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**Selecting an appropriate research sample for a phenomenographic
study of values**

UFHRD stream – Employee Engagement

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Abstract

Phenomenography is a non-dualist, second order, qualitative, inductive research approach which seeks to find and understand the variation in individual's experience and conception of a shared experience or aspect of the world. Whilst there is literature available both on the process of using phenomenography, and on research that has been done using it, there is little about the sampling process. This paper explores how best to source and select a sample in phenomenographic research, using both critical analysis of literature and primary research.

The key conclusions are that samples should be heterogeneous, within a target range of 10 – 20. This assumes that data collection will be done using one-to-one interviews, where focus groups are used the sample is likely to be larger.

Whilst deliberate construction of a 'representative' sample based on demographic descriptors is not recommended, a researcher should use judgement to select a sample which enables maximum variation in experience. This is arguably best achieved by using a convenience approach to select the sample universe, and then theoretical sampling (an iterative process of data collection and analysis) to identify themes emerging from the data, and determine whether more individuals should be added to the sample, or whether data collection is complete.

Researchers will use experience and judgement to determine when to stop data collection, and the amount of data collected for analysis is a practical consideration that must be included in this judgement.

Selecting an appropriate research sample for a phenomenographic study of values

Background and context: This paper focuses on the challenge of selecting an appropriate sample for a qualitative doctoral research study, a phenomenographic study of values. Values are the focus of the doctoral research; organisations have values, whether they are written down formally or just reflected in the ways that the business and its employees behave. Values drive organisational behaviours, culture and decision making; Barrett (2014:3) defines values as “a shorthand method of describing what is important to us individually or collectively.... at any given moment in time” also suggesting (2014:xx) that “the values you choose for your organisation must guide all your decision making: Both what you do and how you do it. They must be embedded in every policy, system and process of your organisation and completely govern how everyone in your organisation behaves.” If values, as Barrett implies when he says “at any given moment in time”, change over time, this adds meaning to Schein’s (2010:23) suggestion that “values are open to discussion, and people can agree to disagree about them.” There is no single universal meaning or understanding of any verbalised value. In his writing on organisational culture, Schein (2010) suggests that an effective way to elicit values and beliefs from people is to ask questions about their observed behaviour; for instance to ask why things are done the way they are. He also observes that people’s and organisations espoused or verbalised values do not always correlate with their actual behaviours. So values drive behaviour, though we may have to question and evaluate the behaviour in order to understand the underlying values. It is also possible that the values we speak about differ from the behaviours we display.

According to The Great Place to Work (2014:2) who surveyed 100 organisations on the UK 2014 ‘Best Workplace’ list, “There is no correlation between an organisation’s publicised values and financial performance but there is a link between a culture of strong values as perceived by employees and organisational performance. Therefore, values need to be ‘lived’ throughout the organisation.” Values driven behaviours are more important to organisational performance than spoken or espoused values. The ‘Great Place to Work’ therefore suggest that organisations should have values at the core of their business and that these should be lived and not just verbalised. This is a view shared by Peat (2003:2) who suggests that “companies which are most successful over the long term are those which incorporate their cultural values at the core of their everyday business operations, i.e. they implement values-based management practices.” Reflecting on the opening statement to this work, organisations have values that drive their behaviours; the most successful organisations know what their values are, and ensure that they consciously espouse a set of values at the core of their business and then consciously live their values through the words and behaviours of all their employees. UK Engage for Success Task Force Report (2012) cited in Barrett (2014:23) identifies four enablers of employee engagement, one of these is “There is organisational integrity – the values pinned to the wall are reflected in day-to-day behaviours. There is no “say-do” gap. There is a suggested link here between a strong values-driven culture, employee engagement and organisation performance.

Reddington, cited in CIPD The Future of Engagement: Thought Piece Collection (2014:27) discusses Engagement as follows “The evidence to support the achievement of higher levels of employee engagement in organisations has never

been more compelling. Although arguments about what engagement 'is' still abound, ranging from something you can sense when entering a room to a highly sophisticated analysis of attitudinal and behavioural constructs, it has moved beyond buzz word status and now commands serious attention in both academia and practice."

Although the purpose of this paper is not to explore values or employee engagement in depth, it seems clear that organisational performance improves when employees are engaged, and employee engagement is enhanced when the organisation has a clear set of values which are reflected in the behaviour of the individual and the collective. However, if people's and organisation's spoken and acted values can differ, and if values change over time, then defining what a successful organisation's values should be, and ensuring that behaviours in turn align with those values becomes complex. It is the variances in people's understanding of values, and their awareness of the change in their understanding of values over time that is of particular interest to the researcher, and it is hoped that this will give an insight into this important yet complex aspect of successful organisations.

Having established why the researcher has an interest in values, and a purpose for the doctoral study, the next challenge was to determine an appropriate methodology.

Theoretical Base for this research:

Phenomenography has been selected as the appropriate research approach; it is "the empirical study of the qualitatively different ways in which aspects of the world are experienced" Mann (2009:1). The focus of Phenomenography is not on the research subjects, nor on the phenomenon or aspect of the world being studied, but on the relationship between the subject and the phenomenon. "Phenomenography takes the position that experience is relational, not purely objective, independent of people, nor purely subjective, independent of the world" Mann (2009:10). This makes it a non-dualist ontology, Mann (2009:2) explains this by citing Marton and Booth (1997) and Trigwell (2000) and saying "it takes neither a positivist/objective approach, independent of human interpretation, nor does it take a subjectivist approach, focusing on internal constructions by the subject."

As a methodology it is qualitative and inductive and generally uses fully transcribed interviews as the data collection method. Although other methods of data collection such as reflective journals and focus groups can be used, the individual interview is the most common data collection method. Phenomenography is second order research and the answers of individual participants are not the focus of interest; instead, variances in the data are the focus, and once analysed, no data or conclusions can be traced back to any specific individual. As it is variances in the understanding and development of values which are of interest in the doctoral research, phenomenography is deemed to be ideal. This approach requires that the researcher has some understanding of the research topic in order to retain focus and to interpret the data, however it also requires the researcher to bracket, or put aside any preconceptions about the study topic based on their own experience. The researcher must be open to understanding different ways of experiencing the aspect of the world being studied, from the perspective of an open mind, with as little personal interpretation of the experiences of others as is possible. The aim is to describe "key aspects of the variation of the experience of a phenomenon rather

than the richness of individual experiences” Trigwell (2000:77) cited in Mann (2009:3).

It is important with this approach, according to Bowden (2000) cited in Mann (2009) that the purpose and method of a phenomenographic study are coherent throughout. Selection of research subjects should be done during the planning phase of the research and should ensure that individuals in the sample have sufficient knowledge and experience of the subject matter or phenomenon as well as variation in experience. Berglund (2006:5) agrees, suggesting that to gain the important variation in data, the research sample must be carefully selected and be broad in the context of appropriate characteristics. Trigwell (2006) suggests that the ideal sample for phenomenographic research is between 10 and 30 people. This gives a starting point in terms of sample nature and size; however there remains the practical challenge to determine who to select to be in the sample in order for the research outcomes to be valid and reliable. Robinson (2014) cites Mason (2002) as suggesting that sampling is central to qualitative research, however that there is insufficient attention given to it in methodological journals and textbooks. Curtis et al (2000) agree that this is an under researched area of qualitative research, and that there seems to be more written about what it is not, than what it is. In the spirit of what it is not, qualitative sampling is generally agreed not to be based on probability based random sampling. This research therefore contributes to an important but under populated area of knowledge.

Research Purpose: The purpose of this paper is to consider how to select the most appropriate sample for the doctoral research study. How should the study sample be selected to ensure that there is variation in the data collected and that the research is valid?

Research Questions:

- What is the ideal profile of a phenomenographic sample?
- What is the optimum sample size in phenomenographic research?
- From where should the research sample be sourced?
- How should the phenomenographic research sample be selected?

Research Objectives:

- To determine what constitutes the ideal sample in phenomenographic research.
- To determine the ideal sample size in phenomenographic research.
- To determine how to source and select the ideal sample in phenomenographic research.

Implications for practice:

This paper has implications for practice both directly and indirectly.

First, it will inform sample selection in phenomenographic research in general, and secondly, it will inform the specific selection of a sample in the author’s doctoral study. The purpose of the doctoral research is to understand more about the variation in individuals’ understanding of values, and their awareness of the evolution

of their understanding. Value-based or values-driven organisations aspire to alignment between employee and other stakeholder values and the organisation's values; Barrett (2014) suggests that values alignment is one of four alignment criteria necessary to inculcate employee commitment and engagement, which is necessary for organisational success. Branson (2008) found that "values alignment may not just be an important integral part of organisational change strategies; it could well be the bedrock, the foundation, on which all truly successful organisational change depends." Alignment is defined by Collins (2000) as being when a visitor can come into the organisation and infer the vision and core values without seeing them written on paper. This aligns with Barrett's (2014) view that values and behaviours that generate high employee engagement should be embedded in the organisation's cultural fabric.

Contribution:

Although there are a growing number of academic papers which use Phenomenography as the research approach, there is a limited source of literature discussing the actual process of carrying out research this way.

This paper studies in detail the best approach to use in selecting an appropriate sample for phenomenographic research, it therefore adds to the existing bank of resources on how to carry out a phenomenographic research study.

Methodology:

This research included both a desk based literature review and primary research.

The first stage was the desk based critical review of literature relating to qualitative and in particular, phenomenographic research sampling.

The second stage of the research was qualitative, inductive, primary research. Data collection was done through semi structured interviews with a sample of four academic colleagues who have experience in qualitative research, and in particular in phenomenology (one colleague) and in phenomenography (three colleagues). Selection initially sourced colleagues at Leeds Beckett University, which was a convenience approach; in addition, a colleague from another university was discovered to have practical knowledge of phenomenography and was also interviewed. It was recognised that there is a risk in convenience sampling that the sample is drawn from a similar group in terms, for instance of socio economic background and perspective, and that this may skew the results of the research (Emerson 2015). In this research it seemed reasonable and appropriate to select academic researchers who have experience in carrying out phenomenology and phenomenography and who have therefore thought about, completed and reflected on their sampling. Including researchers with experience of both phenomenology and phenomenography enabled some comparison to be made, though comparison was limited by the small size of the sample.

There was a risk that if the entire sample came from the same institution, the source of their knowledge of the research method and sampling may be the same, however this risk was mitigated by including in the sample an academic colleague from elsewhere, with different advisers and sources of knowledge. The sample size

reflected Curtis et al's (2000) suggestion from their research on sampling, that qualitative samples are small, studied in depth in order to generate significant amounts of information, and not fully pre-specified because there is the potential for addition to the sample if the researcher feels that more information is necessary.

Participation in the research was voluntary. Interviews lasted for about an hour each and were, with each interviewee's consent, recorded, transcribed and analysed thematically.

Once the primary research was analysed, it was compared with the results of the literature review and conclusions drawn.

Literature review:

Journal articles were sourced using the Leeds Beckett University; key words included: sampling, phenomenography, qualitative sampling, sample size.

Phenomenographic research is most usually used in the context of education, in which it was conceived by Ference Marton and colleagues at the University of Goteborg in Sweden. As Richardson (1999:53) points out, there has been a "lack of specificity and explicitness concerning ... the methods for the collection and analysis of data" in phenomenography. He also mentions the "dilemma of qualitative method" which is to gain authentic understanding and also achieve scientific rigour. Although the main focus of Richardson's (1999) paper is not sampling, he does mention it while discussing different phenomenographic studies. He cites Saljo (1979a, 1979b) as having carried out interviews with "90 people between the ages of 15 and 73 years"; he later cites Marton, Dall'Alba, & Beaty (1993) carrying out what seems to have been a longitudinal study of 29 students over up to 6 years of studying through distance learning. Richardson (1999:59) suggests that there is a tendency of educational researchers to select samples through convenience; he also suggests that a range of authors have implied that phenomenography and phenomenology are essentially the same, mentioning the different underpinning philosophies to phenomenology initially conceived by German philosophers led by Husserl (1913/1931) but later challenged by writers such as Heidegger. Marton, according to Richardson, referred only to the philosophy of Husserl, and not of Heidegger. So when Marton, cited in Richardson (1999) defined the difference between phenomenography and phenomenology it is based only on the underpinning philosophy of Husserl. This underpinning philosophy is important, though not the main focus of this research paper. It will be further studied at a later date.

Whilst phenomenology seeks to understand individual's experience of a phenomenon, and is first order research, Phenomenography is second order and seeks to understand the variation in people's experience of the phenomenon. Although it is not the purpose of this research to explore this difference further, it is important to establish that there is a difference between these two research approaches. If one assumes that they are the same, then sampling methods used in phenomenology could also be used in phenomenography. However, if they are different, then the sampling methods are likely also to be different.

Phenomenography is considered in depth by Richardson (1999), exploring the underlying philosophy and epistemology, and comparing it with other social science research approaches. He concludes that there is a reliance on discursive accounts

which have a constructed and reflexive nature. The emphasis in the paper is on the interview and the data analysis, and there is no explicit mention in the paper of how any sampling should be done. Though Richardson (1999:70) also cites Strauss and Corbin (1990,1994) as suggesting that “theoretical understanding emerges from an iterative process based on a constant sampling, comparison, and analysis of transcribed excerpts from interviews or other discursive material”. This does not specify whether all the interviews are completed before sampling, or whether the interviewing and analysis are themselves an iterative process. Reed (2006:5-6) however does mention sampling in his paper; he suggests that “a typical phenomenographical study would first have people perform a task or engage in some activity” he also stresses the importance “of creating a shared experience for the participants in the phenomenographic study to reflect on during an interview.” Specifically in the context of the sample, Reed (2006:6) suggests that the key question is ‘who’ to interview in order to be able to analyse the variation in experience of the phenomenon. He suggests that purposive sampling, based on the judgement of the researcher is likely to give the best results. “In determining the individuals most likely to provide this variation in ways of experiencing, consideration is not necessarily given to being inclusive of gender or particular cultural groups as may be central to many other methods. A researcher applies his/her mind to selecting critical cases without regard to what are, in a phenomenographic sense, artificial distinctions.”

Another question is how many to include in the study. Ten to thirty is an ideal sample size according to Trigwell (2006); though Reed (2006) cites Trigwell (2000) as suggesting between fifteen and twenty, and concludes that ten to fifteen is the minimum to give a reasonable chance of finding variation. Reed (2006) further cites Dahlgren (1995, as cited in Akerlind, 2003:54) as suggesting that “as long as the sample is selected to maximise variation, ten interviews is normally enough to capture the variation.” Reed (2006:7) concludes that “the best chance of ensuring the complete variation.... remains to sensibly select the participants in the study to ensure as much variation as possible.” There seems therefore to be a consensus here around ten to fifteen interviews. If however, as Reed (2006) suggests, such things as culture and gender are artificial criteria for selection, the question remains as to how to select the ten to fifteen people that are most likely to give variation in their experience of the phenomenon.

Lam (2013) used phenomenography and variation theory in his studies, and although he does not talk specifically about sampling, he does mention classroom learning, implying that the research relates to those children or students who were present in a classroom learning environment. Paakkari et al (2011) used a sample consisting of twenty university students in their study, they specify the gender split and the experience of the participants in the context of the study, however they do not justify why the sample size was twenty, they merely state the course that the students were taking. This could be similar to Lam (2013) in that the sample may be the whole class or study group, though this is not specified. Fifty six phenomenographic studies were reviewed by Harris (2011), of which forty were within a higher education context, thirteen in compulsory education, two in the context of health and one from business; she studies the frameworks used in data analysis, and there is no mention in her paper of the sampling size or methods used in any of the studies.

It is suggested by Mann (2009) that research subjects are selected for their relationship with the specific aspect of the world that is being studied, and to obtain as much variation in experience as possible; this supports Reed (2006) in the importance of a shared experience on which to reflect. In discussing the reliability of phenomenographic research, Mann (2009:9) suggests that one of the important criteria is selection of the interview subjects, and that this should be done using a set of specific 'diversity' criteria to ensure variation in experiences that "could include gender, age bracket, years of experience, disciplinary background or the type of experience." Comparing this with Reed's (2006) suggestion that culture and gender can be artificial criteria, it can perhaps be concluded that these selection criteria should be considered only if they are likely to generate variation in the context of the specific study and not merely for the sake of having a diverse population. Mann (2009:10) discusses the fact that phenomenographic research is not generalisable; the sample is not selected to be representative of any population, but for the likelihood of variation in experience of a specific context. It is important in reporting a phenomenographic study for the characteristics of the subjects to be clearly included, so that the reader can draw conclusions about whether the results of the study may be relevant to their own area of interest, Cope (2002) cited in Mann (2009:10). Sample selection is not explicitly mentioned by Ornek (2008) either, even in his discussion of reliability; however in his final conclusion he suggests that educators' teaching strategies can be improved by understanding the conceptions and thoughts of their students about a particular course, where this course is the shared experience that is the object of the interviews. Implicitly here, the sample would be all or part of a class of students.

The origination of discernment was studied by Marton and Pong (2005) using phenomenography with a sample of forty high school students, the students all shared a similar lack of experience in the interview topic, which was exploring their understanding of basic economics. There is no comment in the paper as to why forty was the chosen sample size. Marton et al (1997:22) cite a study by Saljo (1979) on different ways of perceiving learning; although there is no mention of the sample size, the sample was apparently chosen "to represent people in the education system and in working life in Sweden with a wide variation in age (between 16 and 70 years) and in educational background (from people with only six years in school to university graduates)." In their own research, Marton et al (1997) selected a class of experienced graduate teachers doing a Master of Education course, who as part of their course were taught how to do phenomenographic interviews. Their course assessment was based on their performance in planning, interviewing and interpreting interview responses from four school pupils. The data collected by the Masters students was used by Marton et al (1997) in their research on learning. They specified the characteristics of the sample group in terms of their level of study in school, and asked for a reasonable balance of academic ability and gender. Their eventual study sample of forty three, consisted of eighteen junior and twenty five senior pupils, twenty of these were male and twenty three female, and the academic ability was twenty: high, twelve: medium and eleven: low. There were three researchers analysing the data. There are no concluding comments reflecting on the suitability of the sample profile or size in any of these studies.

These study samples are significantly bigger than the sample size of around ten to fifteen, (and possibly as big as thirty) suggested by Trigwell (2006 and 2000) and Dahlgren (1995, as cited in Akerlind, 2003:54) cited in Reed (2006). There should be

a clearly reported rationale in the selection of participants, with a specific purpose to fulfil the research questions with credibility, according to Cleary et al (2014). They also suggest that samples in qualitative research are usually small, and studied in depth; selection is generally purposive and sequential rather than pre determined, it should also be conceptually driven. This rationale should justify both inclusion and exclusion of potential research subjects. There is a balance to be considered between the size of the sample selected and the quality and depth of the information. Too large a sample potentially generates impractical amounts of data and superficial analysis.

Cleary et al (2014) also discuss when to stop collecting data, using the terms redundancy and saturation of data, where redundancy occurs when concepts are repeated multiple times and no new data emerges. This requires data analysis after each interview. Saturation is when “all questions have been thoroughly explored in detail (and) no new concepts or themes emerge in subsequent interviews” analysis takes place after the interviews are complete, Trotter (2012:399) cited in Cleary et al (2014:474). Citing Glaser and Strauss (1967), Reed (2006:6) suggests that the concept of theoretical saturation is not necessarily relevant in phenomenography. Since before data analysis occurs the researcher cannot know the extent of the variation that there is in the data, and therefore cannot know that all variation has been captured. Redundancy would therefore seem more appropriate since “analysis is carried out after each interview and when the researcher finds the conceptual wellspring has dried up and interviewees reiterate each others’ ideas, one way or another, redundancy has been achieved”, Cleary et al (2014:474). They also mention that the skill and experience of the interviewer is an important consideration in sample selection in qualitative research and that the RATS guidelines for reporting qualitative methods add rigour to the reporting of qualitative research, these guidelines are in Appendix 1 and relate to: a) Relevance of the study question, b) Appropriateness of the qualitative method, c) Transparency of procedures and d) Soundness of interpretive approach. These guidelines cover every aspect of the research and in particular the detail that should be included in the reporting of it.

In contrast, Robinson (2014) focuses solely on sample selection and suggests a four point approach, in the context of qualitative sampling; this is shown in Appendix 2. He agrees with Cleary et al (2014) that sample justification should include both inclusion and exclusion criteria which help to identify the sample universe, and suggests that the more criteria there are, the more homogenous the sample. Since Phenomenography is seeking variance, a more heterogeneous sample is arguably ideal. It is suggested by Robinson (2014) that in qualitative sampling, a target range is more appropriate than a specified number, and the degree to which generalisation is required determines the size of that target range, whether it is nomothetic (large) or ideographic (small), though there is no definition of large and small. He cites Silverman (2010), and Mason (2002) who defines organic sampling, the skill of changing the sample size during the interview process, based on such variables as the success of recruitment, or the funding or time and resources available to the researcher. Also cited by Robinson (2014) are Glaser (1978) and Strauss and Corbin (1998) discussing grounded theory which shares with phenomenography the process of analysing data at the same time as the interviews take place. Data redundancy may also impact on the sample size, as the researcher will decide whether enough data has been collected, or more is required.

At this stage it can be concluded that in Phenomenography, when planning one to one interviews, a target sample range is most appropriate, and that this could be between ten and fifteen with the possibility of increasing or decreasing sample size as data is analysed, and redundancy is sought. The sample universe should be clearly defined, and any inclusion or exclusion criteria specified and justified. As the sample should be heterogeneous in order to achieve variation, these inclusion/exclusion criteria should be minimal. Criteria such as age, gender and culture should be included only if they are relevant to the particular research study in question.

One way to select the sample is convenience sampling, defined by Robinson (2014:32) as “locating any convenient cases who meet the required criteria and then selecting those who respond on a first come first served basis until the sample size quotient is full.” Where this method is used, consideration must be given to the reliability of any generalisation that is made. If the sample universe is defined in geographic or demographic terms, then generalisation should be confined to that universe. As the convenience sample as described here is selected on a first come first served basis, there is an element of randomness in its selection.

Alternatively, purposive sampling is non-random and ensures that certain types of people will end up in the sample selected from a defined sample universe. Robinson (2014) defines a number of different types of purposive sampling, summarised in Table 1.

Sampling strategy	Definition	Comments
Stratified sampling	Select categories, divide or stratify sample into categories, allocate target number of participants to each category	Must have clear theoretical rationale for categories
Cell sampling	Similar to stratified sampling, though categories are discreet and non-overlapping	Must have clear theoretical rationale for categories
Quota sampling	More flexible; defines categories and minimum number of cases for each one.	Ensures key groups are represented; easier to recruit than stratified or cell due to the greater flexibility in numbers.
Theoretical sampling	Either: Locate individuals from new groups of participants or new locations to increase heterogeneity Or: Re-structure existing sample into new categories emerging from analysis and replacing any previous cell/stratified/quotas.	Takes place during collection and analysis of data, and is based on emerging theory and/or categories.

Table 1. Purposive sampling strategies, summarised from Robinson (2014:32-35)

What is clear from analysing the table above is that where boundaries are determined for the sample, and where there are categories included in the selection criteria, there needs to be some reasonable rationale for those criteria. This is consistent with the conclusions in the discussion above, that inclusion or exclusion criteria for a phenomenological sample should be relevant to the particular research, and not artificial or arbitrary, and that the rationale should be clear and transparent.

Considering Robinson's (2014) definitions of convenience and purposive sampling, this researcher concludes that these definitions may become blurred depending on the way in which the study is advertised and the sample is sourced. Should individuals from purposively selected categories be invited to participate, up to a pre-determined quota, for instance, this could be argued to be first come first served, and therefore include an element of randomness similar to the convenience sampling as defined above. It is also possible that the sample universe be selected on a convenience basis, and then the sample selected from within the universe using a purposive sampling strategy in order to ensure a degree of homogeneity in the sample, as this is required in Phenomenography.

One further consideration in sample selection is that of bias, as Gazdula (2017:2) suggests, qualitative social science research is inevitably "entwined with the researchers own personal bias and values". Citing Newton et al (2011), Gazdula concludes that qualitative researchers may rely on positivistic methods to try and eliminate bias, however in his view bias cannot be eliminated, and therefore engaging with "position, bias and subjective assumption, appears fundamental to good research." Finlay (2003) quoted in Gazdula (2017:2) suggests that the researcher should use critical reflexivity to understand how their research conclusions have been formed and affected by their own position in the study. Bias is also mentioned by Robinson (2014) suggesting that it can occur as a result of voluntary participation in a research sample, citing Costigan and Cox (2001) who refer to self-selection bias which can lead to samples containing more people who are interested in the topic of discussion and open to discuss it than the general population. Robinson (2014) concludes that since voluntary participation is central to ethical research, it is not possible to eliminate self selection bias, and therefore, as with Gazdula's conclusion regarding researcher bias, one must be aware of the likelihood and possibility of bias in the sample, and in the researcher, and be up front about it, giving consideration to the possible impact it will have on findings and generalisability. A reflective analysis section written after the research analysis is completed is therefore recommended.

Primary Research Findings:

One to one interviews each lasting about an hour were held with a sample of four academic researchers. The sample was selected by approaching two colleagues from Leeds Beckett University who were known to have used or to be using phenomenography as a research method; the research was also advertised on the researcher's Facebook page. This latter approach attracted two more researchers, a phenomenographer from another University and a phenomenologist from Leeds Beckett University. The researcher was open to interviewing more individuals, however once these four interviews were complete, the data collected was deemed by the researcher to be sufficient, when combined with the literature review, to draw appropriate conclusions. Since the research sample is small, these research conclusions are limited and whilst considered sufficient for the doctoral research in question, more primary research would almost certainly be required in order to generalise the findings more broadly. All interviewees were female.

Each interviewee gave their consent to the interview being recorded, transcribed and used for research purposes and the research complied with the research ethics requirements of Leeds Beckett University. Interviews were semi structured and

based around the indicative questions which are listed together with key findings in Appendix 3, and summarised in Table 2 below.

Indicative questions	Interviewee 1	Interviewee 2	Interviewee 3	Interviewee 4
Research methodology	Phenomenology and narrative analysis Context: health	Phenomenography Context: higher education	Phenomenography Context: higher education	Phenomenography Context: higher education
Data collection method	Analysis of postings discussion forum.	One on one interviews	One to one interviews	Focus groups
What was your sample population?	Individuals sharing a particular health related experience.	Students sharing a specific experience	Current cohorts of Masters dissertation students in Malawi and Zambia.	Undergraduate and postgraduate classes, in the first year of their studies.
How did you source and select your sample?	Publicly available data in a relevant thread of a discussion group	Convenience. Not purposive as this presupposes that the researcher knows who will give variation in answer,	Convenience to select population. Students invited to participate.	Gave students a chance to stay and participate or leave the room after a taught class.
What was your sample size? And why?	One thread of discussion group. About 80000 words of data.	17, this is the number that came forward to be a part of the research.	Phase 1, 11, phase 2 still to be done, but will be between 4 and 10 in addition to re interviewing the initial 11. ie a total of 15 – 20.	12 in each of 3 focus groups = 36
Do you, based on your experience have any general advice on sampling and on this approach to research in general.	Consider whether to use Husserlian approach – seeking a truth and saturation or Heideggerian – iterative . Use the smallest practical sample and consider the quantity of words and data generated as well as the implications of where they come from. Homogenous sample. Saturation is not necessary . Be transparent about how the sample was sourced, and don't claim to be generalisable.	Researcher should not select the sample. There must be a common phenomenon. Aim for saturation . Interviews should be like a conversation with minimal questions. Interviews better than focus groups. Ask for concrete experiences. Probe with questions, and know when to stop people from going off topic. Give time during the interview for reflection, some people become more aware of their feelings during the process of the interview.	Phenomenography allows the data analysis before the literature review. Go in with as blank a sheet as possible. Sample sizes can be smaller in other qualitative research - can be single figures, though even in a small group I found variance. You cannot deliberately pick people to get variance. Don't try and eliminate bias, it is inevitable, instead, reflect on it and how it may have affected the data and your analysis of it. Don't design questions, facilitate the flow of the conversation. Considered but did not seek saturation .	Stay focussed on the research question. Be pragmatic. Select the sample to enable variation. Selection is not presupposing where the variation will come from, but enabling it. Theoretical sampling allows iterative data collection and analysis. Focus groups generate rich data as people's ideas spark off those of others, a constructionist approach. I like the concept of saturation . Facilitation is key in a focus group. Concrete examples are important. The interview is a reflective process, and people might develop their view during the interview. This is ok. Phenomenography allows the data analysis before the literature.

Table 2 Summary of key data collected during primary research Trem (2017)

Analysis of the interviews shows that the phenomenologist (interviewee 1) sought the smallest practical homogenous sample, whereas the phenomenographers (interviewees 2, 3 and 4) sought heterogeneous samples for variation. All interviewees agreed that in selecting a sample, there is an element of practicality,

and that the amount of data generated for analysis is a consideration. All interviewees also agreed that large samples are not necessary, as qualitative research does not seek to generalise. This view supports the literature findings, where for example Mann (2009:10) citing Cope (2002) suggests that phenomenographic research is not generalisable; though it is important to state fully the characteristics of the study so readers can decide whether the findings are relevant to their context.

The phenomenographers (interviewees 2, 3 and 4) had used samples ranging from 11 to 36, and for data collection the researcher with the largest sample used focus groups, the phenomenologist used narrative analysis and the remaining two phenomenographers used one to one interviews. The sample of 11 will rise to nearer 20 once the second phase of research is completed. The researcher using a sample of 17 found saturation occurred at 14.

Interviewees differed in their views of whether saturation was desirable, two phenomenologists (interviewees 2 and 4) suggested that it is desirable, whilst the phenomenographer suggested that it is not important, and one phenomenographer (interviewee 3) said that whilst she had initially considered saturation, she was concerned whether it might mean stopping too soon, before variation had been found. All agreed that deciding when to stop data collection is important. Citing Glaser and Strauss (1967), Reed (2006:6) suggests that the concept of theoretical saturation is not necessarily relevant in Phenomenography, data redundancy is perhaps more appropriate.

Interestingly, both the phenomenologist (who did not agree with saturation) and the phenomenographer (interviewee 4) who did agree with saturation, suggested that data collection and analysis should be an iterative process; this would appear to be the Heideggarian approach, in which one would not expect to seek saturation but redundancy. There is perhaps some conflict here which warrants further consideration. Additionally of interest, according to Richardson (1999), Marton in developing the phenomenographic approach referred only to the philosophy of Husserl, and not to that of Heidegger. Not all phenomenographers agree with Marton, and this perhaps emphasises the point made by interviewee 1, that the underpinning philosophy of the individual researcher must be clearly understood and stated from the start, so that the decisions made during the research process are consistent with that philosophy. Interviewee 4 specifically mentioned theoretical sampling, which is also mentioned by Robinson (2014:32-35) as an appropriate purposive approach. Using an iterative approach would suggest that the sample size is not fixed at the start, but finalised during the data collection and analysis process. This also fits with Robinson's (2014) suggestion that starting with a target range is more appropriate than a specific sample number.

All researchers in this research sample used a convenience approach to determine their population, and invited people within that population to participate, whilst interviewee 1 eventually used narrative analysis from a discussion forum, interviewees 2, 3 and 4 all used some form of self selecting sample, ie those who agreed to stay in the room after class, or those who after invitation and a face to face conversation agreed to be involved. None of the phenomenographers specifically constructed samples in order to achieve variation, and all found variation when they analysed their data. Interviewee 2 was adamant that the researcher should not

construct a sample as this requires researcher presupposition as to who might give variation; the sample should meet selection criteria to ensure a common experience, but no more selection than that. Interviewee 3 agreed that researcher selection of a structured sample might encourage selection of a sample that generates the answer that the researcher is seeking. She advocated a sample enabling variation, rather than constructed to 'ensure' it. On the other hand, interviewee 4 advocated selecting the sample most likely to give variation, and suggested that she would if necessary construct a sample representative of the population in order to ensure that her data included a full range of views, and the variation associated with that. This view is similar to that of Reed (2006:7) who concludes that "the best chance of ensuring the complete variation... remains to sensibly select the participants in the study to ensure as much variation as possible." This is further supported by Bowden (2000) cited in Mann (2009) who states that individuals in the sample should all have enough knowledge and experience of the subject as well as variation in their experience of it. How though does a researcher know the degree of knowledge of an aspect of life that a data subject has, and the variation in people's experience, before the data collection and analysis has been started? This seems to be further evidence to advocate theoretical sampling with an iterative process of data collection and analysis, enabling the researcher to seek further variation as the research develops. In discussing when to stop data collection, all interviewees identified that whether one agrees with saturation, or redundancy of data, or stopping when no further subjects come forward to be interviewed, there is always the possibility that the next person who might have been included could add further interesting variation in the data. Nevertheless, researchers must accept that there has to be a time to stop, and the rationale for this should be clearly stated in the reporting process. It can be concluded that some intervention from the researcher, based on their judgement, is necessary to enable variation.

Where all interviewees agreed was that the key to sample selection is the research question(s), and that the size and nature of the sample is likely to vary depending on the particular context of the research.

Although all those interviewed also spoke about the data collection method, and their preference for interview or focus group, this has only been considered in this paper from the perspective of sampling. The required sample size would appear to be larger when focus groups are used as opposed to interviews. Interviewee 4 who used focus groups, and was a strong advocate for them added that there may be relevant issues that some individuals would not discuss in public and that there could be a case for using both focus groups and interviews.

Conclusion:

These conclusions focus on sampling, as that is the aim of this paper, however there has been information gathered from these interviews that will be revisited and analysed in more detail before this researcher completes her doctoral study.

Although Phenomenography was the subject of this research, and not the methodology applied within it, both the literature review and the primary research, identified some variation of opinion as to how a sample should be selected for phenomenographic research, and what that sample size should be.

However, there would appear to be an ideal range which is between 10 and 30, which is supported by Trigwell (2000, 2006) with the actual size sample erring to the lower end of that range as long as sufficient variation is found. It is likely that this will be at about 15.

Convenience would appear to be a common way to select the data population, thereafter, some researchers select their sample on a first come first served basis, and others use theoretical sampling.

There need to be some inclusion/exclusion criteria in selecting a population, in order that the sample will have an appropriate shared experience. This shared experience is critical to Phenomenography.

There is no absolute consensus on whether a sample profile should be specifically selected by the researcher in order to ensure variance, or whether the sample should just be drawn from the population. If a theoretical sampling approach is used, then it is likely that there will be some deliberate selection of the sample by the researcher, in order to explore specific themes emerging from the data. A first come first served sampling process is likely to have less researcher input.

A phenomenographic sample should be heterogeneous, rather than homogenous. Some suggest that demographic criteria should be applied in the selection of a sample, others disagree. This would appear to be a factor of researcher judgement based on what is best in a specific research context.

It is important to know when to stop collecting data, especially if an iterative approach is being taken. Some favour data saturation, others data redundancy, and all agree that the practicality of data quantity is a consideration. As part of the control of data quantity, the researcher should be focussed on the research purpose and able to keep data collection 'on topic'. Interviewees in this research quoted collection of between 50000 and 100000 words of transcribed data, and discussed the challenges of good quality analysis with this amount of data.

It is important to be clear about one's underpinning philosophical approach before starting the research, so that the work is consistent.

Phenomenography is reflective, and it is likely that individuals will develop their understanding of the phenomenon during the data collection process, therefore time needs to be included for reflection. Therefore time for data collection as well as data analysis is an important consideration.

Some bias in the selection of a qualitative sample is inevitable and whilst it should be minimised, rather than trying to eliminate it the researcher should reflect on what bias is likely to be present, and consider whether it has affected the research, and how. It is important in this second order research that in data analysis the researcher does not interpret the data, but analyses the themes emerging from the data without presupposition or bias, as far as that is possible.

The purpose of phenomenographic research is not to generalise, however the reporting of the research should be detailed and transparent in order that readers can decide whether the results of the research can be generalised to their own context. The RATS guidelines outlined in Appendix 1 are one recognised way to do this.

Application of conclusions to the doctoral research:

With specific reference to the purpose of this paper, the above conclusions are now applied to the doctoral research. For this, Robinson’s (2014) four step approach has been used as a guide; see Table 3 below and Appendix 2.

In the primary research the interviewees selected their samples from classes they taught, or from a group with common experience of a health issue. In the doctoral research it is less easy to define a boundary around the sample universe, since all individuals have values, whether they are consciously aware of them or not. As discussed in the literature review, Reed (2006:5-6) stresses the importance “of creating a shared experience for the participants in the phenomenographic study to reflect on during an interview.” This researcher will not artificially create a shared experience, instead, the ‘shared’ experience will be the individuals experience of a number of values, commonly cited by organisations as driving their behaviours and actions, for example integrity.

The first challenge is therefore to determine the inclusion and exclusion criteria. The sample universe could include all people who have an experience of, or conception of the meaning of (eg) integrity. In order to comply with research ethics guidelines, those included should be over 18, and not vulnerable. For practical purposes, the ability to speak and understand English will also be an inclusion criteria, though this does not need to be English as a first language. An experience of or conception of the meaning of the selected values will also be necessary.

Point	Name	Definition	Key Decisional Issues
1	Define a sample universe	Non vulnerable adults over the age of 18 who speak and understand English and have a conception of the meaning of the selected values.	Heterogeneous sample, to include a mix of age, gender and ethnicity, though the numerical balance of these criteria will not be prescribed.
2	Decide on a sample size	Range between 10 and 20	Aim for the lower end of the range if that gives sufficient variation.
3	Devise a sample strategy	Theoretical sampling with iterative data collection and analysis	Seeking data redundancy rather than saturation
4	Source the sample	This aspect of the process requires more thought.	No payment will be made to participants.

Table 3, Doctoral Research sampling adapted from the four point approach to qualitative sampling, Robinson (2014:26)

Given the advice shared by Gazdula (2017) and by interviewee 3, there will be an element of bias in any sample, and this, along with practicality will be considered when finalising the methods of sourcing the sample. If the sample is sourced from colleagues and students in the workplace, then there may be a lack of variance in educational background. If it is sourced through the researcher’s social media sites, then there may be practical barriers in meeting and interviewing subjects, as social media contacts are based worldwide, even if a UK boundary is applied, there are

travel issues, unless interviews are done using telephone or Skype. Either way, some or all of the sample are likely to be known by the researcher which could impact on the conversation. These issues all require reflection in order to determine how and where to source the sample from within the defined sample universe in order to maximise the value and credibility of the research outcomes.

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Appendix 1

Qualitative research review guidelines – RATS

ASK THIS OF THE MANUSCRIPT	THIS SHOULD BE INCLUDED IN THE MANUSCRIPT
<i>R Relevance of study question</i>	
Is the research question interesting? Is the research question relevant to clinical practice, public health, or policy?	Research question explicitly stated Research question justified and linked to the existing knowledge base (empirical research, theory, policy)
<i>A Appropriateness of qualitative method</i>	
Is qualitative methodology the best approach for the study aims? <ul style="list-style-type: none"> • <i>Interviews</i>: experience, perceptions, behaviour, practice, process • <i>Focus groups</i>: group dynamics, convenience, non-sensitive topics • <i>Ethnography</i>: culture, organizational behaviour, interaction • <i>Textual analysis</i>: documents, art, representations, conversations 	Study design described and justified i.e., why was a particular method (e.g., interviews) chosen?
<i>T Transparency of procedures</i> <i>Sampling</i>	
Are the participants selected the most appropriate to provide access to the type of knowledge sought by the study? Is the sampling strategy appropriate?	Criteria for selecting the study sample justified and explained <ul style="list-style-type: none"> • <i>theoretical</i>: based on preconceived or emergent theory • <i>purposive</i>: diversity of opinion • <i>volunteer</i>: feasibility, hard-to-reach groups
<i>Recruitment</i>	
Was recruitment conducted using appropriate methods?	Details of how recruitment was conducted and by whom
Is the sampling strategy appropriate?	
Could there be selection bias?	Details of who chose not to participate and why
<i>Data collection</i>	
Was collection of data systematic and comprehensive?	Method(s) outlined and examples given (e.g., interview questions)
Are characteristics of the study group and setting clear?	Study group and setting clearly described
Why and when was data collection stopped, and is this reasonable?	End of data collection justified and described

ASK THIS OF THE MANUSCRIPT	THIS SHOULD BE INCLUDED IN THE MANUSCRIPT
<i>Role of researchers</i>	
Is the researcher(s) appropriate? How might they bias (good and bad) the conduct of the study and results?	Do the researchers occupy dual roles (clinician and researcher)? Are the ethics of this discussed? Do the researcher(s) critically examine their own influence on the formulation of the research question, data collection, and interpretation?
<i>Ethics</i>	
Was informed consent sought and granted?	Informed consent process explicitly and clearly detailed
Were participants' anonymity and confidentiality ensured?	Anonymity and confidentiality discussed
Was approval from an appropriate ethics committee received?	Ethics approval cited
S Soundness of interpretive approach <i>Analysis</i>	
Is the type of analysis appropriate for the type of study? <ul style="list-style-type: none"> • <i>thematic</i>: exploratory, descriptive, hypothesis generating • <i>framework</i>: e.g., policy • <i>constant comparison/grounded theory</i>: theory generating, analytical Are the interpretations clearly presented and adequately supported by the evidence?	Analytic approach described in depth and justified <i>Indicators of quality</i> : Description of how themes were derived from the data (inductive or deductive) Evidence of alternative explanations being sought Analysis and presentation of negative or deviant cases
Are quotes used and are these appropriate and effective?	Description of the basis on which quotes were chosen Semi-quantification when appropriate Illumination of context and/or meaning, richly detailed
Was trustworthiness/reliability of the data and interpretations checked?	Method of reliability check described and justified e.g., was an audit trail, triangulation, or member checking employed? Did an independent analyst review data and contest themes? How were disagreements resolved?
<i>Discussion and presentation</i>	
Are findings sufficiently grounded in a theoretical or conceptual framework? Is adequate account taken of previous knowledge and how the findings add?	Findings presented with reference to existing theoretical and empirical literature, and how they contribute

ASK THIS OF THE MANUSCRIPT	THIS SHOULD BE INCLUDED IN THE MANUSCRIPT
Are the limitations thoughtfully considered?	Strengths and limitations explicitly described and discussed
Is the manuscript well written and accessible?	Evidence of following guidelines (format, word count) Detail of methods or additional quotes contained in appendix Written for a health sciences audience
Are red flags present? These are common features of ill-conceived or poorly executed qualitative studies, are a cause for concern, and must be viewed critically. They might be fatal flaws, or they may result from lack of detail or clarity.	<p><i>Grounded theory</i>: not a simple content analysis but a complex, sociological, theory generating approach</p> <p><i>Jargon</i>: descriptions that are trite, pat or jargon filled should be viewed sceptically</p> <p><i>Over interpretation</i>: interpretation must be grounded in "accounts" and semi-quantified if possible or appropriate</p> <p><i>Seems anecdotal, self evident</i>: may be a superficial analysis, not rooted in conceptual framework or linked to previous knowledge, and lacking depth</p> <p><i>Consent process thinly discussed</i>: may not have met ethics requirements</p> <p><i>Doctor-researcher</i>: consider the ethical implications for patients and the bias in data collection and interpretation</p>

The RATS guidelines modified for BioMed Central are copyright Jocalyn Clark. They can be found in Clark JP: *How to peer review a qualitative manuscript*. In *Peer Review in Health Sciences*. Second edition. Edited by Godlee F, Jefferson T. London: BMJ Books; 2003:219-235

Appendix 2

The four point approach to qualitative sampling, Robinson (2014:26)

Point	Name	Definition	Key Decisional Issues
1	Define a sample universe (total population of possible cases for the sample)	Establish a sample universe, specifically by way of a set of inclusion and/or exclusion criteria.	Homogeneity vs heterogeneity, inclusion and exclusion criteria
2	Decide on a sample size	Choose a sample size or sample size range, by taking into account what is ideal and what is practical.	Ideographic (small) vs nomothetic (large)
3	Devise a sample strategy	Select a purposive sampling strategy to specify categories of person to be included in the sample.	Stratified, cell, quota, theoretical strategies
4	Source the sample	Recruit participants from the target population.	Incentives vs no incentives, snowball sampling varieties, advertising

Where:

Inclusion – defines criteria that must be possessed in order to qualify

Exclusion – defines criteria that disqualify participation

The more inclusion and exclusion criteria, the more homogenous the sample

Appendix 3

Indicative questions and key findings from primary research.

Indicative questions	Interviewee 1	Interviewee 2	Interviewee 3	Interviewee 4
Please describe the nature of your research and confirm your research approach.	Phenomenology and narrative analysis Context: health	Phenomenography Context: higher education	Phenomenography Context: higher education	Phenomenography Context: higher education
Did you use one to one interviews or focus groups?	Neither - analysis of postings in appropriate and relevant online discussion forum.	One on one interviews	One to one interviews	Focus groups (3)
What was your sample population?	Individuals sharing a particular health related experience.	Students sharing a specific experience	Students doing Masters dissertations with the University in Malawi and Zambia. One particular cohort, studying now.	Classes that I teach. Undergraduate and postgraduate, in the first year of their studies.
How did you source and select your sample?	The group involved spoke most freely in an online discussion site, and this was therefore used. Difficult to get any face to face interaction with this group, therefore used narrative analysis.	Convenience. Not purposive as this presupposes that the researcher knows who will give variation in answer, and this research approach requires the researcher to bracket their thinking. Therefore presupposition is inappropriate.	Convenience. Using students that we work with. Invited participation using Moodle and other methods, poor response, then spoke to students in class, and also used a gatekeeper to ask people. Phase 2 uses the personal tutors to identify appropriate people to be added to sample.	Gave students a chance to stay and participate or leave the room after a taught class. There were 3 groups of 12 students, 2 postgraduate and 1 undergraduate. Each was a mix of home and European and international students. By chance rather than selection.
What was your sample size? And why?	More about the number of words analysed than the number of people contributing. One thread of a discussion forum.	17, this is the number that came forward to be a part of the research. After 14, the themes were recurring so 17 deemed sufficient.	Phase 1, 11, phase 2 still to be done, but will be between 4 and 10.	12 in each focus group.
Reflecting on your research, would you do the same again, or change anything?	Would do the same again for this research.	Would do the same again for this research.	Would do the same again; the research is not complete, phase 2 is to be done in May.	Would do the same again for this research, though might add some one to one interviews for those who might add value but not be comfortable in a group.
Do you, based on your experience have any general advice on sampling	Sample needs to be big enough to elicit a range of experience. Consider whether to use Husserlian	Researcher should not select the sample (presupposition); there must be a common	Phenomenography allows the data analysis before the literature review. Go in with as blank a sheet as possible.	Stay focussed on the research question. Be pragmatic. Select the sample to enable variation. Selection is not

	<p>approach – seeking a truth and saturation or Heideggerian – iterative.</p> <p>Use the smallest practical sample and consider the quantity of words and data generated as well as the implications of where they come from.</p> <p>My aim was a homogenous sample.</p> <p>Narrow down your sources of complexity.</p> <p>Make sure you get concrete examples.</p> <p>Saturation is not necessary.</p> <p>Think about the philosophy behind your approach and be consistent with it.</p> <p>Be transparent about how the sample was sourced, and don't claim to be generalisable.</p>	<p>phenomenon.</p> <p>Saturation occurred at 13 – 14 interviews.</p> <p>There must be a common phenomenon to reflect upon.</p> <p>Source the sample by working out from a common phenomenon.</p> <p>More likely in focus groups that people will discuss the things they agree on, and therefore less likely to get variation in thinking.</p> <p>Interviews should be like a conversation with minimal questions. Ask for concrete and specific experiences.</p> <p>Probe with questions, and know when to stop people from going off topic.</p> <p>Give time during the interview for reflection, some people become more aware of their feelings during the process of the interview.</p>	<p>Different from grounded theory in that I am looking for a deeper understanding, and not a theory, though there are some similarities.</p> <p>Sample sizes can be smaller in other qualitative research - can be single figures, though even in a small group I found variance.</p> <p>You cannot deliberately pick people to get variance – that might mean you have selected a group that is more likely to give you the answer you were looking for.</p> <p>Don't try and eliminate bias, it is inevitable, instead, reflect on it and how it may have affected the data and your analysis of it.</p> <p>Is a carefully constructed sample really qualitative?</p> <p>Don't design questions, facilitate conversation.</p> <p>Initially considered saturation, but did not actually seek it.</p>	<p>presupposing where the variation will come from, but enabling it.</p> <p>Theoretical sampling allows iterative data collection and analysis, and development of the sample based on meanings that emerge from the data. Iteration must come from the data and not the interpretation/ subjectivity of the researcher.</p> <p>Focus groups generate rich data as people's ideas spark off those of others, a constructionist approach..</p> <p>I like the concept of saturation.</p> <p>Facilitation is key in a focus group.</p> <p>Concrete examples are important.</p> <p>The interview is a reflective process, and people might develop their view during the interview. This is ok.</p> <p>Phenomenography allows the data analysis before the literature.</p>
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