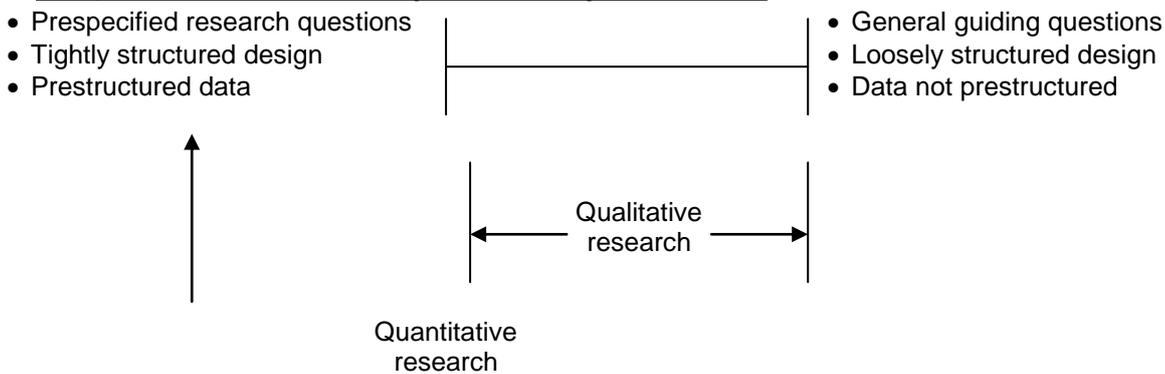# EXAMPLE

1. <u>Introduction</u>

For the purpose of structuring this assignment I will make use of Mouton's Research Design Map (Mouton, 2005: 46-147). Each of the two empirical articles (qualitative & quantitative studies) will be dealt with separately in the design map. The following figure from Punch provides a 'nutshell' differentiation between the studies.

Prespecified versus Unfolding: The Timing of Structure:

* Prespecified research questions
* Tightly structured design
* Prestructured data

* General guiding questions
* Loosely structured design
* Data not prestructured

Qualitative research

Quantitative research

(Punch, 2005: p.23)

Definitions & Terminology will be dealt with under the appropriate headings in the design map. Reliability and Validity will be dealt with under the appropriate sections. Short descriptions/understandings are included in the introduction.

Reliability & Validity: Both Punch (Punch, 2005: p.95 & p.97) and Neuman (Neuman, 2006: p.188) state that reliability & validity are central concepts/issues in all measurement. In short, reliability means consistency/dependability and validity suggests truthfulness. Both concern connecting measures to constructs. In quantitative research, reliability means *measurement* reliability: " The dependability of consistency of the measure of a variable" (Neuman, 2006: p.189), but qualitative researchers question the quantitative-positivist ideas of replication, equivalence, and subpopulation reliability ('fixed measures') because they see data collection as an *interactive process* within a context that dictates a *unique mix of measures* that cannot be repeated (Neuman, 2006: p.196). Validity for qualitative researchers is seen in the context of *authenticity* rather than the idea of a *single version of truth* (Neuman, 2006: p.196).
There are different types/levels of reliability & validity for qualitative and quantitative research which will be dealt with in each section respectively. The meaning of validity changes in each of the main stages of the research process as indicated by Mouton in his Validity Framework (Mouton, 1996:p.111). Mouton's Validity Framework fits within his research design map that is the format being used for this assignment.

Qualitative Research Design:

"Qualitative research designs share the following features: 1) Detailed engagement with the object of study, 2) selecting only a small number of cases, 3) an openness to multiple sources of data, 4) flexible design features that allow the researcher to adapt and make changes where necessary" (Babbie & Mouton, 2005:278-279). Qualitative designs mostly delay conceptualising and structuring the data until later and are also less likely to contrive or create a situation for a research purpose in the beginning (Punch, 2005: p.141).

2. Description/Definition

Little detail in the article is given with regard to the first study that was conducted in the late 1990's on healthy eating and dietary change in the UK. However judging by the original sample size of 48 participants (24 women & 24 men) and going from the assumption that the three age groups, the two social class groups, marital status and qualification levels of participants of local manufacturing companies from Yorkshire, was the original study, then the conclusion might be made that the original study was a Case Study Design. This article (current study) deals with the existing data from the above Case Study and should therefore be seen as a Content Analysis Design, rather than saying that the current study is a 'case study within a case study', where only men were sampled, but from existing data (secondary data) of the previous study. This fits with Mouton's description of a case study, as "usually qualitative, with the aim to provide in-depth description of small groups (less that 50)" (Mouton, 2005: p.149). It can be assumed that the original study qualifies as a case study due to the sample size, study topic, and mode of observation applied. Statements made on the small availability of the amount of literature and studies on the area of interest. Keywords such as textual, existing data, audio-recorded, transcribe, categories, themes, etc as well as statements in the article that the interview data from the original study was not analysed in depth, give strong indications that this study was a Content Analysis Design.

3. Design Classification

This study is an empirical textual analysis of secondary data with a fairly low level of control due to the flexibility of these types of research designs. When empirical studies such as a case study is conducted, primary data is collected, but during empirical content analysis studies, existing (secondary) data is being used. In this article, secondary textual data has been used, which means that the researcher had no control over the production of this data. Thus being less structured and with fewer formal measures of control, as is the case with qualitative studies, the emphasis with regard to establishing validity in the research will have to be focused on rapport, trust and participation (Babbie & Mouton, 2005: 76-78).

4. Key Research Question/s

The aim of this study was to provide an explorative understanding of men's accounts of food and health, using concepts pertaining to masculinity due to the fact that very little is known about the meanings that men attach to food, links between food & health - and the relation thereof with masculinity. There was only one published qualitative study to date that looked at men, masculinity and food preferences in different occupational groups; the aim of the study in this article was to build on such work by exploring on men's ideas of food in relation to health. Due to this - and by using grounded theory methods during the data analysis, the topic became:
'Developing an interest in understanding how masculinity is enacted, & especially how healthy eating is decried through the accounts of eating & health provided by the 24 men from the sample that was interviewed'.

Explorative studies are usually done when a new interest of subject in a study is being examined. It frequently involves the use of interviews and follows an open and flexible research strategy that almost always yields new insights into a topic for research. Often these studies do not result in a precise opinion but rather suggest from the results what might be more extensive studying for the feature (Babbie & Mouton, 2005: 79-80). The article suggests more empirical research on the "how food and health are construed by men and incorporated into their identities", "perceived barriers to healthy eating from different groups of men and their food choices that are mediated by factors such as age & social class", and "the extent to which men link weight worries to health compared to preoccupations about bodily appearance". It is argued that such research could be invaluable to agencies involved in men's health promotion.

A main shortcoming of exploratory studies is that they can only hint at answering/giving insights to the research methods that could provide definitive answers due to the issue of representativeness (Babbie & Mouton, 2005: p.80). The article realises its shortcomings with regard to representativeness when it states: "future research would clearly need to sample a wider range of men in the social class to test and refine aspects of this analysis", "research be conducted with men from diverse backgrounds…", "sampling explicitly men that eats healthy" .

5. Typical Applications

According to Neuman "content analysis is a technique for gathering and analysing the content of text and content can refer to words, ideas, themes, pictures, or any message that can be communicated. Text in content analysis can take the form of any written, visual or spoken data that serves as a medium for communication". Content analysis goes back nearly a century and is used in both quantitative and qualitative research. (Neuman, 2006: 322-323), and can virtually be applied to any form of communication (Babbie & Mouton, 2005: p.383). In the case of this article, content analysis was done on data that was collected in the late 1990's on healthy eating and dietary change in the UK. The content analysis design made gender a principal focus and

analysed the interviews in depth by means of a "thematic analysis in order to explore how men matched with their masculine identities, if at all, construe the concepts of food and health". Content analysis in this study enabled the researches to study men's attitudes, ideas and views of healthy food as well as the scepticism about health information through the media and how they relate this to their masculinity.

6. **Conceptualisation/Mode of Reasoning**

In this content analysis design there was no hypothesis formulated. The general idea/direction of the study was aimed at an explorative understanding of men's accounts of food and health using concepts pertaining to masculinity due to the fact that very little is known about the meanings that men attach to food, links between food & health as well as the relation thereof with masculinity. By using grounded theory methods during data analysis, the topic became: *"Developing an interest in understanding how masculinity is enacted, & especially how healthy eating is decried through the accounts of eating & health provided by the 24 men from the sample that was interviewed"*.

The form of reasoning used in this study was that of *Inductive Reasoning*, which also relates to the grounded theory that is seen as a type of inductive social theory that builds toward abstract theory by making comparisons of empirical observations (Neuman, 2006:p.60). The emphasis of the study was to develop and/or build inductively based new interpretations of first-order descriptions of events (Babbie & Mouton, 2005: p.273).

Once data has been collected from a sample there is usually the whish to generalise findings to the target population, which Mouton refers to as inductive generalisation (Mouton, 1996: p.80). External validity is the question of generalisability, i.e. to what extend can the findings of this study be generalised as well as the conclusions from the study be transferable, to other settings and contexts. In qualitative designs the concept of transferability is often preferred to generalisability. The question of external validity is then focussed on three aspects: 1) The sampling itself that should be diverse enough with variation to encourage transfer to other situations, 2) The context be thickly described so that the reader can judge the transferability of findings to other situations, 3) The concept of data analysis to be at a sufficient level of abstraction to permit application to other settings (Punch, 2005: 255-256). From this study the researchers guard against transferability with regard to the sampling by mentioning that their sample was modest and suggest that future research would clearly need to sample a wider range of men in the social class category to test and refine aspects of this analysis. Mentioning is made by the study that key themes were presented but they need to be further elaborated and qualified in future work as well as the fact that the dataset that was used was ten years old. Lastly the

researchers mention that it is crucial that more research is conducted with men from diverse groups in order to adequately gauge the impact of masculinities and other factors on men's willingness or reluctance to change their diets for health reasons.

7. **Selection of Cases/Sampling**

Maxwell (Bickman & Rog, 1998: 87-88) argues that in qualitative research there is neither probability sampling nor convenience sampling as is predominantly the case with quantitative research. He lists a third category for qualitative sampling namely, *purposeful sampling*; - were settings, persons or events are *deliberately* selected for the information they can provide. He argues that it can be used to achieve representativeness, capture adequately heterogeneity in the population, allow for the examination of cases that are critical for the theories the study began or ended up with; finally it can be used to establish particular comparisons to illuminate reasons for differences between settings or individuals. Babbie & Mouton (Babbie & Mouton, 2005:p.202) state that purposive sampling is a non-probability sampling that is sometimes called a judgemental sampling. Neuman (Neuman, 2006:p.220) calls non-probability sampling also *non-random samples*: - researchers rarely determine the sample size in advance and have limited knowledge about the larger group or population from which the sample is taken. He lists a number of non-probability samples of which one is *snowball sampling*: - "get cases using referrals from one or a few cases, and then referrals from those cases, and so forth"(Neuman, 2006:p.220), which was the sampling method used in the original study. According to Neuman a crucial feature of snowball sampling is that each person or unit is connected with each other through a direct or indirect link and should therefore be seen as an interconnected web of linkages. Snowball sampling is a multistage technique, also called network chain referral or reputational sampling - a method to select cases from a network that begins with the selection of one or a few people in a case that then spreads on the basis of links or nominations from those people (Neuman, 2006: 222-223).

However, very little is said about the content analysis design sampling. Content analysis sampling relates to coding and the setting up of categories, which is discussed in some detail in the article where mention is made of open-ended thematic analysis using techniques from grounded theory methods. It is therefore possible to argue that *Theoretical Sampling* has been used in the current article. Neuman defines theoretical sampling as "a non-random sample in which the researcher selects specific times, locations, or events to observe in order to develop a social theory or evaluate theoretical ideas" (Neuman, 2006: p.224). It is the growing theoretical interest that guides the selection of sample cases, which is based on new insights that they may provide to the researcher (Neuman, 2006: p.224). Punch states that "theoretical sampling describes the relationship between data collection and data analysis in grounded theory research (Punch, 2005:p.214). Babbie & Mouton (Babbie & Mouton, 2005: 387-388) mention random,

conventional, stratified (which in practice is almost the same than simple random sampling (Babbie & Mouton, 2005:p.190) and cluster sampling as techniques that can be employed with content analysis.

8. **Mode of Observation/Sources of Data**

The mode of observation during the first study was that of interviews that covered the same 35 questions to each of the 48 participants, who were also free to talk about issues on their own terms as well as introducing topics of their own interest. The interviews lasted between 40 & 60 minutes, and were audio-recorded and later transcribed. Krathwohl (Krathwohl, 1993:368-375) gives a very good distinction between unstructured, partially structured, semi-structured, structured and totally structured interviews as well as discussing the special value of interviews. Of real value is Krathwohl's table where a comparison of data collection methods and critical characteristics are set out (Krathwohl, 1993: 394-397). However, space constraints for this assignment suggest that elaboration will be content analysis as described earlier. In content analysis the source of data is given. What is therefore of importance is the procedure that will be followed when selecting information from the study. Content analysis can be a complex issue due to the fact that the unit of observation might at times differ from the unit of analysis (Babbie & Mouton, 2005: p.385). However, in the article the unit of analysis appears to be the snowball sample of male interview responses of local manufacturing companies in Yorkshire. The 24 men's individual interview responses were then selected for observation and coding. Babbie & Mouton state that "content analysis is essentially a coding operation, (Babbie & Mouton, 2005:p.388) which was also the case in this article. The logic of conceptualisation and operationalisation of coding in content analysis (Babbie & Mouton; 388-389) will be discussed under the Analysis heading of this assignment document.

9. **Analysis**

An open-ended thematic analysis with a coding structure, using techniques from grounded theory methods, has been applied in the study. The thematic analysis not only enabled the researchers to give the respondents a voice and understand their world, but also to get meaning from what they said. The basis of getting structure from open-ended interview questions is to assign codes and categories that are typically derived from the data during the stages of analysis (Punch, 2005: p.57). According to Punch grounded theory is not a theory at all but a method, approach or strategy - and therefore both a strategy for research as well as a way of analysing data (Punch, 2005: 154-155). By using grounded theory as a way of analysis the researchers' "aim is directly at generating abstract theory to explain what is central in the data" (Punch, 2005:p.204). The researcher finds a core category at a high level of abstraction but grounded in the data (core themes in the article). This is done by three steps in grounded theory analysis; 1) finding

conceptual categories in a first level of abstraction, 2) finding relationships between the categories, 3) conceptualise and account for these relationships. This means there is three general types of codes; 1) substantive, 2) theoretical and 3) core. The essence of grounded theory analysis is coding; open coding (finds substantive codes), axial coding (uses theoretical codes to interconnect substantive codes) and selective coding (isolates and elaborate the higher-order core category). These codes are likely to overlap and be done concurrently (Punch, 2005:p.205). What has been done it the article was to establish three core themes and then developing categories after which they were then put into superordinate categories with subordinate but more specific categories.

After stating what they were interested in fining out, *("how masculinity is enacted and especially how healthy eating is decried, through the accounts of eating and health provided by the men interviewed")* categories were set up from the paragraphs; through constant comparison more categories with sub-categories were developed.

Measurement in content analysis uses structured observation, which is systematically done with written rules. These rules guide the categorisation process. Categories should be mutually exclusive and exhaustive and therefore improves reliability. Coding identifies four characteristics: 1) Frequency – counting occurrences, 2) Direction – direction of messages in the content, 3) Intensity – strength of a message in a direction, 4) Space – recording the size/space allocated to text/message (Neuman, 2006: p.325).

Manifest and latent coding can be applied during content analysis. Babbie & Mouton argue that the best solution is to apply both methods (Babbie & Mouton, 2005: p389), this way the researcher ensures better reliability and to some extent validity. However, Babbie & Mouton argue that manifest coding can have a disadvantage in terms of validity due to the fact that there can be deeper meaning to the content of words than purely just counting the occurrence thereof (Babbie & Mouton, 2005: p.388). Intercoder-reliability is the equivalent for reliability in content analysis where the degree of consistency among coders is checked (Neuman, 2006: p.326). Constant comparison was applied in order to merge similar categories. Category systems were periodically revised to reduce the many specific categories in order to end up with the more abstract, three core themes namely: 1) Practical constraints, 2) An intrusive health lobby and 3) Healthy eating as monotonous and insubstantial. Within each of these core themes, the researches incorporated several sub-categories.

Data interpretation was done by examining commonalities or correspondence and differences. Constant comparison was applied as the number of categories built up. Giving experienced colleagues a list of quotations and asking them to allocate it to the three themes was the attempt

towards coding reliability. The three core themes that were developed after analysing 80% of the data also proved to be 'saturated' when 50% of the transcripts had been analysed and still these themes were dominating the transcripts. Focused coding was then applied with the remaining 50% of the transcripts; again theses themes could largely explain the data. Some quotations from interviewees have been provided so that the cub-categories within the themes can be understood by the reader too. A description under each category is given with an example of a quote by the researchers in order to enable the reader to draw his own conclusion or to agree/disagree with the ones of the researchers given in the article. An extraneous variable that could have had an impact on the study results is the *context of interpretation* due to the fact that post data was used for this study.

The criteria for quality measurement are 1) reliability and 2) Validity. According to Neuman qualitative researchers accept the basic principles of reliability and validity but use the terms differently because of the terms association with quantitative measurement. With regard to reliability qualitative researchers will use a variety of techniques such as interview, participation, document studies, etc. Qualitative researchers accept that collection of data is an interactive process, each with a unique mix of measures within each specific context and can therefore differ from researcher to researcher and study to study. This has implications on reliability if reliability is defined as dependability or consistency (Neuman, 2006:p.196). Validity means truthful and Neuman states that qualitative researchers are more interested in *authenticity* (giving a fair, honest and balanced account of social life) than the idea of a single version of truth. Qualitative researchers therefore try to create a tight fit between their understanding, ideas and statements about the social world they have studied and what actually occurred in the data. Reliability is therefore necessary for validity and also easier to achieve than validity. A measure can produce the same result over and over (reliability) but what is being measured may not match the definition of the construct, i.e. validity (Neuman, 2006:p.196).

10. <u>Strengths</u>

According to Babbie & Mouton the main strengths of qualitative research are that it gives a comprehensive perspective to researchers as it always aims for observing the phenomenon as completely as possible in order to develop a deeper and fuller understanding of it. It is especially effective when studying dynamics and subtle nuances of attitudes and behaviours (Babbie & Mouton, 2005: p.309). Punch highlights that content analysis can be unobtrusive, cost effective, time saving – cause analysis of data can start immediately, be of higher quality if the original data was collect correctly and by a better qualified researcher, and give accessibility to difficult populations (Punch, 2005:p.103). Babbie & Mouton also list time and money as an economical advantage as well as the fact that a single researcher, even a student can conduct a content

analysis. If their has been a mistake during the analysis phase no re-gathering of data is needed from the field, only recoding will need to be done (Babbie & Mouton, 2005:392 –393).

11. <u>Limitations</u>

Neuman lists the following dangers in doing content analysis when looking at secondary data; 1) the secondary data that are being used can be inappropriate to the actual research question - thus before conducting the study the researcher needs to consider the units in the data, the time and place of the data collection, the sampling methods used and the specific issues or topics covered in the data; 2) the researcher might not understand the substantive topic and, as a result can make erroneous assumptions or false interpretations about the results (Neuman, 2006: 334 – 335). Punch mentions that difficulties and/or error may occur during interpretation of the raw data as well as the possibility that the original questions and data are not relevant to what is currently being researched. The real challenge is to find ways of 'aligning' data collected by someone else, and often with an entirely different theoretical orientation, to your current study/research topic (Punch, 2005: p.103).

12. <u>Main Sources of Error</u>

Reliability and validity have been discussed previously in this document; in completion, reference to Mouton's validity framework show that the main sources of error with content analysis can occur during 1) sampling, 2) text interpretation if little or no information on the intentions and background or original authors is available, 3) coding when analysing the text (Mouton, 2005: p.166). Mouton lists the following stages in a research process within which each stage there is a possibility of error that may occur; 1) conceptualisation, 2) operationalisation, 3) sampling, 4) data collection, 5) analysis/interpretation (Mouton, 1996: p.111). In the study the researchers tried to counter for error during conceptualisation by looking at the availability and amount of literature on men's experiences and understanding of food. Their first step was to gain an understanding of men's ideas in order to later on develop their area of interest by means of using an inductive approach. The study was thus exploratory and ended with more areas of research and topics that can or should be investigated and tested in the future. Attempts in countering for error by means of selecting all the men's (24) responses from the original study as well as looking only at the applicable open-ended questions was done during the operationalisation phase; the authors did recommend that a bigger sample with a wider range of social class categories, eating habits etc. needs to be done in future in order to adequately gauge the impact of masculinities and other factors on men's willingness or reluctance to change their diets for health reasons. Error in sampling was controlled by using theoretical sampling, which can describe the relationship between data collection and data analysis in grounded theory research (Punch, 2006: p.224). When data selection and analysis/interpretation were done, countering for error was by

conducting an open-ended thematic analysis with techniques from grounded theory methods. This was discussed in more detail in the Analysis section.

Quantitative Research Design:

In essence, quantitative research is "empirical research where the data are in the form of numbers" (Punch, 2005: p.3). Quantitative researchers rely on the positivist approach to social science. "Reconstructed logic" (highly organised & systematic) is applied and a linear research path is followed. It is a language of 'variables and hypotheses'. The emphasis is on measuring variables precisely and testing hypotheses that are linked to general causal explanations (Neuman, 2006: p.151)

13. Description/Definition

According to Krathwohl there are several distinguishing characteristics of survey research, namely: 1) "the care with which the sample is chosen so that an inference can be made to the target population, 2) the care with which the data are collected, whether by questionnaire or interview, 3) and the integration of data collection and analysis in an interactive system" (Krathwohl, 1993: p.361). Survey research is also sometimes called sample surveys where the researcher expects to generalise and record reactions from the exposed group of people/target group (Krathwohl, 1993: p.361). According to Hakim surveys allow for the associations between factors to be mapped and measured as well as the production of descriptive statistics that are representative (Hakim, 2000: p.76).

14. Design Classification

This study was an empirical numeric analysis of primary data with a medium level of control. The level of control is largely dependent on the way in which the sample is selected for the survey, as well as the type of questionnaire and the way in which the questions are structured. This will be discussed in more detail in the sections on *Sources of Data* and *Analysis.* With surveys a standardised language is developed to describe the procedures involved, such as sampling, questionnaire and codebook. A main attraction of survey design is its transparency/accountability due to the fact that the methods and procedures used can be made visible and accessible to others. The evidence from which conclusions are drawn can be presented in tables so that the reader can consider e.g. its validity. (Hakim, 2000: 77-78). Documentation of survey fieldwork can be kept in the form of codebooks, inclusive of copies of the questionnaire and the response rates of the participants (Mouton, 2005: p.107). A key advantage is that survey studies can readily be repeated in different locations at the same time or at intervals of time (Hakim, 2000: p.77).

15. Key Research Questions

The purpose of this study was to investigate the effect of ethnicity on the potential consumers' *associations* with rabbit meat and their *beliefs* surrounding rabbit meat in Stellenbosch in the Western Cape. Some literature was found with regard to consumers' lesser preference for rabbit meat in relation to other meats, ignorance of the benefits associated with game meat, the cultural and religious influences on the intake of a particular food; rabbit meat that is suitable for small-scale farming as well as 'familiar foods' that is 'liked foods' and therefore predicts consumption. But no research was found that investigates associations with food products, although there was some research on perceptions and attitudes. In order to address the purpose of this study, a descriptive survey method was employed using a pre-tested structured questionnaire. When information is collected on attitude, a clear distinction must be made between asking people what they think personally or what they think is desirable for society in general. If a survey is concerned with the link between attitudes and behaviour at the *micro-level* then information must be collected on personal beliefs and preferences (Hakim, 2000: p.82). This should be the case with the survey study in this article.

Neuman states that "survey research begins with a theoretical or applied research problem and ends with empirical measurement and data analysis" (Neuman, 2006: p.276). The following steps are followed during the above process: 1) the researcher develops an instrument such as a questionnaire and/or interview schedule, 2) variables are then conceptualised and operationalised into questions in the questionnaire based on the research question, the respondents and the type of survey, 3) when preparing a questionnaire the researcher thinks ahead to how the data will be organised for analysis and pilot tests the questionnaire with interviewers who have received training on the questionnaire, 4) data is then collected by getting the final questionnaire questions answered and all answers are accurately and immediately recorded, 5) data is then prepared for statistical analysis and 6) finally findings are reported (Neuman, 2006: 276-277). Surveys can be used for exploratory, descriptive and explanatory purposes and are the best method available to collect original data for describing a population's attitudes and orientations. However, careful probability sampling is required (Babbie & Mouton, 2005: p.232).

16. Typical Applications

Surveys are appropriate for research questions about people's beliefs or behaviours. Usually researchers can ask about many things at one time as well as measure many variables and test hypotheses in a single survey (Neuman, 2006: p.273). Surveys are a very old technique. In South Africa it can be traced back as far as the late seventeenth century and it is probably the most frequently used designed (Babbie & Mouton, 2005: p.230). Four forces reshaped the social

survey into modern quantitative survey research: 1) applied statistically based sampling techniques and precise measurement, 2) the creation of scales and indexes to gather systematic quantitative data, 3) adapting survey research to applied areas such as market research to study consumer behaviour, 4) empirical social research reorientation away from non-academics towards respectable "scientific" methods modelled after the natural sciences (Neuman, 2006: p.274). Punch defines the word 'survey' as any research, which collects data from a sample. In other words it can be a simple descriptive study that is usually concerned with different pieces of information that are studied one piece at a time. He states that variables as such may not be involved and continuous variable are unlikely. When this is the case then it is called a *'descriptive survey'* also known as 'normative or status survey'. The aim of descriptive surveys is to describe some sample in terms of simple proportions and percentages of people who responded in a certain way to different questions. Descriptive surveys are commonly used in political research and especially in market research (Punch, 2005: p.75). The authors state in the article that they applied the *descriptive survey* method. The study looked at *consumers'* associations with rabbit meat as well as hypothesising with regard to predicting *market* success.

17. **Meta-theory**

According to Neuman "survey research was developed within the positivist approach to social science" (Neuman, 2006: p.273). Mouton states that although it is linked to positivist or behaviourist meta-theory it is more appropriate to associate it with the tradition of variable analysis and the Columbia school in the 1950's (Mouton, 2005: p.152).

18. **Conceptualisation/Mode of Reasoning**

The form of reasoning that was used in this study was that of deductive reasoning. Neuman gives the following definition for deductive reasoning: "An approach to developing or confirming a theory that begins with abstract concepts and theoretical relationships and works toward more concrete empirical evidence" (Neuman, 2006: p.59). In other words a hypothesis is formulated from an existing theory that must then be empirically tested (Mouton: 1996: p.80). In this descriptive survey design a hypothesis was formulated; "Consumers associations with rabbit meat will predict marketing success: the more positive the associations, once they have been interpreted, the greater the potential for marketing success". The survey wanted to investigate the effect of ethnicity on the potential consumers' associations with rabbit meat and beliefs surrounding rabbit meat in Stellenbosch, Western Cape.

Social researcher have developed techniques for dealing with the problem of reliability by using: 1) the test-retest method (*stability reliability – Neuman, 2006: p.189)*, 2) the split-half method (*equivalence reliability – Neuman, 2006: p.190)*, 3) established measures, and 4) reliable research workers (Babbie & Mouton, 2005: 121-122).

19. **Selection of Cases/Sampling**

The study group for this survey consisted of three ethnic groups, with different ages and education levels. A sample of 304 consumers was drawn randomly from twelve areas in Stellenbosch. Representation of the ethnic groups was equally distributed amongst these areas. Babbie & Mouton defines sampling as a process of selecting observations. Probability sampling, of which random sampling is a part, allows for making fewer observations and then generalising from it to a much wider population (Babbie & Mouton, 2005: p.164). To achieve the random selection the *systematic sampling technique* was used. Neuman defines systematic sampling as "a random sample in which a researcher selects every *k*th (e.g., 12th) case in the sampling frame using a sampling interval" (Neuman, 2006: p.230). He states that it is a normal random sample with a 'shortcut' for random selection. Instead of using a list of random numbers, the researcher calculates a *'sampling interval'* and this becomes the quasi-random selection method. The interval indicates how to select elements from a sampling frame by skipping elements in the frame before selecting one for the sample. In most cases a simple random sample and a systematic sample yield the same results. However, when the sample is organised in some kind of cycle or pattern then systematic sampling will have to be used. (Neuman, 2006: p.230). This was the case with this survey study for the equal spread mentioned earlier.

"One principle of sample sizes is the smaller the population, the bigger the sampling ratio has to be for an accurate sample" (Neuman, 2006:p.241). Larger populations permit smaller sampling ratios for equally good samples. For a small population, a researcher needs a large sampling ratio. The size of the population ceases to be relevant once the sampling ratio is very small. For small samples, small increases in sample size can produce big gains in accuracy, which is not necessarily the case with big samples. Neuman argues that "the decision about the best sample size depends on three things: 1) the degree of accuracy required, 2) the degree of variability or diversity in the population, and 3) the number of different variables examined simultaneously in data analysis" (Neuman, 2006:241-242). Neuman states that smaller samples is only sufficient when: 1) less accuracy is acceptable, 2) the population is homogeneous, or 3) when only a few variables are examined at a time (Neuman, 2006: p.242). Validity and sampling error have similar functions. In measurement, valid indicators of constructs are needed - i.e. indicators that accurately represent abstract constructs. In sampling what is needed is samples with little sampling error - i.e. concrete collections of cases that accurately represent abstract populations (Neuman, 2006: p.242). According to Neuman "sampling error is based on two factors: 1) the sample size and 2) the amount of diversity in the sample" (Neuman, 2006: p.242).

Sampling bias can be avoided by representativeness and probability of selection (Babbie & Mouton, 2005: p.172). Findings of a sample can only represent the aggregation of elements that compose the sampling frame (Babbie & Mouton, 2005: p. 187).

20. Mode of Observation/Sources of Data

This study used structured questionnaires encompassing open-ended as well as close-ended questions. A draft questionnaire was translated into the three relevant languages (English, Afrikaans & Xhosa) and then evaluated by a panel of specialists. The questionnaire was pre-tested and relevant changes were then made. Responses to the questionnaire were collected by means of face-to-face interviews. Three fieldworkers were used - after having received training. In survey research variables are operationalised when researchers ask people questions to get data (Babbie & Mouton, 2005: p.233). Babbie & Mouton state that questionnaires will probably reveal as many statements as questions and that by using both the researcher will have more flexibility (Babbie & Mouton, 2005: p.233). Neuman gives two key principles for good survey questions namely: 1) "avoid confusion, and 2) keep the respondent's perspective in mind" (Neuman, 2006: p.277). He illustrates these principles, when writing questions for surveys, in 10 things to avoid: 1) jargon, slang & abbreviations, 2) ambiguity, confusion & vagueness, 3) emotional language & prestige bias, 4) double-barrelled questions, 5) leading questions, 6) asking questions that are beyond respondents' capabilities, 7) false premises, 8) asking about distant future intentions, 9) double negatives, and 10) overlapping or unbalanced response categories (Neuman, 2006: 278-281). There are two types of questions namely: 1) open-ended question – respondent gives his/her own answer and 2) closed-ended questions – respondent selects an answer from a provided list. The latter is very popular due to uniformity and therefore makes processing easier, but the shortcoming lies in the researcher's structuring of responses. Thus two structural requirements is needed 1) "response categories provided should be exhaustive, and 2) answer categories must be mutually exclusive" (Babbie & Mouton, 2005: p.234). Open-ended questions needs to be coded before processing and therefore need to be interpreted by the researcher. Misinterpretation and researcher bias can influence validity. It is important that respondents answer questions in a language in which they feel comfortable. However, translation is time consuming and expensive and can be difficult with regard to lexical and conceptual equivalence (Babbie & Mouton, 2005: 238-239). It is very important to pre-test a questionnaire where more than one cultural or language group is involved in the survey (Babbie & Mouton, 2005: p.244).

According to Babbie & Mouton face-to-face interviews are the most common method of collecting survey data in South Africa (Babbie & Mouton, 2005: p.249). These types of interviews have the highest response rates and permit the longest questionnaires. Interviewers can also observe the surroundings and use non-verbal communication as well as probe for answers. However, disadvantages of this method include high cost, appearance and tone of voice that may affect a respondent and therefore impacts on data reliability. (Neuman, 2006: p.301).

The interviewers plays a very important role in that they: 1) can attain a higher response rate, 2) probe for answers, 3) serve as guards against confusing items, and 4) observe respondents. In a

multi-lingual and ethnically diverse environment it is important to use this technique as insight from the interviewer can give the respondent a better understanding of difficult questions (Babbie & Mouton, 2005: 250-251).

Training of interviewers should begin with a description of the study, followed by clear instructions as to the visiting points, how the interview should begin, going through the questionnaire question-by-question - and finally going through an interview demonstration a few times with the questionnaire (Babbie & Mouton, 2005: 254-256).

Reliability in a measuring instrument means consistency. A good measuring instrument for research purposes picks up differences between people, producing variances in the scores. The reliability of a measure indicates how much error variance there is in the scores. Reliable variance produced by a measuring instrument is true variance. The central aim in research is to account for variance in a dependent variable. Thus it is necessary to have estimates of the reliability of all measures, especially of the dependent variable. Measurement validity is the extent to which an instrument measures what it is claimed to measure. Thus validity is about inference. The validity question only applies to the inference we make from what we observe. Three approaches apply to instrument validation: 1) content validity, 2) criterion-related validity, and 3) construct validity (Punch, 2005: 95-98).

21. **Analysis**

For comprehension - and due to limited space, a definition of each term will be presented first.

Means -*"the sum of the scores in a distribution divided by the number of scores"* (Williams, 1992: p.38).

Standard deviations -*"the square root of the variance"* (Williams, 1992: p.42).

Frequencies and percentages -*"a table that shows the distribution of cases into the categories of one variable, that is the number of percent of cases in each category – frequency distribution"* (Neuman, 2006: p.347).

Significance -*"a way to discuss the likelihood that a finding/relationship in a sample's results is due to the random factors rather than due to the existence of an actual relationship in the entire population"* (Neuman, 2006: p.370)

Independent variable -*"a phenomenon that is manipulated by the researcher and that is predicted to have an effect on another phenomenon"* (Williams, 1992: p.15).

Dependent variables -*"a phenomenon that is affected by the researcher's manipulation of another phenomenon"* (Williams, 1992: p.15).

Chi-square tests – "*probability level $p<0,05$*". Probability level is selected as a criterion for rejecting a null hypothesis (Williams, 1992: p.70).

All the various (dissimilar) answers for the open-ended questions have been listed, grouped together in the appropriate category and then coded. Quantitative data was then analysed to

establish the means, standard deviations, frequencies and percentages. This was done using the SAS computer package. The of the effects of the independent variable on the dependent variables were determined using Chi-square tests at (*probability level)* $p < 0,05$. In this study if the probability calculated for the null hypothesis is at this level (0.05) or less ($p < 0.05$), the null hypothesis will be rejected and the research hypothesis will be accepted (Williams, 1992: p.70). This was done to test for differences in the proportions of ethnic groups and their responses for each association. The B-tables on p.68 in the article will indicate which ones were rejected. "In stating a problem in hypothesis form, the research hypothesis must imply an unambiguous null hypothesis in terms of the population characteristics to be compared" (Williams, 1992: p.80). Along with this a significance level is also set. Sampling statistics provide a basis for estimating the probability value that will be compared with the significance level. With this comparison the decision is then made with regard to the null hypothesis. This then serves as a basis for a decision about the research hypothesis (Williams, 1992: p.80). The authors also use these to indicate why the associations with rabbit meat will not influence demand positively as well as the low demand for it. Chi-square has two different uses. It can be used as a measure of association in 1) descriptive statistics – indicates the strength of the association between two variables, or 2) inferential statistics - indicates the probability that an association that is found is likely to be due to chance factors. As a measure of association it can be used for nominal and ordinal data (Neuman, 2006: p.364, 372). It is a more precise way of indicating whether there is an association in a bivariate percentaged table. The first step is to determine 'expected values' in a table from information of the frequency distributions of each variable alone (marginals). The next step is to look at the data to see how much it differs from the 'expected value'. If it differs by a lot, then there might be an association between the variables. If it is very close to the 'expected values', then the variables are not associated (Neuman, 2006: p.372). An extraneous variable that the researchers probably did not counter for was that the participants in the sample knew/ate rabbit meat.

22. **<u>Strengths</u>**

The application of survey designs can allow for the production of descriptive statistics that are representative of the whole study population at a lower cost than that of a census. Surveys allow for associations between factors to be mapped and measured. The design can also be used to study causal processes to develop and test explanations for particular associations or social patterns. The latter has extended surveys to a more complex and sophisticated analysis techniques that are accessible in packages such as SPSS. Another strength is that studies can readily be repeated in different locations at the same time, or in the same locations at intervals of time. The evidence from which conclusions are drawn can be presented in tables in order for the reader to decide the validity for themselves. It is thus a more transparent and accountable

design. The measurement is standardised and consistent across all respondents and can be analysed on a reasonably comparable basis and generalised to an entire population if the sampling was adequate (Hakim, 2000: 76-78).

23. <u>**Limitations**</u>

Surveys normally involve the use of structured questionnaires, which obtains a lesser depth and quality of information than an in-depth interview. However this loss depends a lot on how the survey is carried out (Hakim, 2000: p.78). Babbie & Mouton state that surveys cannot measure social action. It is generally weak on validity due to the artificiality of the survey but it is strong on reliability.

24. <u>**Main Sources of Error**</u>

For ultimate validity in quantitative research the various sources of error are controlled for by attaining objectivity through the "maximal control of extraneous variables (Babbie & Mouton, 2005:p.273). Sources of error that influence the validity of the research have been dealt with to some extent under the previous headings. In summary, the way in which researchers controlled for the sources of error will be explained by using Mouton's validity framework (Mouton, 1996:p.111). Conceptualisation errors have been countered for by doing a literature review beforehand and giving some descriptions of concepts and terminology for the research purpose. During operationalisation and sampling they ensured for validity of the measuring instrument by means of a structured questionnaire using the dendrogram technique to ask relevant questions as well as translating the questionnaire, putting it in front of a panel of experts and piloting the questionnaire. Systematic sampling was applied and open-ended and closed-ended questions were formulated from four conceptual links relating to associations that were set for investigation. Data collection was done with face-to-face interviews and training of fieldworkers. Controlling for errors during the analysis phase have been dealt with in more detail earlier in this document. However, it is relevant to quote the following from Neuman and Williams: "With sampling statistics much of the logic in hypothesis testing is based on decision procedure". Two main types of error can be involved here: 1) "the probability of rejecting a null hypothesis that should have been the acceptable alternative" (Williams, 1992: p.80) - saying there is a relationship when there is none (Neuman, 2006: p.373), and 2) "the probability of accepting a null hypothesis that should have been the rejected alternative" (Williams, 1992: p.80) – saying that a relationship does not exist when it does (Neuman, 2006: p.373).

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