample of subjects that matched the identified characteristics. Snowball sampling is considered as one of the types of purposive sampling, in which the researcher finds out from selected individuals other individuals that might be relevant to be included in the investigation. This method relies on researcher's ability to identify the variables that might affect a subject response to the questions posed and utilizing the knowledge gained from the relevant variables in selecting the sample of study. The choice of variables will depend on researcher's knowledge of his area of research, information gained from relevant literature, and clues from ongoing study. Theoretical sampling is a sampling strategy in which the researcher devise explanatory theories in line with information obtained from emerging data, after which, a new sample is selected for study to test the configured theory. It is the main tool applied in most theoretical

investigations, but, it may be used in one way or the other for studies requiring interpretation. This implies that the sample size selected for study under this approach is theory driven to some extent and basically involves an element of repetitive sampling in order to first devise a theory and then, second to test the validity of the theory using a different sample (Marshall , 1996, P. 523).

THE PROBLEM OF SAMPLING IN QUALITATIVE RESEARCH

Hanly (1947) notes that sampling problem results from the challenge. It is associated with selecting a sample that is adequate for a given research problem. In most qualitative investigations, the problem associated with sampling is ever present and needs to be addressed in order ensure the credibility of research findings and undertakings. As noted earlier, it happens to be the case that in most qualitative research it is either impossible or too expensive to study all cases of a phenomenon depending on the object of one's research. This situation places limitation on the researcher in which she is compelled to select a certain proportion as the sample of study. The sum of number of cases in which this sample is selected is termed as universe or statistical universe. However, it is most likely the case, that the results generated using a sample and the ones arrived at using the universe would necessarily be different, deviation of the results from the universe relative to sample is referred to as sampling error. In order to generate, valid results, researchers must carefully think about sample size to minimize the sampling error as much as possible. The notion of adequate sampling comes into play, in the sense that a sample can be viewed as adequate if and only if the sampling errors that result from the use of the stated sample size is so small as not to nullify conclusions reached by the researcher (Hanly, 1947, p. 258-259).

Hanly (1947) stresses that one key criterion used to consider the adequacy of a sample is to compare it with the statistical universe. In general, a particular sample size may be associated with various statistical universes, but, judgment about it adequacy for different research themes may be different from one statistical universe to the other. The problem of sampling tends to increase as the statistical universe gets larger, given, that it may be the case that sample size may have to increase to minimize the sampling error the universe get larger.

Buttressing further, he suggests that the key issue in sampling design is to come up with a framework that permits one to sample a segment or different segment of the universe for a study as well as draw conclusions on issues pertaining to the representativeness of the inferences reached. To some extent, the researcher has to be in a position to calculate the likely sampling error that was associated with the use of one sample size as opposed to the other. The commonly used sampling approach is strictly random sampling. For example, to come up with a strictly randomized sampling of certain secondary school, the researcher may write the names of all the students of the said school on slips of papers, which are in turn folded and put into a bowl and the folded slips mixed in whatever desired method and the required number of students for a particular research selected randomly from the bowl by picking some of the slips. But, the problem with strict random sampling revolves around limited applicability in real life situations. The next commonly applied methods in qualitative research is selection at regular interval, for instance, the researcher may decide to select every fiftieth name from a school register or perhaps, every tenth name from a city directory etc.

He also notes that strict randomized sampling and selection at regular intervals are theoretically appealing, but, there have certain drawbacks. Suppose, one considers a situation in which some cases selected from the files of an agency were truncated from the sample as result of inadequate data, thereby, reducing the sample size by the number of cases that were thrown away. This situation creates doubt on the whether the smaller sample size is

representative of the whole universe of cases. On the other hand, the selected subjects may decline to participate in the study and thus, creating the possibility of sample bias problem as some individuals with certain traits may not be covered in the final analysis. This tends to be worse in case of mailed questionnaire, where, in most cases, sizable proportions of selected participants fail to respond to the questionnaire. One way to minimize the problem would be to keep on sending reminders to participants till the researcher recover most of the dispatched questionnaires, but, unfortunately, it seems that most researchers do not have the patience for this kind of follow up reminders in order to minimize sampling error.

With passage of time, different set of research designs were introduced to address the limitations of strict random sampling or sampling at regular intervals. The basis feature of these new research designs of is the approach in which the statistical universe is first categorized into groups in accordance with some specified criteria depending on the purpose of research investigation. For instance, the groups may be divided based on age, gender, religious affiliations, ethnicity, social class, and place of residence, educational backgrounds or a combination of a number of these characteristics. Suppose, the sampling method is the so called stratified sampling, then, a number of individuals would be selected from each group or the so called stratum to come with eventual sample size for a research (Hanly, 1947, p. 261). On a related development, the problem associated with sampling in qualitative research may be contextualized from the limitations of sampling in qualitative investigations. The two key sampling methods that are mostly applied in qualitative research namely purposive and theoretical sampling essentially enable the researcher to select a segment of the population of study as the sample in line with decision rules as informed by the purpose of the study as well as insights gained from emerging data collection and theorising arising therein as noted earlier. Groger and Mayberry (1999) suggests that the two keys sampling methods are theoretical plausible, but, in practical terms, a number of issues arise that in most cases cast doubt on the validity of sample generated using these methods. Some of these issues include gatekeeper bias, sample frame bias, practicality and logistics.

Groger and Mayberry (1999) remark that gatekeeper bias arises when some key subjects including the potential participants in an investigation somehow take control of the sampling in terms of the eventual participants that are selected for a study. They use aged care facility sampling of respondents to clarify their explanation. In a sampling case, in which different levels of the nursing workers at an aged care facility played a role in the first group of residents and care workers that are selected for investigation. This could be the case if either the head of the unit, Manager or team leader or different permutations of these three liaise amongst themselves and the probable subjects of a study, thereby effectively taking over the control of the sampling or acting as gatekeepers to the facility through which the researcher get in contact to the potential participants of a study. This is clearly problematic given that the sampling process is somehow hijacked if this kind of situation arises.

The identification of research subjects and sites by the researcher creates another challenge, given that the researcher needs to consider the influences of possible research subjects and sites on the sampling frame and the likely outcomes. To secure access to research subjects, researchers often sought for approval from “gatekeepers” for instance, officials who are responsible for research or the department the researcher intends to study or perhaps, from individuals who exercise some element of control over the subjects, such as teachers and students, children and parents etc. Recognizing and understanding gatekeepers’ opinions is crucial for securing and sustaining access to subjects and preserving the reliability of the research (Devers and Frankel, 2000b, p. 266)

Broadly, gatekeepers are most likely to have the following in common: disposition to learn how others manage, act and rationalize in related organizations or lower levels of organisational hierarchy, and disposition to learn how they can help contribute towards the improvement of a research. In addition, they are most likely to share concerns in terms of constraints resulting from time, resources and interruption that would be associated with their organization's involvement in a research as well as fears related to some likelihood of disclosure of organisation's competitive advantage, privacy concerns for their employees and perhaps, some chance that they may be portrayed as bad or wrong and so on, all in the name of consenting to take part in a research (Devers and Frankel, 2000b, p. 266).

To obtain the needed approval to access research subjects and sites the researcher needs to write a short proposal about the intentions and the overall requirements of the intended research. In the best of situations, these short proposals are written after researchers may have had informal discussions with stakeholders such as gatekeepers, key officials of organizations, and other relevant parties depending on the research theme. These informal meetings provide researchers the opportunity to account for the interests of these stakeholders and address their fears about the intended research. In general, the contents of the proposal may include an overview of the purpose of the research, delineation of research design, answers to possible issues raised by the stakeholders etc. On the other flip of the coin, the proposal should not incorporate information obtained from third parties or social networks that trample on confidential issues or privacy of the target subjects and sites. In most cases, researchers are also required to comply with institutional procedures in the place where they work, such as obtaining ethics clearance to ensure that risks to human subjects if exists spotted, evaluated and sufficiently addressed prior to commencement of investigation (Devers and Frankel, 2000b, p. 266-267).

Sample frame bias arises if a sample is selected in accordance with the purpose of a particular investigation in which a focus of sampling is placed on a particular group/s of respondents, leading to limited sampling from non-focal participants. For instance, using same aged care home sampling case in which those sampled happened to be the institutional care providers and residents in the aged care facility. A case in which the institutional care providers and residents were considered to be the focus of the sampling in line with the purpose of the study, may lead to situation in which some relevant participants who play some role in care relationships such as the resident's family and doctors may be underrepresented in the sample (Groger and Mayberry, 1999).

However, sampling problem may be visualized from the angle of the challenges presented by the process involved in the sampling subjects for a research. The first challenge with sampling in qualitative research deals with identifying and negotiating access to sites and individuals in order for a research project to take place. Devers and Frankel (2000a) note that the researcher is the research instrument and most studies pertaining to the application of qualitative research techniques necessitate the development, sustenance and subsequent ending of relationships with research participants as well as sites. The development and sustenance of cordial relationships are vital for operationalization of sampling, quality of sampling and for the reliability of eventual findings and conclusions of a research. Basically, a researcher who is unable to solicit and obtain subjects' participation cannot proceed with sampling as well as research.

Commenting on related issue, Groger and Mayberry (1999), negotiation process and protocols involved in obtaining approval to a facility or to have access to target subjects come at a cost of delays which when considered in a typical research environment, limited time frame for a study would suggest that sampling decisions were moderated by realities of

administering one sampling technique or the other. It may also be the case, that access to facility or respondents may be refused thereby, creating problem in the process of data collection depending on the stage of the data collection process.

It has to be noted that purposive or /and theoretical sampling can be hampered by death of respondent. It may be the case, that some of respondents either died or cannot be traced before the data collection process is concluded by the researcher. There is also problem related to withdrawal of participants, given that participants have right to withdraw from the research for personal or some other idiosyncratic reasons that might arise in the course of the research (Tuckett, 2004, p. 10).

Nevertheless, another problem that may arise with reference to the two sampling methods mentioned above is connected with social movement or change of location. It may happen that some participants in a research relocated to other geographical areas than where they were when first contacted before the completion of data collection and some of them may not be willing to continue as participant in the research upon change of location (Schatzman and Strauss, 1973, p.75).

Sampling problem might arise given the nature of the study being undertaken. Yin (1999) notes that a single case may consist of various differentiated and categorized levels that are related to the research theme, for example, an investigation dealing with various types of health care professionals who are members of adult primary care groups, in variegated facilities, as well as in a large medical team. The main purpose of the study may be to address whether and how these different levels influence the key research subject. This suggests a type of nested case, thus, one level nested into another and so on, sample selection of subjects would have to be structured to take care of different levels of the hierarchy and this would also influence the number of participants that would be selected for the research.

To this extent, Devers et al (2000) note that complicated nature of some research subjects implies that the task of selecting sample to investigate a single case increases with the levels involved and the research theme at hand. This also means that the researcher needs to factor in the complicated nature of the case/s when structuring a sampling frame for research as well as thinking carefully about how many locations or perhaps subjects can be selected for the study. To address this problem, Ragin (1994) remarks that many complicated case studies based on comparative analysis consist of not more 12 to 15 cases.

DePaulo (2000) contends that sample size plays an important role, not just in quantitative research, but, also in qualitative research. The idea that sample size does not matter in qualitative research may stem from the perception that it is suitable for testing and estimating quantities. Perhaps, the impact of increasing sample size from statistical perspective is to minimize sampling error. This reason might be a hard sell to justify increasing the sample size in qualitative studies. But, in qualitative research just like quantitative research attempt is made to identify something or explain or account for causes of something. For instance, a qualitative researcher may want to find out whether consumers are satisfied with a particular product or otherwise and account for reasons for satisfaction and otherwise or obstacles consumers may face with the use of particular product etc.

Commenting further he notes that the gist of the matter is that in order to come up with credible findings, qualitative sample size must be large enough to ensure that the widest possible coverage of research subjects perceptions or opinions are accounted for. It is likely to be the case that even with attention restricted to a target market; different groups of consumers may have different perceptions depending on age, gender, social status, affiliations, social networks etc. This suggests that depending on the nature of the research

theme, small sample size may create problem in qualitative research, given that the smaller the sample size, the more likely that the perceptions solicited and gathered would be limited and may bias the results upward or downward. On the other hand, the larger the sample size, the less chance of failure in terms of failing to uncover perception or opinion that researchers might want to know.

In addition, failure that may arise from small sample size can be serious and may endanger the competitiveness of an organization supposing that the research theme has something to do with consumer perceptions of a particular product brand. This should be the case if action perception, opinion or experience etc. is not uncovered as a result of small sample size problem. The possible scenarios that may arise in line with a hypothetical case dealing with consumer's perception and a particular product brand include: a source of disenchantment with a product is not revealed and amended and may pose a threat to profitability of an organization operating in a competitive sector; public relation disaster may arise when a qualitative assessment of an advertisement fails to identify and correct a copy point that is considered offensive, perhaps to a small group of consumers, but, very influential one in terms of influencing public opinion; and a situation where qualitative procedures were applied in the pre-testing of quantitative questionnaire, an uncovered complication in understanding of some questions perhaps from sentence construction, the style of wording etc., may lead to a situation in which some of the responses gathered for final quantitative analysis would be unusable or invalid (DePaulo, 2000).

COUNTER MEASURES TO DEAL WITH PROBLEM OF SAMPLING IN QUALITATIVE RESEARCH

The problem of sampling in qualitative research especially with reference to sample bias can be addressed through the application of some research strategies. Tuckett and Stewart (2004) note that one way of tackling the problem stemming from sample selection bias would be to apply different techniques of data collection. As Greene and McClintock (1985) suggest the use of different methods of data collection provides the researcher the opportunity to account for similarity and complementarily or otherwise of information collected.

The problem associated with withdrawal of some participants can easily be surmounted if different methods of data collection are employed given that there would be no need to fill replacement participants as a result of data saturation and for the fact that the research design is not based on one method of data generation (Tuckett, 2004, p. 10).

Buttressing further on the demands of negotiating and gaining access to research subjects and sites and ways to tackle the challenges posed, Devers and Frankel (2000b) remark that the process involved is time consuming and exercise of patience is needed in order to cope. They suggest that reaching out to social networks can be helpful for securing basic information and initiating contacts with possible research subjects and sites. No doubt, some types of qualitative research demands high degree of trust between the researcher and possible research subjects and as such the use of personal contact becomes imperative given that a colleague may write a letter of support on behalf of a researcher and thus, provides the building block for development of trust for the researcher and research subjects as well as sites. The use of advertisement (through Newspapers, Notice Boards, Internet Sites etc.) as tool can help in reaching out to possible research subjects and sites and should be utilized when appropriate and feasible.

To address the risk that may arise from discover failure as a result of small size, DePaulo (2000) proposes a solution. The solution makes use of calculated probabilities such as the one in the table below which was arrived at through repetitive power calculations in

line with different incidences and associated sample sizes. The researcher may use the table as a guide to come up with sample size that is feasible as well as affordable and also minimizes the risk linked to discover failure to bearable level.

The Probability of Missing a Population Subgroup in a Random Sample

| Population Incidence | Number of Respondents | | | | | | | |
|----------------------|-----------------------|-------|-------|-------|-------|-------|-------|-------|
| | 10 | 20 | 30 | 40 | 50 | 60 | 100 | 200 |
| .50 | .001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 |
| .33 | .018 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 |
| .25 | .056 | .003 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 |
| .20 | .107 | .012 | .001 | <.001 | <.001 | <.001 | <.001 | <.001 |
| .10 | .349* | .122 | .042* | .015 | .005* | .002 | <.001 | <.001 |
| .05 | .599 | .358 | .215 | .129 | .077 | .046 | .006* | <.001 |
| .01 | .904 | .818 | .740 | .669 | .605 | .547 | .366 | .134 |

Source: DePaulo, P. (2000). How large should the sample size be in a qualitative study? DePaulo Research Consulting, Montgomeryville, Pa

Sampling problem may be addressed through ensuring representativeness of the sample size. That is, to ensure that the sample size for a given study is adequate as well as representative of the universe of research, the researcher need to ensure that the sample is sufficient so that conclusions drawn from the investigation would not be invalidated as a result of intolerable level of sampling error. To verify, one must have a method of calculating the size of the sampling errors. In the area of quantitative analysis, the problem is addressed with the estimation of standard errors. Basically, standard error indicates the probability that actual error is not greater than specified confidence intervals. Typically, in sociology, there is no consensus on the best way to address the problem of sampling error.

Finally, one rule of thumb is to start with a small sample size, and after completing the study with the restricted sample, the researcher includes additional cases over time, till subsequent additions add no relevant information to already generated information. This approach seems to be ad hoc and at best rough guess, which do not provide any information as it concerns the appropriateness of a certain sample size. Suppose the initial sample design was biased, then, augmenting the same bias with inclusion of more individuals will not cancel the original bias. It may be case that by assumption, sampling designs that are associated with small standard errors as in the area of quantitative analysis may yield similar outcomes when used in qualitative investigations. The goal in both areas of investigations is to minimize sampling errors and other measurement errors to tolerable levels.

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