

Experiences' of Health Science students' in relation to the use of laboratory animals for experimental research purposes: A phenomenological inquiry.

By

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DECLARATION

Submitted in fulfilment of the requirements for the degree Masters in Health Promotion (Psychology), in the College of Humanities, School of Applied Human Sciences at the University of KwaZulu-Natal, Howard College Campus, Durban,

South Africa.

I declare that this dissertation is my own unaided work. All citations, references and external ideas have been duly acknowledged. The dissertation is being submitted for the degree of Masters in Health Promotion (Psychology), in the College of Humanities, School of Applied Human Sciences, University of KwaZulu-Natal, Howard College Campus, Durban, South Africa. None of the presented work has been previously submitted for any degree or examination at any other university.

Signature: Sarah Coldwell Date: 1/02/2015

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ABSTRACT

The use of laboratory animals for research purposes has been debated for many years. Animal rights movements are strongly opposed to using animals for research purposes. There is also an argument that animal research is fundamental in the medical field to improve medical procedures and to develop new medical methods and treatments. Previous studies have primarily focused on issues of an ethical and moral nature regarding animal treatment, or on veterinarian sciences and animal shelter workers experiences. To my knowledge there is limited research focusing on postgraduate students' experience and this research aims to address the gap.

The study aims to explore the experiences of novice postgraduate research students using laboratory animals for their research and the influence of these experiences on their understanding of animal research and their psychological challenges. A qualitative approach was adopted using phenomenology as a framework and theory. Van Kaam's descriptive phenomenological analysis was used to analyse eight email facilitated questionnaires completed by postgraduate students studying at the University of KwaZulu-Natal (UKZN) Biomedical Research Unit.

The themes that emerged were: The moral dilemma; the experience of guilt; role expectation to improve quality of human life; deterrents factors to the animal experience; coping strategies and beliefs about the BRU education programme.

The findings revealed participants faced several challenges linked to conducting research on animals in terms of under-preparedness, emotional well-being and moral stressors.

Recommendations include for more effective preparation methods and practice for students using animals for research purposes and to implement psychological services to assist those students experiencing difficulties due to the research process.

Definition of key terms

For the convenience of the reader the following terms are defined as used in the study.

Vivisection: The practice of performing operations on live animals for the purpose of experimentation or scientific research.

Anti-vivisection: Are those who vehemently detest the use of animals for research purposes.

Student animal researcher: This term is used in conjunction with novice animal researcher and student biomedical researcher. In this context, the student animal research embraces those who are currently being educated in the field of animal research and have the occupational objective to produce scientific and medical data using animal bodies.

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CHAPTER ONE

Introduction

1.1 Background to study

A major dilemma is often faced by animal researchers dealing with the experience of using and eventually killing laboratory animals for the purpose of research in the medical sciences on the one hand, while on the other, promoting the health and quality of life for human beings by doing so. This moral stressor is something that has been researched in the care shelter occupation however, to date there is no substantive research on animal researcher's experience and the psychological and emotional affects the daily tasks of dissection and euthanasia have on individual senses of self and well-being.

In South Africa we habituate a space of cultural, religious and socio economic variety. This all contributes to the multifaceted nature of perception and meaning. Thus, in South Africa we have not as yet experienced, nor developed, any robust moral movement against the practise of animal research. Despite the Western world being at the forefront in the fight against animal research, and aggression against such practices was recently seen in the UK, among anti-vivisection campaigners named the 'National Operation Anti-Vivisection (NOAV)' that emerged after the 'Stop Huntingdon Animal Cruelty (Shac)'. The Shac campaigns reached new heights in offering cash pay-outs in return for personal information of students working on animal testing projects at Cambridge University (Peachy, 2014). Such strengthening of opposition to animal research is not experienced in South Africa and both the moral and ethical treatment of the animals used for scientific investigations and the students' psychological and emotional well-being are insufficiently researched.

The South African bureau of standards developed the South African National Standard (SANS) for the care and use of animals for scientific purposes. The SANS objective is to ensure the ethical and humane treatment of all animals involved in scientific experimentation, research and teaching encompassing a variety of fields. SANS purports to hold the ethical framework of the three R's at its core namely: Replacement of animals by non-animal models where possible, Reduction of the number of animals used to the minimum required to produce valid scientific results, and Refinement of scientific procedures and animal care standards in order to reduce the risk of inflicting pain, suffering, distress or lasting harm, on the animals involved (Mohr, 2013).

The current status of laboratory animal research in South Africa is an uncertain one as there are no statistics available on the number of animal vivisections conducted, the type of experiments conducted nor the treatment of the animals involved (Mohr, 2013). Although such initiatives as SANS and the NSPCA Animal Ethics Unit seek to identify areas for improvement in the laws and standards that govern animal research, the fact remains that greater monitoring and evaluation of animal research practices is necessary (Mohr, 2013). Hence, the lack of acknowledgement and monitoring of this field of work by government and the general public further exacerbates the issue of negligence regarding the treatment of the animals and laboratory researchers' psychological and emotional experiences.

The study's purpose is to investigate the lived experiences of biomedical postgraduate research students involved in such animal-based research situations and the influence of these experiences on their feelings, emotions and subsequent psychological well-being. The aim of study is to fill the gap in the extant literature by exploring the personal experiences of postgraduate animal researchers using descriptive phenomenological analysis. Findings from this study will shed further light on t on the extent of psychological stress experienced by animal researchers and suggest specific remedial techniques for their alleviation.

1.2 Research aim: The current study aims to fill the gap in the extant literature by exploring phenomenological experiences of novice researchers' experimentation on laboratory animals and the final euthanasia of the animals used.

1.3 The research question that guided the study was: What are the experiences of postgraduate students using animals for research purposes-and specifically in conducting experimentations and euthanasia of animals.

1.4 An explanation for the terminology used in the research question:

In the implementation of a phenomenological research design it is important to provide an explanation for specific words used in the research question. Hence, the statement lived experience is unpacked as follows: the words 'perceive' and 'describe' have been deliberately chosen to provide guidance and direction in the phenomenological process of seeing, reflecting, and knowing (Moustakas, 1994). The word 'perceive' is purposively used to illuminate the integrated relationship between subject and object, as Moustakas (1994) says, "what I see is interwoven with how I see it, with whom I see it, and with whom I am furthermore, my perception, the thing I perceive, and the experience or act interrelate to make the objective

subjective and the subjective objective” (p.59). The word ‘describe’ is also purposively used as one of the primarily objectives of phenomenological research as description of experiences, and the subjective meanings and understandings of described experiences, rather than as explanations of specific analyses. As Moustakas (1994) reports, “descriptions keep a phenomenon alive, illuminate its presence, accentuate its underlying meanings, enable the phenomenon to linger, retain its spirit, as near to its actual nature as possible” (p. 59).

1.5 Rationale for study

The motivation for this area of enquiry is to understand the experiences of students using laboratory animals for research purposes, and thereby generating data for an under-researched phenomenon of human experience. It is hoped that through detailed subjective descriptions and perceptions of the student’s experiences they will be able to reflect on the meaning of their experience as well as articulate the various factors contributing to their feelings and understanding of these.

In South Africa the field of animal research is a silent one, minimal attention is given to the care and monitoring of animals or the experiences of the student researchers involved. Workplace health promotion has become an increasingly focused area of health promotion in an ever industrially and technologically advancing world. Moreover workplace well-being of any individual whether it be as a student or employee is fundamental to their development. The student animal researcher workplace is of fundamental importance when considering the compiled data and the influence of vivisection on the student psychologically and emotionally. The phenomenological experience of animal researchers using laboratory animals for research purposes is not well understood or researched in South Africa. However there is substantial circumstantial evidence that people working within the veterinary field or as shelter carers can experience great psychological and emotional distress in performing laboratory research practices on animals such as euthanasia. Furthermore, there have been very few phenomenological studies conducted on the novice researcher’s experience of animal research. Current literature focuses predominately on the experience and welfare of laboratory animals and neglects the meaning of experience from the researchers involved. It is hoped that the present research findings will provide greater insight and lead directly or indirectly to improvements for student animal researchers. This study aims to focus on the essence of the experience of animal research from the subjective perception of the individual involved and

thus providing insight and understanding into the participant's meanings, feelings and perceptions of the experienced phenomena.

Research questions are as follows:

1. What are the phenomenological experiences (lived experience's) of students experimenting and euthanizing laboratory animals for research purposes?
2. How do these experiences contribute to their understanding and meaning of euthanasia and animal research?
3. What would have been helpful to the students in dealing with the experience of animal research?

A careful review of these question areas leads to the development of the following specific research objectives:

1. To investigate the phenomenological experiences (lived experience's) of students using laboratory animals for research purposes.
2. To investigate the student perceptions of animal research.
3. To explore how the students describe their experience of animal research.
4. To understand how these factors affect novice researcher's well-being.
5. To explore possible coping strategies that might be implemented to reduce the possible distress experienced by novice researchers.

CHAPTER TWO

Literature Review

2.1 Introduction

The following sections will focus on literature in the areas of:

- Historical and controversial aspects of the use of animals in research investigations.
- The concept of euthanasia, and arguments for and against its use.
- The human experience of animal euthanasia amongst care-shelter workers, veterinarians and laboratory researchers.
- Research concerning the training of students.

Following the discussion of these four aspects, there is provided a brief outline of past and recent debates and controversies about the issues of animal research, the influence of linguistics on the perceptions and attitudes toward animal research, and ending in a discussion of possible interventions that might be implemented to reduce psychological stress among student animal researchers.

2.2 Historical Background

Animal research has been practiced for centuries, one of the first articulations of the researcher experience was described by Louis Pasteur who was also one of the earliest users of animals in research and the first to speak of the difficulties of the experience, “there is ample evidence that Pasteur felt uncomfortable with experiments on living animals, but he knew that at that time there was no other way to obtain the scientific information which was needed” (Loew, 1982).

Fox (2004) argues that much of the opposition against animal based research is due to lack of understanding about the research process and the significance of its scientific inquiry. This is a point of relevance as the majority are not aware of what animal research actually entails and why it is conducted. More recently Wekster (1982) a biomedical scientist, provides a personal disclosure of his first experience of animal-based research which he describes as; “I remember opening the door to an animal room and seeing someone with a big asbestos glove holding a rat in one hand and decapitating it with a paper cutter in another, I experienced the same sinking feeling I had had the first time I entered an operating room and beat a hasty retreat” (p.33).In

more, recent years it needs to be noticed that the practise of animal research has changed due to strict ethical and legal requirements however, what is important to recognise is the individual experience of that moment and the paradoxical nature of the environment which is described by Wekster (1982) as, “being the emotionless decapitation of the rat and the surge of emotion and distress experienced by the observer” (p.34).

Singer and Regan (1970, 1983) were influential by their philosophical exploration of the ethical use and treatment of research animals. Singer (1970) opposed the use of animals and coined the term ‘speciesism’ which he defined as a form of discrimination between the interests of one’s own species and the members of another. Singer (1970) equates ‘speciesism’ the rejection of animal interests on the grounds of their being ‘other’ to human beings, with racism. And, Regan (1983) argued that all animals like humans have inherent rights. These rights state that living bodies may not be abused even when good might result from this (Mukerjee, 1997). Hence, it is clear that the subject of animal research is one of great contention among scholars and the public at large. To surmise, it is evident that few previous studies on animal research have explored the issue of the researchers lived experience in conducting such research despite the evident psychological influence such research has on the individual (Wekster, 1982). Prior research in this field has excluded the human experience and focused predominantly on issues of morality and ethics in the relationship between human and animal. Hence, in review of the literature the objective is to discuss the relevant controversies about animal research, to uncover the human perspective on the subject and to relate these perspectives to the experiences of professionals working in similar fields dealing with the practises of experimentation and euthanasia; such as care-shelters, as veterinarians and postgraduate animal researchers. Through comparative analysis of these three professional fields the psychological and physical experiences of postgraduate researchers might better understood.

2.3 Human perspectives of animals

The human perspective of animals is subjective and this subjectivity arises from the varying degrees of influence animals have on individual perceptions. Mukerjee (1997) suggests environmental settings, morality and age as factors influencing the way animals are perceived and their influence on attitudes toward animal research. The degree of distress experienced by those observing or performing euthanasia in any form is dependent on their backgrounds, and the individual’s personal philosophies and ethical concerns about using animals for research

(Kure, 2011). Fox (1986) proposes an argument on the ‘fallacies in our thinking about humans and animals, he suggests that there is an evident inconsistency in people who value pets above people, but also discriminate among animal species. For example, Fox (1986) argues that experiments conducted on cats and dogs are frowned upon and produce outrage however, experiments performed on animals thought to be lesser sentient beings such as rabbits and rats cause little uproar. Fox’s (1986) argument provides evidence for an existing contradiction in people’s perception of animal-based research, determined by a hierarchy of animal importance and influence. Fox’s (1986) argument is substantiated by a study investigating the link between bio-behavioural similarities to humans and the preferences for animal species (Batt, 2009). Results suggest a relationship between similarity and preference, illustrating that humans are predisposed to liking species on the basis of shared bio-behavioural traits (Batt, 2009). For instance, research in the field of social psychology provides an explanation as to why humans might have preferences for similar animals. It was found that people are more empathetic, providing of help and more attracted to other people who they perceive as similar to themselves (Batt, 2009). Thus human’s attitudes to animals are affected by species similarity to humans.

Some factors that influence the variation in perception and attitude about animals are gender, generational gaps, socio-economic contexts and language. Mukerjee (1997) discusses the differences in perception between genders regarding animals. In all the countries surveyed it was found that women were more pro-animal and anti-vivisectionist than men. This difference might be as a result of the influence and internalisation of the socially constructed ways of being womanly or manly within a given society. Women are socially constructed to portray attributes of kindness, love and care whereas males are generally characterised into the dominant cultural stereotype of masculinity, which is associated with toughness, heterosexual attraction, confidence, aggression and sporting prowess (Govender, 2011). Another factor influencing the way animals are perceived is age. Generational gap surveys conducted found that those who are older or less educated are more likely to see animals as a resource, whereas younger and more educated people tend to view animals with greater compassion. More recently, there has been a surge of violence and intimidation perpetrated by extremist anti-vivisectionist groups, in England and Europe at large. Jump (2014) writes about the climate of fear that pervades in the UK animal research institutes, and the consequent lack of support from the scientific community. Jump (2014) reports a lack of transparency between the animal research community and society as being the cause of this unrest, as there remains a lack of knowledge among antivivisection about the intricacies of the practise of animal research. Here,

a factor of relevance is the socio-economic climate, in first world countries sensitivity has transferred from humans to animals, as they are not burdened by the daily crime or socio-economic pressures experienced in South Africa. Thus, morality moves beyond human interaction to include human treatment of animals.

There is limited knowledge on the adequacy and effectiveness of policy and legislation on the use of animals in research in Africa and, more specifically, South Africa. In South Africa, research is guided by the South Africa Medical Research Council Act No. 58 (1991) (11) however, to date no accurate statistics are provided and the degree of enforcement and maintenance of these guidelines is unknown. This exposes a fundamental problem and one which is exceedingly difficult to address in a climate focusing primarily on socioeconomic change and improvement (Kimwele, Matheka and Ferdowsian, 2011).

Religion is another influencing factor in the perception of animals. Although religion does not generally advocate cruelty to animals as such, the bible states that: “God made man in his image and gave him dominion over all creatures” (Mukerjee, 1997, p.1) thereby condoning the use of animals as instruments for human purposes.

In sum, often what distinguishes the treatment of animals is an individual’s context and the varying factors within that context that influence their perception and subjective interpretations.

2.4 Controversies about animal research.

There are a number of viewpoints regarding animal research. Some promote its practice and argue for its progressive influence on the developments of the medical sciences. This argument is valid as animal-based investigation has produced great knowledge and understanding about the determinants of various diseases and aided in the development of life saving vaccines. Others, while recognizing its advantages to medical development, are also aware of the implications of such practices in terms of inflicting suffering on defenceless animals especially in the case of vivisections. There are also those who strongly reject the practice as being both unnecessary and not clearly proven as advantageous to human kind.

Barnard and Kaufman (1997) argue against animal research. They suggest “the majority of animals in laboratories are used as and defined as animal models meaning through external manipulation researchers produce ailments in these animals that attempt to model human

disease” (p.5). However, Barnard and Kaufman (1997) argue that as a result of the subjective individualised physiology of each animal, there is uncertainty as to the use of animal data for other species like human beings as it may be scientifically questionable. For example, an experiential study regarding the instance of ischemic strokes in humans concluded in the trial that there was a discrepancy between how strokes naturally occur in humans and how they are experimentally induced in animals. A variable of fundamental importance in this regard is the influence of the laboratory setting on the animal’s well-being (Bernard and Kaufman, 1997). The stress of handling confinement and isolation caused physiological problems such as increasing susceptibility to infectious diseases and tumours. This can also cause changes in hormone levels and antibodies which can be detrimental to organ functioning. Practitioners in the field also note that procedures conducted on different subjects had differing effects. For instance, rats were prone to biting and rabbits experienced panic (Lynch, 1988, p.281). The novice animal researcher’s experience of the described animal reactions are possibly psychologically and emotionally distressing as researchers may be at risk of developing emotional attachments to laboratory animals. In this regard Lynch (1988) purports that very like when a doctor strikes up a rapport with a patient through having a good bedside manner, in a researcher-animal relationship a mutual ‘understanding’ is achieved. Furthermore scientists have recognized the complexity of animal life, including their ability to portray unique personality characteristics producing a degree of ‘humanness’ (Barnard & Kaufman, 1997). This indicates that researchers are likely to become more aware of the emotional behaviour of animals they routinely work with and thereby significantly influenced by the experience. It can be surmised from Bernard and Kaufman (1997) that the historical scientific failure of much animal research arises from the lack of commonality between the physiology of animal and man; as well as the influence of environmental factors on the animals in the laboratory setting. It is therefore strongly believed by certain informed members of the scientific community that animal research serves little benefit for the quality of life for human beings via advances in medical research.

However, opposing arguments are posed by Morrison (2009) who believes animal research is vital to medicine, and argues the position that animal research has provided disease curing vaccines and the development of antibacterial and antibiotic drugs. Furthermore, Jentsch (2009), a leading brain researcher, advocates animal research as being vital to the progress of our species. He argues that in order to study a complex machine such as the brain, we have to study the living brain whether it be human or animal. Jentsch (2009) further argues that the

proposal for computer models or cell-based models that avoid the use of living animals can provide all the necessary information is a fallacy. Jentsch (2009) further question show a model of the brain can be created when we still do not understand and cannot explain all of its complexity. Jentsch's (2009) argument to those against animal research is premised on the ethics of inaction. Those who question the ethics of research should also question the ethics of withholding research that could be beneficial to the human condition How can one rationalise the prohibition of animal research in light of the reality that such research might alleviate the plight of another human being.

The extant literature on animal research focuses solely on the welfare and treatment of the animals involved and describes those who conduct animal researcher as either perpetrators of a criminal act of abuse and murder, or an elite few who "provide indispensable insights to the corpus of medical information" (Malone, 1982, p.9). Here, overlooking the effect of animal experimentation on the performing researcher.

2.5 Use of language in animal research

Langner (2002) proposes that a fundamental disadvantage of animals is their inability to express themselves in language: "the major difference between man and animal is the development of the human brain which enables man to construct symbols through language, the consciousness of time and of the limits of his life span make man a different creature altogether" (p.4). Langner (2002) suggests that an animal's inability to communicate in most instances provides the justification for their treatment as scientific objects of experimentation. Also if animals are not conscious of time or the limits of their life span, the use of animals for research is seen as less problematic. Furthermore, Langner (2002) suggests that animals do not experience a prolonged or continual fear of death, as they do not have the symbolic tool of words to communicate this, thus their fear of death does not last much beyond the moment it occurs. The foregoing suggests that there is no clear philosophical consensus on the issue of the subjection of animals by man.

The effects and analysis of language used to uncover human attitudes and feelings about killing animals is of potential importance in terms of novice researchers' experiences in acts of euthanasia in a laboratory setting (Jepson, 2008).

Terminology is used by researchers to condone the practise of euthanasia. For example, the terms 'sacrifice' "is used by experimental biologists to describe methods of killing laboratory specimens for the higher causes of scientific knowledge and medical progress" (Lynch, 1988, p.1). However, many animal rights activists argue the adoption of the term 'sacrifice' in the animal killing context is invoked as a euphemism to conceal and justify the true nature of the cruel and unnecessary modes of killing used in animal research (Lynch, 1988).

Lynch (1988) unravels the Western use of the term 'sacrifice' in laboratory research in his exploration of the 'animal body' he proposes; "in death of the laboratory animal it is not transformed into a 'sacred body' per se, but rather its material body and the interpretative sense of that body are radically transformed through a series of preparatory practises which turn the animal into the bearer of a generalized knowledge" (p.266). Lynch (1988) discusses the transitional process of laboratory animals from their natural animal form into 'analytic' objects for technical investigation. The 'naturalistic animal', as Lynch describes it, "is the animal appreciated by laymen", it is the animal conceptualized as having human-like features such as 'feelings', perceptions, sensitivities, and even 'thoughts' such as pets. The 'analytical animal' is defined as "an artefact-a product of human intervention, it is actively shaped by human agency, and in some cases literally carved up" (Lynch, 1988, p.269). It is argued that the 'analytical animal' is a rendering or transformation of the 'naturalistic animal' (Lynch, 1988, p.269).

Descartes argued that an animal is no more than a machine. This perspective is evident during laboratory procedures where the characteristics associated with the naturalistic animal such as its life, its holistic and reciprocal presence, and its subjective attributes are removed (Lynch, 1988). This transformation of perception from a naturalistic understanding of animals to an analytical one might enable researchers to cope with euthanasia practises as the 'personhood' of the animal is removed by the action of experimentation itself. The successful completion of euthanasia; "enables the novice to acquire 'material' for his or her own experiments; it allows the novice to be engaged and involved in the process of the transformation of self and animal and, the transformed 'analytic animal' becomes more than just a vehicle of knowledge to be learned about, but a responsibility of the individual" (Lynch, 1999, p.279).

A study conducted by Jepson (2008) tackled the subject of linguistic discourse in society and its influence on perception specifically regarding the issue of animal euthanasia. Jepson (2008) analyses the issue by posing the question: "how (do) human beings frame the killing of animals

in such a way to make it less objectionable?” (p.3). He argued that when the term is used in relation to animals rather than human beings it lacks all moral and ethical consideration (Jepson, 2008, p.12). Jepson (2008) illustrates how language is manipulated in different contexts to condone acts of euthanasia. In other words, when the term euthanasia is used in relation to humans it primarily describes the motive for the killing as being for the purposes of alleviating pain and suffering (Jepson, 2008) and is seen as a practice of compassion, mercy and selflessness on the part of the agent. By emphasising the use of the term ‘euthanasia’ as a means of alleviating suffering it shifts the focus away from the actual motive which can be regarded as treating the animal in an unethical manner for scientific gain. Thus specific terminology is used to neutralise or justify the practice of euthanasia by obscuring the reality of the experience for persons such as novice researchers who have to regularly practice such acts. As Jepson (2008) reports on several terms used for killing animals; ‘euthanize’, ‘put to sleep’, and ‘destroy’, are camouflages of the real nature of the killing, such as the agent’s motivations, the reality of the death resulting from the act, and the perceived status of the animal as a living being.

To surmise, researchers may adopt the term ‘sacrifice’ to cope with the euthanasia of animals in the laboratory setting as the term may serve as a linguistic means of alleviating the unease humans feel about the killing of animals in laboratory settings. However, the phenomenological meaning and efficacy of such a linguistic practice in preventing psychological and emotional harm is not clearly explicated (Jepson, 2008).

2.6 Conditions influencing the individual experience of animal euthanasia

2.6.1 The euthanasia of animals in laboratory studies

Euthanasia of laboratory animals has been practised for many years. The general purpose for experimenting and the eventual euthanasia of the animals involved is to gain a better understanding of living organisms reactions to chemicals, drug interaction, brain functioning and medical procedures. Euthanasia generally evokes strong emotional reactions as there are many conflicting views about its practice. From the human perspective, it is sometimes defined as assisted-suicide, physician-assisted suicide or doctor-assisted suicide. It can also be perceived as intentional killing, or an act of omission, mercy killing for the relief of pain and suffering, as identified by the ‘American Veterinarian Medical Association’ policy (Leary, S.,

Underwood, W., Anthony, R., Cartner, S., Corey, D., Grandin, T, 2013) which advocates a humane disposition: “humane disposition reflects the veterinarian’s desire to do what is best for the animal and serves to bring about the best possible outcome for the animal” (p.7).

The biological testing and consequent euthanasia of animals is described as fundamental to the developments and improvements in medical methods and consequently the maintenance of human health and safety (Malone, 1982). Kure (2011) defines the practice of euthanasia as a routine procedure to effectively complete the tests and experiments in which these animals are fundamental for the precise evaluation of various hypotheses during the development of a scientific activity. However, Kure’s (2011) suggested definition is narrow as it describes animals as merely being a means to an end and thus overlooks the fundamental experience of such practices on the animal and individual researcher involved in the process and the subsequent psychological and emotional effects. The definition thus misses the level of phenomenology inquiry as it neglects the lived experience of the reality of euthanasia for the individual.

2.6.2 Euthanasia within a veterinary setting

The euthanasia of animals is a common veterinary practice; Sander’s (1995) in discussing veterinary practices introduces a compelling description of the objectification of animals and their exclusion from the constructed conception of ‘personhood’, and the held perception among vets of animals as mere objects for human gain. Furthermore, Sanders (1995) substantiates: “in the veterinary context there arises the conflicts focused around the enforced deaths of those beings defined as existing in the contested realm between person/subject and nonperson/object” (p.1).

Within the veterinary setting euthanasia is seen as being part of veterinary work. Interestingly Sanders (1995) indicates physicians and other medical personnel rarely if ever discuss euthanasia among themselves or others (p.2). Euthanasia is practised within the veterinary setting out of concern for the animal’s quality of life after experimentation. For the veterinarian the practice of euthanasia is described as being the most time consuming and emotionally wearing clinical exchange in which they are routinely involved (Sanders, 1995). Such emotionally distressing episodes are described by Sander’s (1995) who reports instances about “missing the vein” of the ‘patient’ or sometimes the struggling or crying out when the

hypodermic needle was inserted, or urination and defecation of the animal while dying. It is important to take note of Sanders use of the term ‘patient’ as it equates animals with humans. For this reason, it is suggested that researchers suppress their feelings about the animal being studied as emotions can be highly disadvantageous to human judgement and thereby challenging to efficiently perform experiments.

More recently, research into animal researcher experience has concluded that there is an increasingly blurring line between laboratory animals and pets. The research depicts that animal researchers find it difficult to separate emotionally those animals acquired for research purposes from pets, thereby further complicating the relationship and permitting the incidence of personnel stress and the precipitation of disadvantageous effects on ones well-being (Bayne, 2002).

2.6.3 Euthanasia in Care shelters

In the care shelter setting the emotional intensity of the relationship that develops between companion animal and caretaker most commonly causes ambivalence or complete rejection of the generalised idea of nonhumans as mindless, nonpersons (Sanders, 1995). In the care shelter context the companion animal with which they as carers share their daily lives, is conceived as a unique, emotional, thoughtful and a reciprocating “friend” or “family member” (Sanders, 1995). Consequently in the context of care shelters there tends to be a complete rejection of the ‘animal-object’ perspective proposed by Sanders (1995).

Among animal shelters the “caring-killing” dilemma arises in which carers are sometimes compelled to euthanize companion animals for which they have been providing care and protection (Reeve et al. 2004). Research on the care workers experiences of animal euthanasia has uncovered the incidence of a ‘moral stressor’ stemming from the work related conflict of shelter workers who see themselves as primarily animal protectors but who, at the same time, are required to administer euthanasia on unwanted animals (Reeve et al. 2004). Consequently, those who pursue this occupation often find themselves in a moral dilemma which can be detrimental to their psychological well-being. Research has found that those who perform general euthanasia are at risk for a variety of psychological and physical reasons; physical and psychological illnesses such as high blood pressure, ulcers, unresolved grief, depression, substance abuse and suicide can occur as a result of the morally induced psychological stress

of their work. Society pays limited attention to those working in these fields and greater attention and agency is provided to the mainstream working world. This 'extra attention' is for the betterment of the employee's wellbeing so they might produce greater income for the business in question. The divergence between the shelter workers and animal researchers is that they have chosen different occupation objectives. The care shelter worker seeks to help and protect animals- this is their 'means to an end' whereas for the laboratory researcher the means to end orientation is to use animals for medical and scientific purposes. This is not to say their quality of experience is any less psychologically or emotionally taxing only that their occupational ideals differ (Reeve, C., Spitzmuller, C., Rogelberg, S., Walker, A., Schultz, L, & Clark, O, 2010).

2.7 Shelters, veterinarians and the Laboratory Experience.

International studies have concluded that in the professional fields of veterinary and care shelter operations there psychological and emotional distress following the euthanasia of animals for varying reasons has been experienced (Sanders, 1995, Fox, 2004). One might question the importance of such fields as veterinary and care shelters in relation to research laboratories. Veterinarians and care shelters conduct laboratory practices such as euthanasia and, since there is limited research on the experiences of the animal researchers, one might speculate that as a result of performing similar practices although in differing contexts, a correlation between the experiences of veterinary and care shelters and those of the researcher might exist. Thus in drawing on some of the evidenced experiences of those in veterinary and care shelters one might suggest that the animal research dilemma precipitates two responses. The first is that through the process involved in gaining scientific knowledge by the experimentation and euthanasia of animals the researcher might experience psychological distress in the form of perpetration -induced traumatic symptoms (PITS), or moral stress arising from societal pressure (Rohlf & Bennett, 2011). Evidence has emerged qualifying the above, where animal researchers experience intense emotional trauma after having cared for the animals for an extended period and then having to euthanise them. This Supports Singer's claim about individuals whose profession entails their working with animals, creating 'personhoods' in the animals and thereby heightening the researcher/animal bond (Coglhan, 2008). However, others may become desensitized to the experience; the researcher may experience dissociation or may compartmentalize the experience to be able to cope with the daily practices of animal research

(Russell, 1976). Fox (2004) discusses the psychological process of compartmentalisation which he describes as: “a natural reaction to being constantly bombarded by the distress of others is to deny or deflect it, to steel ourselves to it and direct at least a large part of our attention elsewhere” (p.170). Authors such as Singer, Ruesch and Regan all oppose the practise of vivisection and propose an interesting parallel between animal research and the Nazi death camps. They suggest that as a result of German doctors practicing animal vivisection it was only logical that they would progress to experiment on human beings as well (Fox, 2004). One might postulate that those individuals who conduct animal experimentation might become hardened and indifferent (desensitised) to the practice and thus their treatment of human beings might be less empathetic and caring. However this is mere speculation and it is important to remember that the present conduct of animal experimentation follows strict procedure to eliminate inflicting pain or suffering on the animal. Rohlf and Bennett (2011) discuss the issue of moral stress being experienced when people are required to perform actions they have difficulty justifying on moral grounds. In shelter and laboratory contexts, it is possible that moral stress is influenced by an individual’s level of involvement with the animals or by their concern for the animals. This type of stress differs from the ‘perpetration-induced traumatic stress’ (PITS) which is common in persons who euthanize nonhuman animals in surgeries, animal shelters and laboratories. Individuals with PITS are those who are exposed to traumatic events and actively participate in them (Rohlf & Bennett, 2011). In addition there are several factors that influence whether persons participating in traumatic events develop PITS. These are categorized as event-related risk factors and they can be listed as follows:

- Context in which the killing occurs
- Duration and number of events
- Nature of exposure and subjective attitudes
- Social support.

In the context of laboratories the environment in which killing occurs is sterile and cold. Killings are substantial in frequency and a number of different methods are used. There is an intimate exposure to the killing as it is the researchers themselves that have to administer death by euthanasia. However, individual researcher’s attitudes toward euthanasia have not been carefully studied nor is it known in such contexts whether or not there is sufficient social support to deal with such experiences. Interestingly, cognitive theory suggests the artificiality

of the laboratory setting removes the contextual and emotional weight that the practise of euthanasia produces in other settings. Thus as a result of the artificiality of the laboratory setting, the contextual meaning surrounding animal use found in other external settings such as shelters and veterinary clinics, is removed and the act becomes purely scientific. It thus loses the emotional weight it produces in other settings. Hence, the experiences of novice animal researchers may not be externally valid as their contextual setting diverges from, for example shelters and veterinary clinics. Furthermore, as a result of contextual differences experiences of shelter workers and veterinarians may not be effectively extrapolated to other contexts hence the need for further research.

There is very little research regarding the researcher –animal bond and how the regular practise of euthanasia might affect scientific researchers. Also there have been few studies investigating the influences of “euthanasia-related stress” among those working within the laboratory context (Reeve et al. 2004).

Research on veterinarians’ experiences of animal euthanasia has found that a most influential factor in determining the ‘type’ of experience is veterinarians having not seen or developed an attachment to the animals. However, in cases where veterinarians developed a relationship of familiarity with the animals, it tended to create an animal ‘personhood’ increasing the emotional distress experienced (Reeve, Sanders, 2004). Furthermore a similar attachment might be expected to develop between researcher and animal in the laboratory setting, where rabbits, rats and pigs are incarcerated for the duration of their lives and where the researcher is responsible for their elimination (Reeve et al. 2004). A correlation emerges between the degree of worker distress on the one hand, the number of animals euthanized in one day and the perceived amount of emotional or physical suffering of the animal due to the euthanasia process on the other. The effects of mass euthanasia in a laboratory setting on the psychological and emotional wellbeing of researchers are therefore an important area of study (Reeve et al. 2004).

In the South African context where the population is diverse, variables such as race, culture, gender and spirituality may predispose some to greater distress than others in the practice of euthanasia (Muskerjee, 1997). Clearly not all people are affected by euthanasia involvement to the same degree. Some researchers adjust better than others to the practice. It is important to understand factors both internal and external to the individual that explain the variation of experience and psychological effect (Reeve et al. 2004).

2.8 Influence of the workplace

The workplace has been one of the primary focuses of health promotion for several decades, and has evolved with each charter and declaration, notably the Ottawa Charter of 1986 which is described as the key as it was introduced at the first WHO meeting. The Ottawa Charter (1986) proposed the definition of health promotion as, “the process of enabling people to increase control over and to improve their health” remains today (Burton, 2010, p. 11). The Ottawa Charter (1986) included the ‘settings approach’, thereby directing attention to settings such as the workplace (Burton, 2010). The settings approach acknowledges the whole environment and ethos of a given setting rather than a setting merely being regarded as a neutral convenience (Tones & Tilford, 2001). Burton (2010) provides a three factored definition of a healthy workplace, which can be adapted to meet and improve the circumstances of the student researcher experience. The three proposed criteria of employee health adopts the health promotion conception of health to include; the first factor of the physical, mental and social rather than as previously conceptualised, the absence of physical disease. The second factor is the partnership or link between having a healthy workplace and a healthy organisation and the third factor describes a healthy workplace as including safety and protection of all employees thereby ensuring social justice in corporate communities’ (Burton, 2010 p.24). Burton’s (2010) conception of a healthy workplace would be effective in its implementation as a framework for the biomedical sciences to adopt and practice to ensure the psychological and emotional well-being of novice animal researcher.

The work place can have various negative health effects on individuals’ these are briefly summarised as psychological stress, physical exhaustion, physical hazards to safety precipitating direct harms to the individuals physical wellbeing but also harms the individual indirectly, such indirect effects are termed psychosocial hazards which can have damaging effects such as; disruptive sleeping patterns, alcoholism, depression, anger and frustration (Burton, 2010, p.28). Substantiating results are provided by Reeve (2004) who explored Employee Reactions and Adjustment to Euthanasia-Related Work. His results depict care shelter workers experiencing high degrees of moral-stressors and those directly involved in the euthanasia of animals purport to experiencing a unique type of stress which is morally bound. Reeves (2004) results are telling of the negative health effects animal related work can inflict on an individual, nevertheless these results cannot be generalised to the whole animal-related working population as some individuals have higher propensities for resilience than others and therefore are able to perform such acts with relatively slight psychological, emotional or moral

burdens. A limiting factor in respect of these results is also the influence of divergent occupational objectives-the care shelter work occupational ideal is to care for and protect the animal, whereas the animal researcher perceives the animal as a tool to be used to achieve experiential data and prove/disprove hypotheses (Reeves, 2004).

A successful workplace is dependent on the well-being of its human resources thus, it is important that the student laboratory space is made conducive and considerate of the students experiences in order to improve student well-being precipitating higher performance and efficacy in results.

2.9 The experience of desensitisation

Society has become alarmingly used to violence and suffering-so much so that indifference to suffering is becoming common place (Fox, 2004). Here, a correlation between about the general population's indifference and the daily reality of living in South Africa. The South African context is exceedingly violent and the population is exposed daily to this violence and suffering. Such regular exposure to violence and the sufferings of others can cause, as Fox (2004) suggests, a dulling of people's sensibilities causing them to react in inappropriate ways when their fellow beings are in need of aid. Furthermore the such overexposure to violence and suffering resulting in desensitisation is compared to the experience of those who conduct animal research., leading to some abandoning working in the field of animal research altogether.

“So it is when a young aspiring scientist finds himself in an animal-experimentation laboratory. He does not dare question convention; to be successful he must conform. His natural feelings of compassion for the laboratory animals and also any feelings of squeamishness are quickly suppressed. After a few months or years, he can no longer feel them, he is hardened, habituated, de- sensitised and unlikely to repent” (Fox, 2004, p.170).

As has been previously discussed there are very many contextual/environmental issues that influence a person's subjective sense of being, including gender, culture, age, socio-economic context and religion.

Substantiating Fox's (2004) argument on the desensitisation of individuals resulting from violent environments, Russell (1976) suggests that the exposure to inhumane animal experimentation subsequently causes a desensitisation and a hardening of those who are directly and indirectly involved. However, the effects of desensitisation and hardening are not

the only concerns; another concern highlighted is the impact of such exposure on the development in the individual of a sympathetic attitude toward the natural world. Fox (2004) suggests, “it is important to remind ourselves too that humanness and compassion in the best sense are not taught so much as they are the products of healthy personal development” (p.172).

To surmise although there has been some research into the nature of the experience of those involved in animal research there is still a substantial gap in the extant literature pertaining to experiences of students conducting animal research in the university context.

2.10 The reduction of psychological stress in animal research: some thoughts on possible interventions.

Although research into the psychological effects of animal research in South Africa is neonate, it is necessary even where research information is scarce, that possible ways of assisting postgraduate students to cope with distressing psychological and emotional problems they might experience prior to, during and post specific animal research are considered. In this regard it is essential that individuals who use animals for scientific experimentation are provided with specific training in stress management and appropriate debriefing processes which may help to alleviate some of the negative psychological effects of such work (Rohlf & Bennette, 2011). Rohlf and Bennette (2011) cite four coping methods that may be implemented to reduce psychological and emotional distress and enhance wellbeing: physical exercise, meditation, relaxation training and professional counselling. It is anticipated that the current research study will shed further light on techniques on both instances of psychological stress in animal researchers and specific remedial techniques for their alleviation.

2.11 Conclusion and summary

In conclusion, the literature exposes the subject matter of animal research as highly complex. The literature suggests that there are a number of factors influencing an individual’s perceived experience of animal research. One of the factors that emerged was the moral conflict and feelings of moral burden and stress. The influence of ethical practices of animal based research was found to produce feelings of guilt among some of the participants. A moral restriction limiting the experience of guilt emerged from the literature as the three R’s of ethical conduct in animal based research. A factor of spaces was also cited as having a significant influence on the participants shifting positioning between their experiences of their pets at home compared with their experience of the animals in the laboratory setting. The workplace also emerged from

the literature review as a factor of importance. The work environment influences all aspects of an individual's life as it is the space which occupies most daily living. Therefore the workplace has the propensity to be disadvantageous for individuals and to cause negative health effects such as stress and depression. However, to avoid such repercussions, various coping strategies could be implemented to ensure in the case of students their preparedness for conducting research with animals. The experiences of those such as students involved in animal research and who conduct the research itself is a topic of considerable importance in unravelling this moral dilemma.

The following chapter discusses the methodology used for the study beginning with a background of the phenomenological theoretical framework adopted to explore the experience of young novice postgraduate students performing laboratory animal experiments

THREE

Methodology

3.1 Theoretical Framework

Phenomenological theory

Edmund Husserl founded the theory of phenomenology and provided the “doctrine of essences” (Gadamer, 1976, p. 131). The theory of phenomenology as Gadamer (1976) reports “sought to bring about the phenomena to expression hence, to avoid any unwarranted construction and to subject the unquestioned domination of philosophical theories to critical examination” (p.131). Husserl proposed the concept of phenomenology as well as the theory of reduction, his objective was to expose the intentional structure of consciousness, “ this was an attempt by Husserl to suspend all his beliefs about the phenomena that he had accepted on scientific or common-sense ground in order to concentrate on recording and comprehending that which cannot be further suspended or reduced, that is what appears to consciousness after the elimination of all preconceptions of what ought to appear to consciousness” (Spurling, 1977, pg. 7) as cited in Coldwell (2007). This is an exceedingly complex philosophical statement to comprehend however, to put it simply and in relation to the study’s phenomenological objective, both researcher and participants have to suspend all their beliefs about animal research (the phenomena in question) and when all preconceptions are eliminated, what appears in the conscious is the individuals subjective meaning and understanding of the phenomena which cannot be further suspended or reduced. The method used to achieve the described suspension is “bracketing” a phenomenological process of removing the researchers own bias and preconceptions about the subject matter or subjects. Gadamer (1976) suggests that what distinguishes phenomenology from other principles is “that other theories sought to derive all the phenomena of human social life from a single principle such as the principle of the greatest utility or the pleasure principle” (p.13) whereas phenomenology considers all principles of understanding and there subjective meaning for the individual. Why is this shift in focus important? Because we as human beings seek more than just pleasure and the avoidance of pain and suffering as Freud premised through the ‘pleasure principle’, our complexity cannot be reduced to only drives since subjectivity in thinking, contemplation, feeling and meaning need to be considered as relevant to every human being.

3.2 Application of theory to research design

The study adopts a phenomenological research design using a qualitative approach which, “seeks to examine human experiences through the descriptions provided by the people involved, these experiences are described as ‘lived experiences’. As reported by Groenewald (2014) “phenomenologists are concerned with understanding social and psychological phenomena from the perspective of people involved” (p.5). In this instance the phenomena in question are the experiences of student’s conducting animal research and the effects of such experiences on their well-being.

Husserl (1965) surmised that “phenomenology is the ‘science of science’ since it alone investigates that which other sciences simply take for granted (or ignore), the very essence of their own objects” (p.23). Husserl’s argued premise goes beyond mere observation and engages with the psychological and emotional self, this being essential in ones exploration of the complexity of human thought, action, emotion and their attached meanings. Lester (1999) discusses the importance of the epistemology of phenomenology pertinent to this study’s focus, when he states “phenomenological approaches are based in a paradigm of personal knowledge and subjectivity and emphasise the importance of personal perspective and interpretation, as such they are powerful for understanding subjective experience gaining insights into people’s motivations and actions, and cutting through the clutter of taken-for-granted assumptions and conventional wisdoms”(p.3). The student researcher’s experience of conducting animal research will be subjective and depend on their personal perspectives and interpretations, Hence through the exploration of such experiences greater insight and understanding of the psychology of the dilemma can be expected.

The phenomenological approach used in the study aims to provide an in-depth understanding of the lived experiences of student researchers by focusing on their individually perceived reality and the influences of the social world on that reality. The choice of a phenomenological research design is to uncover essences of phenomena that have been incompletely conceptualised by prior research (Beck, 1992). As Lester (1999) reports: “phenomenology is concerned with the study of experience from the perspective of the individual, through ‘bracketing’ taken-for-granted assumptions and usual ways of perceiving” (p.2) and thereby allowing for the documentation of the feelings, emotions and experiences of the undergraduate students (Van Manen, 1990). As described by Parse, Coyne and Smith (1985); “the analysis of data using the phenomenological approach requires the researcher to dwell with the subjects

descriptions in quiet contemplation” (p.5). The analysis will adopt the method of bracketing. Bracketing will be achieved through the process of phenomenological reduction, which is the bracketing of the researcher’s own preconceived notions and prejudices and the isolation of the pure phenomenon from what is already known about it (Lester, 1999). The use of bracketing counteracts researcher bias as pre-conception about the phenomena will be exposed through careful introspection of the researcher’s consciousness.

To conclude this chapter, it is evident that phenomenological theory seeks to rid the individual of preconceived socially constructed ideas, understandings and meanings of phenomena and to rather discover and explore the raw and unaffected individual’s subjective meanings, feelings and understandings of a phenomenon. However, in relation to the research results of the current study, it is evident that participants experienced a combination of socially influenced meanings and their own raw and unaffected meanings, feelings and understandings of animal research and its practice.

3.3 Sample and sampling method:

The sampling strategy implemented in this study was purposive sampling. Purposive samples are described as serving a researcher’s particular objective. In this case purposive sampling techniques involve selecting certain units or cases “based on a specific purpose rather than randomly” (Tashakkori & Teddlie, 2003a, p. 713). The specific type of purposive sampling implemented is the selection of special or unique cases. The experience of postgraduate biomedical students studying animal research is a specific and unique case to the group as well as to the individual (Teddlie & Fen Yu, 2007). The sample is purposive as the category is specific; the individuals are students at the University of KwaZulu-Natal (UKZN) Biomedical Research Unit (BRU), they are in their postgraduate year, and they all have no prior experience of animal research. In the exploration of the issue of the experience of using laboratory animals for the purpose of research among novice animal researchers the sampling approach used provided insightful and reality- based information and understanding and makes a contribution to the extant literature (Ulin, P., Robinson, E., Tolley, E., & McNeil, E, 2002)..

3.4 The sample participants:

The sample was extracted from one distinct population: that of eight postgraduate students studying at the BRU at UKZN. The participants were of mixed sex and race however, the sample was comprised primarily of females. The study sample focused on ages 21-25. The participants had no previous animal research experience. A small sample was chosen, for the purpose of the research focusing on the lived experience of a few individuals, so that greater insight and understanding were achieved by investigating the meaning of personal experiences of animal experimentation in the research context. The necessary permission was obtained from participants and the head of the Biomedical Research department. The complete freedom of choice to participate or not in the study was afforded to subjects and absolute confidentiality of the data obtained assured.

3.5 Ethical considerations

1. A verbal and, where possible, written letter of informed consent from respondents to a document stipulating the purpose and objectives of the research, data collection procedures and how the data will be used for my master's thesis, conference and publication.
2. Subjects were advised that their participation was voluntary and that they could choose to terminate their participation at any time.
3. Respondents were made aware of the possible benefits in participating in the research. These include gaining a greater in-depth understanding of self through the method of reflection and more psychologically adept in coping with animal experimentation
4. Respondents were assured of the confidentiality of the email facilitated interview and names were not recorded.
5. All collected data was stored by the supervisor on a Microsoft word file and documents can only be accessed by password. Furthermore the data will be incinerated after five years.
6. The names of the participants were omitted to protect their identity and confidentiality however for coding purposes the referent of participant one (P1), participant two (P2), Participant three (P3), participant four (P4), participant five (P5), participant six (P6), participant seven (P7) and participant eight (P8) were used.

3.6 Data collection

The data gathering method implemented in this study was e-mail-facilitated qualitative interviews and memo taking (Egan, Chenoweth & Mcauliffe, 2006). The email-facilitated interview is a method whereby participants answer open ended questions via email. The students' experience of animal research may be very intimate and distressing therefore, this method allowed the participants time to reflect in the comfort of their own environment but still maintaining a degree of interaction with the researcher as open dialogue is permitted throughout the process (Bjerke, 2010). The benefits of this method included; providing participants increased time for reflection, composing answers, freedom of response, maintaining a degree of privacy and overcoming geographical barriers (Egan et al., 2006). This method of data collection is also time efficient as transcription was completed during the process of collection. The process of reflection was fundamental for both myself (the researcher) and participant as Husserl (1931) puts it "reflection as a process through which the stream of experience (Erlebnis) with all its manifold events (phases of experience, internationalities) can be grasped and analysed in the light of its own evidence" (p219). Furthermore as Moustakas (1994) comments the phenomenal experience becomes increasingly clarified and expanded in meaning as the phenomenon is considered and reconsidered during the reflective process. The initial proposed limitations of the email-facilitated method were: that participants might fear transcribing their personal experience, hence limiting the validity of responses, and interaction between participant and interviewer is removed which in turn removes the development of rapport which is fundamental to creating an emotionally safe environment for participant disclosure (Egan et al. 2006). However, it was found that the students were very open in their responses, the lack of interaction did to some extent pose a problem, not necessarily to the building of a safe and secure environment as students felt that already, but in terms of my inability to get to know the students personally and talk with them about their experiences. The study implements a phenomenological theoretical framework using a qualitative approach therefore the criterion for the quality and rigor of data rests on five factors of assessment. The first is trustworthiness, whether the findings are worth taking into account, this factor can only be realized once the creditability, dependability, confirm-ability and transferability of the findings have been achieved. The corresponding criterion for validity is credibility meaning the confidence in the truth of the findings, including an accurate understanding of the context (Ulin et al., 2002). The creditability of the study was assured by the data collection method implemented as it assures the student's privacy, flexibility of

response, reflection and confidentiality, which allowed the transcription of rich meaningful experiences (Ulin et al., 2002). The corresponding criterion for reliability in qualitative research is dependability, meaning; is the research process consistent and carried out effectively, the dependability of the study is assured as the research questions were logical and linked to the research purpose and phenomenological research design (Ulin et al., 2002). It is hoped that future research in this area of inquiry will achieve logically consistent patterns of responses thereby substantiating the studies dependability. The confirm-ability of the study was assured and maintained as the process of reflexivity was implemented through the method of memoing, this being a process of reflection where, the researcher observes and documents all biases, personal values and assumptions that might influence the quality of the data obtained (Ulin et al., 2002). The benefit of this method is that it provided recordings of what I had seen, heard, felt, thought and experienced during the course of collecting and reflecting. The final factor of importance is transferability, this factor corresponds to the quantitative factor of the generalizability of results, one of the objectives of this study was to produce data that is conceptually representative of students working in the research laboratory context and it is hoped that future studies within a similar context will lead to similar conclusions (Ulin et al., 2002).

3.7 Data analysis

The method of data analysis implemented in this study was adopted from the modified Van Kaam's (1959, 1966) method of analysis of phenomenological data. Van Kaam's method of analysis involves eight steps of analysis; these steps are summarized as follows:

1. Listing and preliminary grouping of every expression relevant to the experience,
2. Reduction and elimination to determine the invariant constituents,
3. Clustering and thematizing the invariant constituents,
4. Final identification of invariant constituents and themes by application validation,
5. Conducting an 'individual textural description' of the experience,
6. Conducting an 'individual structural description' of the experiences,
7. Constructing for each research participant a textual-structural description of the meanings and essences of the experiences and finally,

8.A composite description textual-structural.

The motivation for this choice of analysis is that it provided a structured process of analysis allowing for rich descriptions of the meanings and essences of the experience of conducting animal research, representing the whole group (Moustakas, 1994).

The method of data analysis implemented for this study was adopted from Van Kaam's (1959, 1966) method of phenomenological analysis using Giorgi and Murray's (1975) structural methods for phenomenological analysis. The interview schedule was in the format of a questionnaire, and asked five open ended questions. The students were asked to offer their experiences of conducting animal research for their research projects and to describe any feelings that emerged prior, during or post the experience.

Van Kaam's method of analysis involves eight steps; these steps are discussed as follows;

1. Listing and preliminary grouping of every expression relevant to the experience.

This step is fundamental as it allows the researcher to achieve a series of meaning units or constituent's, it also provides structure to the process of analysis as relevant themes of expression are grouped (Giorgi & Murray, 1975). Moreover, no statements or words were omitted from the transcript, in-order to achieve horizontalisation, which is the viewing of each statement as having equal value (Hathorn, Machtmes & Tillman, 2009). The five steps of Van Kaams method of analysis have been merged so as to provide a thorough in-depth analysis of the students' experiences resulting in the development of key themes. The analysis begins in step 1 with a discussion of the initial stages of the descriptive phenomenological inquiry which entailed the process of grouping significant meaning units by the grouping of relevant expressions of experience, using the five research questions see Appendix B.

Step 2 entailed the 'reduction and elimination to determine the invariant constituents'. The objective was to describe what is seen and unseen and to explore the relationship between phenomena and self (Moustakas, 1994). This step of analysis involved 'the constituents of experience being expressed more directly in terms of the thoughts experienced' in other words this step results in a filtering of the grouped expressions as described in step 1 to more precise expressions of meaning.

Proceeding with step 3, involving the clustering and thematising of the invariant constituents, more directly producing the key themes of the students' experience of using animals for

research purposes. Steps 4 and 5 work in conjunction, and involve the final identification of invariant constituents' and themes by application validation, this being the implementation of themes and their related clustered meanings. Further simplification of the identified invariant constituents by conducting Step 5 an 'individual textual description' of the experience', resulted in a more valuable understanding of "what" and "how" the students experienced animal research. It was important that any textual descriptions that do not relate to the invariant constituents and core themes be eliminated.

Step 6, explores the influence of space on the students experience, by constructing an 'individual Structural Description' of the student experience. Whilst the textual descriptions for every participant was conducted, reflection on the conditions that precipitated what the students' experienced, provided an increased understanding of "how" the students experienced the phenomena (Hathorn et al., 2009). Moustaka's (1994) method of thinking, judging, imagining, and recollecting, and arriving at core structural meanings was fundamental in the fulfilment of this step. Through the use of imaginative variation, that is imaging the experience occurring in a variety of structures, the experience could be effectively visualised as occurring in the structures of influence and therefore enabled the identification of the conditions that accompanied the experience (Hathorn et al., 2009). The structures of experience were divided into prior structures of influence, those during and post the research experimentation. An example of the method using one of the participants can be seen in Appendix B.

The motivation for this choice of analysis is that it provided a structured process of analysis allowing for rich descriptions of the meanings and essences of the experience of postgraduate students' conducting animal research (Moustakas, 1994). Phenomenology offers an alternate way of understanding research inquiry to that offered by other main stream research methodologies, such as the scientific method. Phenomenology is described as both poetic and interpretive, however those working from a scientific paradigm express dissatisfaction regarding the role of the research, which they believe does not move beyond mere description and interpretation and that research needs to provide more than just understanding about the human experience.

Some of the limitations in application of phenomenological data analysis are that the data is subjective this potentially limits its validity, reliability and generalizability. Moreover, the natural sciences pride themselves on their rigorous objectivity, rejecting the validity of experience as subject matter because it is 'subjective' and therefore considered unreliable.

Phenomenological analysis strives for inter-subjectivity- indicating similar themes in the original research and thereby maintaining validity by ensuring the trustworthiness, genuineness and dependability of the findings. Furthermore it must be remembered that all forms of human inquiry whether it be quantitatively approached or qualitatively begins with a subjective perception of the subject in inquiry. Van Manen (1990) discusses the difficulty of bracketing as he suggests that it is very difficult for a researcher to be aware of and prevent researcher bias hence, achieving pure bracketing is very challenging, and when not achieved can lead to influencing the interpretation of the data collected.

Through the reflection process subjective biases were exposed and removed from interfering with the data. Also the very nature of phenomenology is complex specifically in relation to its focus on phenomena and essences and how to expose the possible meanings of the phenomena in order to achieve understanding (Moustakas, 1994). It was very difficult to extract the essences and meanings of the participants as there was no interpersonal engagement whereby one could observe the bodily and facial expressions of the participants combined with the spoken word as a result of the email-facilitated data collection method used. However, the participant transcripts' were very expressive and rich with meaning as discovered during the analysis phase.

3.8 Conclusion

It can be concluded that the theory of descriptive phenomenology data analysis and its methodological application was apt for a study of this nature as it provided meaningful and insightful research and, deepened my understanding of the phenomena of using animals for research purposes derived from the perceptions and descriptions of the postgraduate students.

3.9 Limitations of the study

The main limitations of the study include:

1. The sample was small and thus may not be representative of all postgraduate students' experience of using animals for research purposes. However, the implemented phenomenological research design promotes smaller samples in order to achieve in-depth

understanding of the phenomena in question. It is recommended for future research a larger sample is used to produce more valid and reliable results.

2. The fact that the study occurred at a given point in time restricts the qualitative analysis to the recording of postgraduate students experience at one moment in time which coincided with participants' first experience of performing animal research. For future research a longer period in the field would provide a more detailed picture of the experiences and effects of animal research on the developing novice researcher.

3. There is a lack of prior South African research in this area of study, thus heightening the importance of this study in the research field and the difficulty of making generalizable statement from the study.

4. The study considered only a holistic analysis of student animal researchers, future studies might consider looking at not only holistic experiences of animal researchers as such, but also the specific influence of cultural factors and gender issues.

5. Although conclusions from this study cannot be generalised, readers of the data obtained might assess the degree to which they relate to the experience of those students currently working in the field of animal research and thus, develop a better understanding of the experience for those at the forefront of such research.

CHAPTER FOUR

Findings and Data Analysis

The following thematic constituents emerged from the six stepped process of analysis as described in Chapter 3, and are tabulated as follows as indicated in Table 3 below.

Table 3. Core themes and clustered and labelled constituents

Core themes	Clustered and labelled constituents
The moral dilemma between self and other	<ul style="list-style-type: none"> • Conducting animal research for the betterment of the medical sciences versus the forced and pain inflicting nature of the procedure. • Participants are torn between their moral imperative of causing no harm but at the same acknowledge the benefit in doing such research. • Animals given no choice in their participation in the experiments.
The experience of guilt	<ul style="list-style-type: none"> • Inflicting pain onto a voiceless animal. • Animals forced participation in the research. • Images of experimentation, difficult to deal with.
Role Expectation to improve quality of human life	<ul style="list-style-type: none"> • The pain and forced nature of research is rationalised as being in the best interests for the health of the human population and therefore acceptable. • Treat the animals with respect and uphold ones moral and ethical self.

	<ul style="list-style-type: none"> • Animals valued for their use as tools to improve the quality of life of humanity.
Deterrent factors: the animal experience	<ul style="list-style-type: none"> • Animal size and fragility-influencing feelings of angst and distress. • Animal noncompliance causing discomfort and pain to animal-experiencing distress and sorrow. • Lack of knowledge regarding the emotional experience of the animal, what to notice whilst performing an experiment.
Coping strategies: The relationship between phenomenon and self	<ul style="list-style-type: none"> • Research animals equated to pets. • Emotional distancing in order to cope with experience. • Animal death perceived as being a 'sacrifice' therefore acceptable.
Beliefs about BRU education	<ul style="list-style-type: none"> • Lack of practical knowledge to equip students more efficiently for experience. • Psychological and emotional support provided and interview screenings conducted prior to animal research.

4.1 The Moral Dilemma

The first thematic constituent is termed moral conflict was a fundamental issue regarding participants' experience of having to experiment on animals. The term moral conflict describes both the ethical and moral dilemma participants describe having experienced, that is, whether the experimenting and consequent euthanasia of the animals is an act of unwarranted killing or, is the magnitude of death minimal in comparison to the prospective benefit to humanity.

We assume subject positions within discourses. Put more simply, we adopt a role of being, a sense of 'self' in relation to the 'other'. However this sense of self is in a constant state of transition as a result of the competitive social world of expectations and pressures (Hare & van Langenhove, 1999). The participants expressed having experienced a moral conflict in relation to the self. This consisted of a cognitive and emotional struggle between their conducting animal research and their occupational objective to contribute to research in the medical sciences. As well as the participants' moral conflict of self with 'other' as being both the influence of society and the animal body itself on their psychological and emotional well-being. The research findings suggest the participants shared similar feelings about perceived experiences albeit, their reactions to conducting the experiments diverged, some of the participants felt more equipped to handle the stress inflicted on the animals, they chose rather to perceive the experience in a positive light, where they appreciated the opportunity of working with the animals and the relationships they developed with them. P7, is one such participant who expressed his feelings positively, he writes;

“Positive feelings coupled with confidence, I will say. The reasonable expectation that the knowledge of my findings will have great potential to contribute significantly to both present and future knowledge, which may eventually lead to the protection and improvement of the health and welfare of rather humans or animals this keeps me rest assured and motivates me to forge ahead”.

Here, the participant has been able to rationalise the experience as positive and progressive. This perceived experience might be a result of a type of desensitisation to the experience, or the participant having a greater resilience against emotional disturbances. Moustakas (1994) discusses the concepts of intentionality, noema and noesis as being central to the paradigm of phenomenology. Noema is described as that which is experienced; noesis is the manner in

which it is experienced. Both concepts refer to the essence of meaning, a subject which Husserl emphasised when he says “back to things themselves” (Moustakas, 1994). As Moustakas (1994) reports the difficulty lies in the laborious looking, to look again and to reflect until a complete description of the phenomena is achieved. It is evident from the participants’ reports that the noema is the animal being researched, which was a shared experience. However, the noesis, the manner in which the participants’ experienced it, was in some ways similar but differed in their positioning of it.

The theory of positioning further substantiates the participants’ act of re-positioning in relation to either the self or other and considers the influence of power dynamics that shape interactions and positioning processes through the concept of moral influence (Andreouli, 2010). As Andreouli (2010) indicates, every position has a moral component as it is associated with a set of rights and duties which determine what can be said or done from a certain position, in a particular context and towards a particular locator (p.5). Thus Western events of mass antivivisection protests produce a conception of animal based research as unjustified on moral and ethical grounds. Although South Africa does not experience anything comparable to the anti-vivisection movements in the Western world, these purported anti-vivisectionist norms of morality are internalised and those who do not conform to their belief are made to feel they are transgressing an accepted standard of morality.

All of the participants except one experienced the thematic constituent of the ‘moral conflict.’ That is, they experienced feelings of guilt, sorrow and anxiety prior to, during and after performing the experimental procedure. The literature confirms the student experience of the moral conflict when describing the dilemma of “being perpetrators’ of what is perceived by some as a criminal act of abuse and murder or an elite few who provide indispensable insights to the corpus of medical information” (Malone, 1982, p. 9). What is termed the ‘moral conflict’ is otherwise conceptualised as ‘moral stress’ which is said to occur when people are required to perform actions they have difficulty justifying on moral grounds. The participants’ descriptions of the morally burdened experience are honest and vivid;

“Killing animals even for good causes is always sad because you feel as if you were doing something wrong” (Participant 1)

“It was a little nerve wracking to handle rats as they are so small and hyper and it is easy to hurt them” (Participant, 3)

“After this first experience at the lab, I did not have a peaceful night. All the procedures were still fresh in my mind, but I knew we were doing it for a good purpose”
(Participant 6)

These descriptions expose the incongruity between the students’ conscience and their rationality being at odds with each-other. It is evident that the students’ perceptions of animal research are two-stemmed. They simultaneously acknowledge feeling emotionally strained but rationalise the experience as being worthwhile as it is in the best interests of humanity. The participants offer rich descriptions of emotional experience as follows;

“I always ask myself if our animals agree in helping us in our research work. After using the animals I make sure my animals did not give themselves for nothing, I have to produce results to honour them” (Participant 6).

“During the research I likened the surgery processes and organs I observed to humans” (Participant 8)

P8, describes having compared the experimental process to that of a surgical procedure, the term surgery is primarily used to describe recertifying procedures performed on humans. Additionally, P8 equates the organs of the animals to humans thereby limiting the separation between the animal and human-essentially man is animal. Thus, reiterating the incongruity between animal-as-human perception and their sense of morality.

“The injuries to the rats were very difficult to watch as you develop a bond with the animals similar to the nurturing instincts of a parent, as you are monitoring their growth, behaviour and individual traits as I would imagine a parent does. It is thus very hurtful to watch your animals experience pain and also to euthanize animals after the experiment as you have to separate your emotions from your work in order to achieve academic data” (Participant, 3).

P3, recognises that she developed a bond with the animals by her nurturing and monitoring the animals which she relates to a parent’s instinct of caring for their infant. P3, feels that although the experience is psychologically and emotionally very difficult she acknowledges that the research is important and beneficial to the sciences and therefore the sacrifice of the animal is not without purpose. P3, describes the animals as being noble, they sacrifice themselves for the well-being of the human species, (notably without choice). The merging evidence confirms Singers, Fox and Reeves accounts of those working with animals creating animal

'personhoods' which intensify the emotional bond with the animal as well as creating confusion between what is moral and immoral, especially in instances such as P3's description of an experience where a correlation between the relationship between mother and child and that of the researcher and animal is made.

However, other participants had a greater propensity for resilience toward the research process and indicate being relatively unmoved by the experimentation process as they maintain their moral integrity by acknowledging that the work serves for the improvement and development of human life, which is regarded as a fulfilment of their moral obligation to contribute to the success of society.

Hume (1976), argued that our moral principles are revealed from our actions not from the spoken word thus, if related to the participants' circumstance, the participants who professed feeling morally conflicted, revealed their moral principles through their behaviour. However, participants are able to frame their actions in such a way to make them less objectionable (Jepson, 2008). Some of the participants achieved this reframing of consciousness by rationalising the experience as being correct, primarily from the belief that the experimental process is integral to the development of knowledge in the medical and health sciences. All of the participants except one used this method of rationalisation to either cope with the action of animal experimentation or firmly believed that animal research is essential for the betterment of the human race. Only one of the participants described their experience as being intensely psychologically and emotionally traumatising, she expresses having felt overwhelmed by the experience and consequently decided the profession is not suitable for her P4, describes this psychological and emotional distress when she writes;

"I feel ashamed because I love animals and it hurts me a lot when on a normal day if an animal is injured. But I had subjected those animals through that much pain throughout my investigation. I felt hurt and on many days I found my crying whilst in the BRU working with my animals".

P4, describes having suffered great emotional pain at the sight of having injured an animal through her own investigations. She is overwhelmed by the moral conflict of having caused an animal pain and her subjection to such an experience brought her to tears whilst working with the animals. The subject has experienced a trauma when working with the animals, she feels intensely responsible for having inflicted pain on an innocent animal, as the participant says she is "ashamed" of her experience. P4's rich description of experience substantiates Malone's,

Rohlf & Bennett, (1988, 2011) idea of ‘Perpetrated Induced Traumatic Distress’ as the participant feels she has perpetrated a murder. It is clear the participant is intensely affected by her experiences and is suffering a great amount of guilt as having perpetrated these ‘crimes’.

What is interesting about this particular participant’s experience is she is unable to conform to the belief of animal research as necessary, as the costs of animal life are believed insignificant to the perceived resulting benefit for human life. Hence, she experienced a type of ‘moral stress’ whereby people are required to perform actions they have difficulty justifying on moral grounds (Reeve, 2004). Moreover, as the literature suggests the degree of distress experienced by those performing experimentation and euthanasia depends significantly on their backgrounds, their individual philosophies and ethical principles and believed moral truths about the use of animals for research purposes (Kure, 2011).

Mukerjee (1997) suggests environmental settings, morality, gender and age as being factors influencing the way animals are perceived and their influence on attitudes toward animal research. The data collected primarily exposed issues of morality and the environmental setting or space as being fundamental to the participant experience. Age was not found to be an influencing factor and the influence of gender on perception and attitude as discussed in the literature was not evident as a result of the sample being primarily female. Nor was the influence of religion as suggested by the literature found to be an influencing factor in the student experience. Both factors of gender and religion are potential areas for future research among student animal researchers as neither factor’s degree of influence has been explored. Constituents such as fear, anxiety and sorrow all arose in the participants’ transcription of the experience of working with the animals for research purposes. A related issue to the theme of ‘moral conflict’ was the action of handling the animals, this stimulated great fear and anxiety for the participants as they emphasised the “size, fragility and fear of the animals” and their fear of being bitten. P5 reflects on her experience as follows;

“I was afraid to work with them at first because they were small and very active, I didn’t want to hurt them or get bitten”.

The issue of handling created a mutually experienced concern about the forced nature of the research and, the voiceless and painful experience of the animals. This issue heightened the participants’ belief in moral conduct and enacting procedures in an ethical way. The moral conflict experienced by P1 regarding her using animals for research purposes, is related to the forced pain and suffering inflicted onto the animal for research purposes. P1 initially feared

working with the animals as she was very concerned about the magnitude of pain inflicted. However, having conducted the procedure, she still felt guilty at having caused discomfort to the animal albeit, acknowledging that her actions and learning are for the betterment of the medical and health sciences. Similarly P3 discusses her experiencing a heightened sense of morality and guilt when performing her experimental process. However she also rationalises her actions as being important for the attainment of research, when she writes;

“The injuries to the rats was very difficult to watch as you develop a bond with the animal’s similar to the nurturing instincts of a parent, it is thus very hurtful to watch your animals experience pain and also to euthanize animals after the experiment as you have to separate your emotions from your work in order to get academic data”.

The influence of the moral conflict is very interesting, as the participants each rationalise their experience subjectively. Most were accepting of the practice and justify the research as being for the good for human kind and therefore necessary. This shared perception of experience can be compared to the utilitarian philosophy of bringing about the greatest good to the greatest number. Essentially, it is perceived that animal life is somewhat inferior to that of human life, and can be used as a means to meet human ends, that is the development of medical treatment. However, one might speculate about the significance of the students’ work and whether their experimentation contributes anything to the medical sciences but is rather a process of learning for the students’, and therefore perceived by some as needless animal killing. The students’ descriptions also describe the malleability of one’s morality as depending on the influencing space.

“I was able to treat the animals like they were my pets, but at the same time I had to be mature about my feelings” (Participant 5)

P5 compares her relationship with the animals to that of her pets. However, she remains emotionally stoic due to her ability to emotionally distance herself from the laboratory animals. Therefore avoiding being negatively influenced by the working conditions and the process and consequences involved. This method of emotional distancing used to cope with the moral dilemma, might confirm Fox’s (2004) position on the psychological process of compartmentalisation used to deny or deflect the distress of others by directing one’s attention elsewhere. Thus, the distress produced by the act of experimentation and euthanasia as well as the distress inflicted on the animal both denied or deflected and attention directed to the rationalisation of the practice serving a greater cause—the maintenance of human life.

In conclusion to the discussion on the moral dilemma, it is evident that the majority of participants' experienced a degree of moral questioning, they describe their conflict of conscience as a moral conundrum- an infinite scale of incongruence between their feelings of guilt about causing the animals frustration and discomfort and their rationalisation of this as being for the betterment of humanity.

The diagram below portrays the constant tipping of consciousness experienced by students.

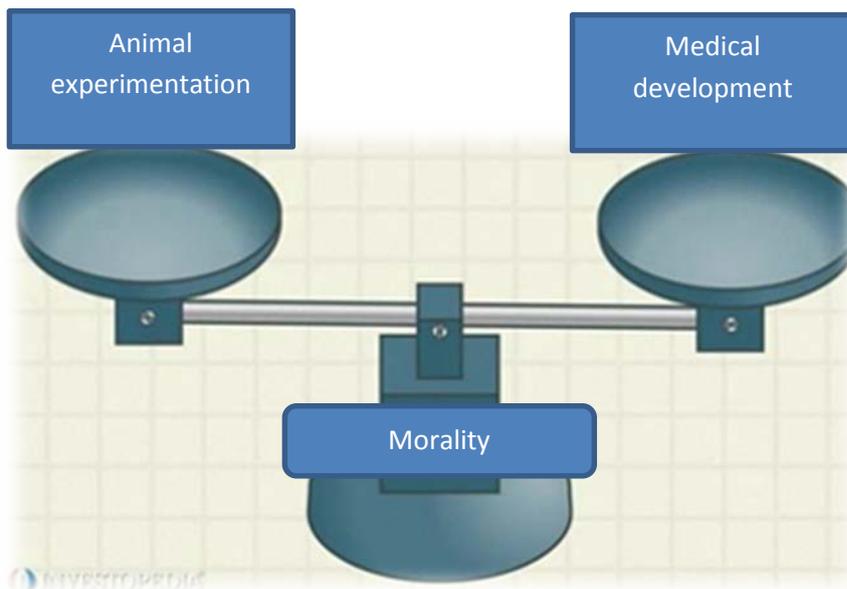


Figure 1 A tipping scale portraying morality the animal experimentation and medical dilemma

4.2 The Experience of Guilt

The second thematic constituent of guilt is fed by the aforementioned 'moral conflict'. The concept of guilt is described by Bruckner (2010) as "the old notion of original sin, the ancient poison of damnation, and now a problem of western masochism". Bruckner (2010) comments on the slippery nature of the concept guilt, here McClay's (2011) description of guilt is adopted and purports to be a human condition precipitating feelings of moral incompleteness and producing a weighty sense of moral burden. Without this feeling of 'guilt' we would not realise or practice our own morality. The experience of guilt can either be cognitively or emotionally experienced and occurs when a person believes they have violated their moral standards, and shoulder the responsibility for this violation. All participants' report their initial experiences as being ones of guilt and sorrow, as they believed the procedure would be distressing and painful to the animal. Interestingly, two out of the eight participants' report having shared these

initial feelings of angst and guilt but later having enacted the procedure, these initial feelings became ones which were positive promoting the research as serving the needs of humanity. Thus, their degree of purported 'guilt' was minimal as there was no real sense of responsibility for their actions expressed. One such participant was P6, who provides a lengthy description of his initial experience of conducting animal research and its consequent affects, he writes:

"Killing animals even for good causes is always sad because you feel as if you were doing the wrong thing. Although, we always make sure to minimize the pain of the animals, it's still affecting your feelings. After this first experience at the lab, I did not have a peaceful night, as all the procedures were still fresh in my mind, but I knew we were doing it for a good purpose".

The participant reports experiencing feelings of doubt and guilt about having to euthanize the animals, he questions his morality as to whether the euthanasia of the animals for research is moral although performed in an ethical manner. P6 mentions experiencing a sleepless night after performing his first experiment this is indicative of him being disturbed by the process. P6, rationalises his actions by stating that although the experimentation is difficult and uncomfortable for him he knows that it is serving a greater cause. Here, again compartmentalisation is used to cope with the emotional disturbance (Fox, 2004).

However, three of the eight participants' express their thoughts on the procedure as being consumed with guilt and sorrow for the animals, specifically the involuntary nature of the practice and the consequent inflicted pain and suffering.

"They too feel pain and it hurts to hear animals scream in pain when being injected or put through something that they refuse to do". (Participant 4)

Here, the participant acknowledges that the research is of benefit to the human although the cost is the purposeful harm and pain inflicted upon an innocent animal. An individual experience of guilt is morally bound and depends substantially on the values a person purports to conform to.

One of the participants' reports having been enraged by the lack of discipline of her peer's by their unethical and immoral manner of handling the animals. It is evident that the participants were split in their thinking very like that in mainstream society regarding animal research. However, it is interesting that four of the participants transitioned smoothly and therefore had a positive experience, albeit three participants' experienced the opposite when having to

conduct the procedure. Could this difference in experience be grounded in ingrained moral beliefs? Is the diversity in perception of morality and what is classified as moral, subjective to the individual or is there a moral standard of which we should all conform?

The participants experience of the moral stressor is compelling if one relates it to the theory of moral relativism proposing a multiplicity of different and incongruent moral truths, which are in some way defined by the beliefs of a given society- which are perceived as the only moral truth (Beillard, 2013). Hence, should South African animal researchers internalise and be affected by the ideals of the western world because it provides a pattern of behaviour which has been practiced for centuries? Another key factor found to influence the malleability of the participants' perceptions and experience depended on the space of interaction; more specifically the difference in experience from the home space to the laboratory space is where the shifting feelings and perception altered amongst most of the participants. This finding substantiates the belief that our thought is a product of the bodies interaction with the space it inhabits (Merleau-Ponty, 2008). The spaces we inhabit in our daily lives dictates the roles we perform and manner in which we conduct ourselves.

4.3 Role expectation

The third thematic constituent is role expectation- the improved quality of life for humankind. Many of the participants rationalised their experience of working with and experimenting on animals as being necessary for the betterment of humanity. This shared perception subsequently enabled the participants to cope with conducting the animal research, as well as to justify the pain and suffering inflicted on the animals.

The notion of 'positioning' feel is important when discussing the theme of role expectation. Subjective positions are adaptable and alter to meet the expectations of certain circumstances. This can lead to people experiencing what is termed 'troubled subject positions' or ideological dilemmas if they have to face the contradictions they have produced (Govender, 2011). Hence, regarding participants' circumstances, their positioning changes to meet the expectations of the context or instance, expectations of animal treatment at home differ with those expectations in the laboratory. Thus, using 'fluid positioning', not fixed roles, allow them to cope with the situation they find themselves in (Govender, 2011).

Space is an important factor to consider in the descriptions of the participants' experience, for instance; the laboratory space provides a supporting environment for research practice, whereas

the home space offers a different experience that of the pet/animal bond. The data showed that what distinguishes the participants' experience within this structured research environment and that occurring outside of this environment, is the adopted perception of the research being for the betterment of human health, and the procedures being accepted and practised by authority figures. P3 illustrates this transitional thinking depending on the space in which the act is performed, she writes;

“It is sad that animal lives are sacrificed in research but their contributions to developing treatments for more lives, both animal and human, is a valuable contribution to science and healthcare”.

And,

“I became aware of my ability to treat them as I treat my own pets and I had to prevent myself from becoming emotionally attached” (Participant 5).

The participants' justification of their actions as being for the betterment of humanity is not a new phenomenon, many rationalise animal experimentation as being necessary for the advancement of the medical sciences despite, the pain and suffering inflicted onto the animal subjects. If one compares this process of justification to the Milgram experiment on the influence of authority, one might postulate that the students came to this belief through the authoritative influence of their lecturers and professor's. P3 substantiates this premise when writing about the BRU;

“The animal ethics lecture highlighted the benefit of animal research as well as the need to maintain the well-being of the animals as they are performing a crucial role in the progress of science”.

The Milgram experiment on obedience toward authority figures provides interesting results on the ability of human beings to consciously hurt a fellow human being as a result of an authoritative figure telling them to do so (Miller, 1986 & Levine, 2004). It was deduced from the experiment that subjects were able to ignore or resist their moral imperative to inflict no harm and rather acted in a ruthless and very unethical manner, in awareness of the implications of their actions causing pain and suffering. The findings and consequent reactions of the participants could be compared to those of the research students, who themselves are told that their animal research is of great benefit to the medical sciences and therefore should be conducted however, with consideration to the well-being of the animals (Miller, 1986). The

Milgram experiment provides an interesting explanation for human behaviour and human beings ability to avoid a moral imperative and rather succumb to authority. What precipitates the student experience of guilt and sorrow is their feeling of being held responsible for their actions, their own hands performing experiments causing pain and discomfort to the animal subject (Miller, 1986). Another factor precipitating feelings of distress and guilt among some of the students is their performing of research experimentation and euthanasia on animals they compare relationships experienced with their pets at home. P5 articulates having experienced this conflict of conscience when writing about her thoughts during the experimentation process;

“I became aware of my ability to treat them as I treat my own pets and I had to prevent myself from becoming emotionally attached”.

They might never consider performing such procedures on their own animals but within the secure environment of the BRU this reality is not questioned. How do the students justify their actions on animal research subjects when at home they would never perform such acts on their own pets? Where does the standard or limit to morality lie, and how do we measure those limits? Fox (1986) discusses the fallacies in our conception of humans and animals leading to human discrimination between animals, the data suggests that there is no evidence in the participants’ experience that they discriminated against types of animals used in the experiments but they rather were able to separate their experience of their pets at home from the laboratory models.

The workplace in which the students conduct the animal experimentation also plays a key role in the maintenance of the students’ psychological and emotional well-being. As the findings suggest most of the participants’ experienced a moral burden which precipitated feelings of guilt and distress. This can result in the experience of moral stress which is a unique and under-acknowledged work stressor. Workplace stress can produce various negative health effects some of these being; psychological stress, disruptive sleep patterns and depression (Burton, 2010). The identification and recognition of such negative influencing health factors is confined to the privileged formal workforce. Thus, it is necessary to highlight certain deterrent factors significantly contributing to the animal researcher experience.

4.4 Deterrent factors

The fourth thematic constituent is deterrent factors-of the animal experience that is, the forced pain and suffering inflicted on the animal.

The students shared similar experiences of concern and anxiety prior to conducting their animal research; they discussed the animal body as evoking anxiety within them as they were concerned about the size, energy and fragility of rats. These feelings precipitated feelings of uncertainty as to how the participants would efficiently and effectively handle the animals and achieve compliance. P3 articulates these uncertainties and concerns as follows;

“I have never worked with animals before and it was scary at first. It was a little nerve wracking to handle rats as they are so small and hyper and it is easy to hurt them, it was also a concern that the rat may bite you if you don’t handle it properly”.

The participant who was most disturbed about the procedure found the reactions of the animals emotionally and psychologically overwhelming, she discusses her feelings as follows;

P4: “ I feel that although research helps us (humans) a lot, in many cases they cause harm and discomfort to the animals, who too feel pain and it hurts to hear animals scream in pain when being injected or put through something that they refuse to”.

Another participant reports having felt guilty and sorrowful for the animals when they refused to comply with the research procedure and subsequently injured themselves. An additional deterrent factor is participants felt greater practical training prior to conducting their own individual experiences was necessary. They felt it would be of benefit to both their individual skills’ and the animals’ well-being if they had had a better understanding of how to assess the animal experience. All subjects report having experienced feelings of angst and fear prior to having conducted the experiment as they were concerned about the nature of the procedure and its consequences for the animal. Hence, the participants initially experienced the phenomena quite apprehensively and emotionally. However, after conducting the research the participants’ experiences diverged.

4.5 Coping strategies: The relationship between phenomenon and self

The fifth thematic constituent is the coping strategies implemented by the students to deal with their thoughts and emotions.

The data indicates that participants' dealt with the research process subjectively, each expressing different ways of perceiving the phenomena. However, two primary methods of coping were implemented; the first method implemented was emotional distancing. Here the participants report having being able to distance their emotional self from the animal. Interestingly, the participants report being able to distance themselves emotionally and yet describe the animals as being like their pets at home thereby substantiating the influence of changing environments, and our ability to adapt to the conditions of a specific environment (Kure, 2011). As the literature confirms, the influence of the space in which an action occurs shapes how the action is perceived. For instance, the artificiality of the laboratory setting removes the contextual and emotional negativities that would otherwise be enhanced in other spaces. Furthermore, the participants were able to re-position themselves when faced with the laboratory environment as opposed to the home environment of being with animals (Govender, 2011)

Jepson (2008) posed the question as to "how (do) human beings frame the killing of animals in such a way to make it less objectionable" (p.3). In the participants' case mostdescribed the euthanasia of the animals as a 'sacrifice' hence, terminology such as this is used by the participants to condone the practise of euthanasia. Furthermore, Lynch (1988) differentiates between the human/pet bond and the researcher/animal bond by using the concepts of the naturalistic and the analytical animal. The analytic animal is conceived through the process of experimentation and is perceived as a symbol of knowledge, whereas the naturalistic animal describes the human/pet bond. This differentiation, is evident in the transcripts of the participants' who confess to perceiving the animals naturalistically- as they would their pets however, later transitioning to the analytic perception of the animals. The process of transcendence from a naturalistic animal into an analytical as the literature confirms, results from the objectification of animals hence, as evident in the data, the participants objectified the laboratory animals in order to rationalise their actions. The animals were perceived by all of the participants excluding one as objects necessary for scientific gain.

An important factor was raised by P1, who believed that an interview screening process should be conducted prior to performing animal research. She felt it was particularly important that

students were provided a space to discuss their perceptions about animal research and whether or not they had the emotional resilience and maturity necessary to cope with that experience.

“Students should first be interviewed and asked about their opinions and feelings towards working with animals, as not only could this effect the results of the studies they want to conduct, but also the manner in which they would possibly treat the animals”.

Hence, as the literature recommends that participants be trained in stress management and offered debriefing sessions regardless of their varying psychological and emotional states. Most of the participants adapted to the situation effectively, they disclose having compared the research animals with their pets at home albeit, realising they had to emotionally distance themselves in order to handle the animals during the experimental process. The participants were able to put the phenomena into a perceptive- of it being used to benefit human kind in order to rationalise and justify their experiences. However, one participant experienced great turmoil at having participated in the research process and felt “ashamed” at having hurt an innocent and non-consenting animal. This divergence in experience is significant and must be considered to ensure support for that specific student and protect the psychological and emotional well-being of all the students at the Biomedical Research Unit. A successful workplace is dependent on the well-being of its human resources thus it is important that the student laboratory space is made conducive and considerate of students’ experiences in order to improve student well-being and engendering higher performance and efficiency .

4.6 The Biomedical Research Unit (BRU)

The sixth thematic constituent describes the participant beliefs about the BRU education system.

The data expressed mixed opinions about the BRU education system, some felt it provided a high standard of knowledge and skill, others felt more practical training was needed to better equip students for the practice of animal research. P5, reflects this perception when he writes;

“More education needs to be provided on the use of laboratory animals for research, practical’s would be the best medium of teaching”

Additionally, P1 felt greater supervision was needed during experiments as she believed her peers had acted unethically in their treatment of the animals.

“Also, that some students got away with mistreating their animals and were not reprimanded. This is not only unfair to all the students who tried to be as humane as possible with their animals, but also unfair on the animals themselves. More discipline is needed and control.”

This is an important issue as the participant expresses a need for greater knowledge on the humane conduct of animals by treating them with respect and ethically. The three R's concept of replacement, reduction, and refinement is used to address ethical issues in animal experimentation, but were not mentioned by the participants thus, it is assumed this concept is not well used or understood by the BRU students (Shehnaz and Agarwal, 2013). More importantly, the three R's are fundamental as they provide useful moral restrictions on animal research when conformed to. It was also suggested by P1 and P8 that the equipment provided was inefficient and ineffective, and recommended that there be improvements made in order to enhance the standards of the way research is conducted and to ensure that the animals experience as little pain as possible. P6 substantiates this point as follows;

“I could have more training with people working with animals because interpreting the real feeling of the animal is not clear cut for all students”.

This issue raised by the participants is fundamental to fulfilling one of the study's objectives which was to create space for the researchers to express and discuss their feelings and cognitions and also, provide the freedom to articulate the experiences that were particularly distressing. Again this issue relates to a greater need for increased training in the ethics of handling and treatment of animals in research. A recent initiative taken in India, has introduced a structured Laboratory Animal Science (LAS) course, educating all postgraduate students working with animals on the correct handling and care of animals (Shehnaz & Agarwal, 2013). This is an intervention that could be adapted and implemented in South Africa, also focusing on all postgraduate programmes working with animals. Another coping strategy that has been recently cited as an effective relaxation method is described by Schumpter (2013) as the concept and practice of 'mindfulness' providing a release or a time away from the constant daily bombardment of technology, this concept is derived from Buddhism and essentially entails one taking time out of the hassle and bustle of everyday life to relax and meditate. It has had a significant influence on increasing employee wellness in the business arena. It is

hoped that such a program would alleviate some of the distressing psychological and emotional experiences as students would be better prepared and aware of their own feelings and perceptions about animal experimentation and euthanasia.

Overall positive feedback about the BRU was provided and the participants felt they were a part of a supportive and helpful environment therefore making the experience less distressing.

CHAPTER 5

Conclusion

The purpose of the study was to explore the lived experiences of eight students studying at the UKZN Biomedical Research Unit and focusing on the particular issue of conducting animal experiments. Findings suggest particular points of significance in the themes deduced from the data as follows: the subjective commonality of experience among students was found to be supported by the overall experience of moral conflict of simultaneously acknowledging the issue of morality in the practice of animal research and also the potential benefits of such research to mankind. The experience of additional deterrent factors further exacerbated the moral dilemma. Things such as animal size, fragility and energy generated feelings of guilt, anxiety and concern about the process of experimentation and euthanasia. The theme of participant role expectation was primarily influenced by the factor of space which is the subjective influence of specific environmental settings on an individual. The laboratory provides a space which is removed from social scrutiny and thereby providing a safe environment for the participants however, the data suggests that the influence of authority also plays a role in the participants' laboratory perception of animals and their perception outside the laboratory space. Furthermore, personal judgement was unavoidable as reported by the participants. Lastly the participants primarily compartmentalised their experience allowing them to rationalise their actions and cope with the procedure of experimentation.

Recommendations

- Participants recommended there be implemented psychological support systems for those who experience emotional distress prior, during and post conducting animal research.
- More practical experience before conducting the official experimentation was cited as being necessary during participants' preparation.
- Participants recommended the BRU develop and implement psychological and emotional screening and training classes to better prepare students for the experience of conducting animal research.

In conclusion to this final chapter, the themes explored and discussed through the in depth and detailed method of analysis, have exposed the fundamental essence of the animal research experience for the participants, thereby fulfilling the phenomenological objective of uncovering the meaning of experience for the individual, through their subjective

description of their perceptions, attitudes and feelings; all feeding and stimulating the participant experience. The relevance of a study of this nature, lies in its exploration of the subjective experience and its consideration of the following factors the influence and discussion of the participants' shared experience, the structural experience i.e. the influence of the space in which the experience came into being. These components contribute to the strength of the findings, and provide a space for individual questioning on issues such as morality, the self, guilt and expectation, all of which are struggles of humanity in general.

REFERENCES

- Babbie, E., & Mouton, J. (2004). *The Practice of Social Research*. Cape Town: OUP.
- Barnard, N D., & Kaufman, S., R. (1997). *Animal Research Is Wasteful and Misleading*. Scientific American, February 1997.
- Barnard, N., D & Kaufman, S., R. (1997). [Animal Research Is Wasteful and Misleading](#). Scientific American.
- Batt, S (2009). *Human Attitudes toward Animals in Relation to Species Similarity to Humans: A Multivariate Approach*. Journal of Bioscience Horizons. Oxford University Press.
- Bayne, K. (2002). *Development of the human-research animal bond and its impact on animal well-being*. Retrieved from www.ncbi.nlm.nih.gov/pubmed/11752725.
- Beck, C., T. (1992). *The Lived Experience of Postpartum Depression: A Phenomenological Study*. Florida Atlantic University, Boca Raton.
- Bjerke, T. N. (2010). *When My Eyes Bring Pain to My Soul, and Vice Versa: Facing Preconceptions in Email and Face-to-Face Interviews*. Journal of Qualitative Health Research. DOI: 10.1177/1049732310375967.
- Bruckner, P. (2010). *The Tyranny of Guilt: An Essay on Western Masochism*. Princeton University Press.
- Burton, J. (2010). *WHO Health Workplace Framework and Model: Background Supporting Literature and Practices*. Retrieved from http://www.who.int/occupational_health/healthy_workplaces/en/index.html.
- Coghan, A. (2008). *Grief and Stress among those who care for lab animals*. Retrieved from sts.ucdavis.edu/~Coghan%202008%20Grief%20-%20stress%20among.
- Coldwell, D. A. L. (2007). *A Dialectical Approach to Investigating Role Conflict, Job Satisfaction and Situational Anxiety in an African Industrial Context*. International Journal of Psychology 20:179-198.
- Egan, J. Chenoweth, L. McAuliffe, D. (2006). *Email-facilitated qualitative interviews with traumatic brain injury survivors: a new and accessible method*. School of Social Work & Applied Human Sciences, University of Queensland, Brisbane, Australia.

- Fox, M., A. (1986). *The Case for Animal Experimentation: An Evolutionary and Ethical Perspective*. University of California Press.
- Gadamer, H. (1976). *Philosophical hermeneutics*. London: University of California Press.
- Giorgi, A., Fisher, W.F., & Murray, E. (1975). *Duquesue Studies in Phenomenological Psychology: Volume 111*. Pittsburgh, PA: Duquesue University Press.
- Govender, K. (2011). *The cool, the bad, the ugly, and the powerful: identity struggles in schoolboy peer culture*. Retrieved from DOI: 10.1080/13691058.2011.586436.
- Groenewald, T. (2004). *A phenomenological research design illustrated*. International Journal of Qualitative Methods 3.
- Groenewald, T. (2004). A phenomenological research design illustrated. *International Journal of Qualitative Methods*, 3(1).Article 4. Retrieved from http://www.ualberta.ca/~iiqm/backissues/3_1/html/groenewald.html
- Hathorn, D. Machtmes, K. & Tillman, K. (2009). *The lived experience of nurses working with student nurses in the clinical environment*. The Qualitative Report, 14(2), 227-244. Retrieved from www.nova.edu/ssss/QR/QR14-2/hathorn.pdf.
- Hume, D. (1973). *A Treatise of Human Nature*. London: Oxford University Press.
- Husserl, E. (1931). *Ideas* (W.R. Boyce Gibson, Trans.). London: George Allen & Unwin.
- Husserl, E. (1965). *Phenomenology and the crisis of philosophy*. New York: Harper & Row.
- Jentsch, D. (2009). *About Neuroscience meet the Researcher*. Retrieved from www.brainfacts.org/about-neuroscience/meet-the-researcher/articles/2012/david-jentsch/.
- Jepson, J. (2008). *A linguistic Analysis of Discourse on the Killing of Nonhuman animals. Society and Animals*. Journal of Human-Animal Studies Retrieved from www.Brill.nl/soan.
- Kimwele, C., Matheka, D., Ferdowsian, H. (2011). *A Kenyan perspective on the use of animals in science education and scientific research in Africa and prospects for improvement*. Pan African Medical Journal. Retrieved from www.panafrican-med-journal.com.

- Kure, J. (2011). *Euthanasia- the "Good Death" controversy in humans and animals*. ISBN 978-953-307-260-9.
- Langer, T., S. (2002). *Choices for Living: Coping with the Fear of Dying*. Springer US. DOI: 10.1007/b108480.
- Leary, S., Underwood, W. Anthony, R., Cartner, S., Corey, D. Grandin, T. (2013) *AVMA Guidelines for the Euthanasia of Animals*. J Am Vet Med Association ISBN 978-1-882691-21-0.
- Lester, S (1999). 'An introduction to phenomenological research'. Taunton UK, Stan Lester Developments. Retrieved from www.sld.demon.co.uk/resmethy.pdf.
- Lester, S. (1999). *An Introduction to Phenomenological Research*. Taunton UK. (www.sld.demon.co.uk/resmethy.pdf)
- Levine, R., V. (2004). "Pilgrims Progress". American Scientist. Book review of The Man Who Shocked the World.
- Loew, F. M. (1982). *Development in the history of the use of animals in medical research. Scientific perspectives on animal research*. Boston, Massachusetts: Routledge.
- Lynch, M. E. (1988). Sacrifice and the Transformation of the Animal Body into a Scientific Object: Laboratory Culture and Ritual Practice in the Neurosciences. *Social Studies of Science*, 18, 2, 265-289.
- Malone, J. C., Jr. (1982). The second offspring of general process learning theory: Overt behavior as the ambassador of the mind. *Journal of the Experimental Analysis of Behavior*. DOI: [10.1901/jeab.1982.38-205](https://doi.org/10.1901/jeab.1982.38-205)
- McClay, W. (2011). *The Moral Economy of Guilt: The Curious Process by which Notions of Sin and Guilt have become both Illusionary and Omnisionent*. Methods Research Volume 1 Number 1. DOI: 10.1177/2345678906292430.
- Milgram, S. (1963). Behavioural Study of Obedience. *Journal of Abnormal and Social Psychology*, 67, 4, 371–8.
- Miller, Arthur G. (1986). *The obedience experiments: A case study of controversy in social science*. New York: Praeger.

- Mohr, B. (2013). *The Current Status of Laboratory Animal Ethics in South Africa: An overview of the successes and current challenges in implementing and raising awareness of the Three R's in South Africa*. *ATLA* 41, 48-51
- Morrison, A., and R, (2009). *An Odyssey with Animals: A Veterinarian's Reflections on the Animal Rights: A Veterinarians Reflections on the Animal Rights and Welfare Debate*. Oxford University Press.
- Mosby (2013). *Mosby's medical dictionary*. (9th Ed)
- Moustakas, C. (1994). *Phenomenological Research Methods*. SAGE Publications, Inc. of *Qualitative Methods*, 3(1). Article 4. Retrieved from http://www.ualberta.ca/~iiqm/backissues/3_1/pdf/groenewald.pdf.
- Mukerjee, M. (1997). *Trends in Animal Research: Increased concern for animals, among scientists as well as the public, is changing the ways in which animals are used for research and safety testing*. Scientific American, Inc. Retrieved from www.indiana.edu/~p1013447/dictionary/anires1.pdf
- Parker, I. (2000). "Obedience": Includes an interview with one of Milgram's volunteers, and discusses modern interest in, and scepticism about, the experiment. www.exsupera.com/sandbox/DCM/html/document.py?id=654.
- Parse, R., R, Coyne, A., B. & Smith, M, J. (1985) *Nursing research: Qualitative methods*. Bowie, Md: Brady Communications.
- Reeve, C., L., Spitzmuller, C., Rogelburg, S. G, Walker, A., Schultz, L, Clark, O. (2004). Employee Reactions and Adjustments to Euthanasia Euthanasia-Related Work: Identifying Turning-Point Events through Retrospective Narrative. *Journal of Applied Animal Welfare Science*. Lawrence Erlbaum Associates Inc.
- Regan, T. (1983). *The Case for Animal Rights*. London: Routledge
- Rohlf, V., Bennett, P. (2005). Perpetration-induced Traumatic Stress in Persons Who Euthanize Nonhuman Animals in Surgeries, Animal Shelters, and Laboratories. *Society & Animals*, 13-36.

- Russell W., M, Burch RL. (1959).*The principles of humane experimental technique*. London, UK: Methuen & Co., Ltd.
- Russell, W., M., S., and Burch, R., L. (1976).*Principles of Humane Experimental Technique*. Methuen, London.
- Sanders, C., R. (1995).*Killing with Kindness: Veterinary Euthanasia and the Social Construction of Personhood*. Sociological Forum. Vol.10, No, 2.
- Sanders, C., R. (2004).*The Sociology of Non-Human Animals and Society*. Retrieved from www.academia.edu/.../The_Sociology_of_Non-human_Animals_and_So.
- Shehnaz, S., Agarwal, A. (2013).*Animal Ethics Trainings for Postgraduates in Medical Schools in India: Catch them Young!* ATLA.
- Smith, J., A. & Eatough, V. (2007).*Interpretative Phenomenological Analysis*. orb.essex.ac.uk/hs/hs908/general%20pages/I_P_A.htm
- South African Medical Research Council (2004).*Use of animals in research book 3*.Retrieved from: <http://www.mrc.ac.za/ethics/ethicsbook3.pdf>. Accessed 2014 January 21.
- South African Medical Research Council Act*, No. 58 (1991) Available: <http://www.info.gov.za/view/DownloadFileAction?id=127365>.Retrieved 21/01/2014.
- Spurling, L. (1977). *Phenomenology and the social world*. London: Routledge and Kegan Paul.
- Tashakkori, A. & Teddlie, C. (2003).*Issues and Dilemmas in Teaching Research Methods Courses in Social and Behavioral Sciences: US perspective*. International Journal of Social Research Methodology. DOI: 10.1080/13645570305055
- Ulin, P., Robinson, E., Tolley, E., & McNeil, E. (2002).*Qualitative Methods: a field for applied research in sexual and reproductive health*. North Carolina: Family Health International.
- Van Kaam, A. (1959). *Phenomenal analysis: Exemplified by a study of the experience of "really feeling understood"*. Journal of Individual Psychology, 15(1), 66-72.
- Van Manen, M. (1990).*Researching Lived Experience: Human Science for Action Sensitive Pedagogy*. State University of New York Press, Albany, New York.

Appendix A

Title: Health Science students' experiences in the use of laboratory animals for experimental research purposes: A phenomenological inquiry.

Instructions: Please provide responses to the following questions, you are encouraged to write as freely and creatively as you would like.

1. Describe your first experience of using animals for the purpose of research?

Initially, when first shown around BRU (Biomedical Research Unit) and how the animals were housed etc., it sounded really exciting and that the animals were in a safe and happy environment. However, when I actually received my own rats and when I was helping my friend with hers, I felt very sorry for them and guilty for causing them pain, even though I know we were doing everything in an ethical manner and trying to cause the animal as little discomfort as possible.

2. Are there any thoughts that stood out for you prior, during and after using animals for research?

Even though I tried to cause as little pain and discomfort for the animals, due to outdated and unkempt equipment it was sometimes unavoidable to cause stress in the animals. This angered me as it was unnecessary and can be easily avoided. Also, that some students got away with mistreating their animals and were not reprimanded. This is not only unfair to all the students who tried to be as humane as possible with their animals, but also unfair on the animals themselves. More discipline is needed and control.

3. What feelings were generated by conducting the animal research for your project?

At first guilt, then acceptance along with the knowledge that without this type of research, there would be very little progress made in the medical field and various lifesaving treatments.

4. What would have been helpful for you to be equipped for using animals for research?

I was shown how to conduct my experiments and the various procedures involved and I think this was good preparation for using animals in my research. However, it is an experience where you can learn only so much theoretically, but only fully understand once you start working with the animals.

5. Is there anything else that you would like to share that is of significance to the experience?

That even though there are many procedures involved to ensure the animals are treated in an ethical manner, I personally feel that there could be a lot more done to ensure this. Students should first be interviewed and asked about their opinions and feelings towards working with animals, as not only could this affect the results of the studies they want to conduct, but also the manner in which they would possibly treat the animals.

Appendix B

Table One.

1. Listing and preliminary grouping of every expression relevant to the experience for each question. The first question; Describe your first experience of using animals for the purpose of research?

Meaning Units	Constituents revelatory of the structure of the experience of using animals for research purposes.
<p>1. Initially, when first shown around BRU (Biomedical Research Unit) and how the animals were housed etc, it sounded really exciting and that the animals were in a safe and happy environment. However, when I actually received my own rats and when I was helping my friend with hers, I felt very sorry for them and guilty for causing them pain, even though I know we were doing everything in an ethical manner and trying to cause the animal as little discomfort as possible.</p>	<p>The participant (P1), describes her initial experience as one of excitement and ease, P1 felt relaxed after being shown around the Biomedical Research environment. However, P1 describes the very sudden transition from her initial feelings of excitement, and ease at the sight of the animal enclosure. To an experience of guilt and sorrow when having to conduct the research on the animal and being be aware of the discomfort and pain being inflicted on the animal. <i>(It is evident that the participant is experiencing an ethical and moral dilemma, she initially acknowledges the inflicted pain on the animal but later attempts to rationalise the action by stating that everything was conducted in an 'ethical' manner- if the act was ethical should there be any pain at all. It is interesting that when the responsibility of the animal is given to the P1, a very different set of emotions are experienced- hence, the question as to whether this type of novice research is merely needless</i></p>

	<i>experimentation</i>).Guilt, confusion, disillusioned, moral conflict.
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The second question was as follows: Are there any thoughts that stood out for you prior, during and after using animals for research purpose?

1. Even though I tried to cause as little pain and discomfort for the animals, due to outdated and unkempt equipment it was sometimes unavoidable to cause stress in the animals. This angered me as it was unnecessary and can be easily avoided. Also, that some students got away with mistreating their animals and were not reprimanded. This is not only unfair to all the students who tried to be as humane as possible with their animals, but also unfair on the animals themselves. More discipline is needed and control.	P1, expresses strong emotions regarding the inefficiency of the equipment, she states “it was outdated and unkempt” this reality has greatly distressed the participant as she feels unnecessary harm was inflicted on innocent animals. P1, believes that the equipment used and process of procedure have been neglected and she is angered by this. P1, further describes the unethical nature in which some of the students’ conducted their research, and that this negligence went uncontested. <i>(It is clear from this participant’s response that she feels she has been treated unfairly and furthermore that the animals have been unnecessarily hurt)</i> . P1, feels very angry about the injustice of her experience and the injustice and cruelty inflicted onto the animals as a result of the lack of supervision.
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The third question was as follows: What feelings were generated by conducting the animal research for your project?

Meaning units	Constituents revelatory of the structure of the experience of using animals for research purposes.
1. At first guilt, then acceptance along with the knowledge that without this	P1, initially felt guilt at having to conduct experimentation on an innocent animal,

<p>type of research, there would be very little progress made in the medical field and various lifesaving treatments.</p>	<p>however, these feelings transitioned into acceptance, as the P1 believes that without such research there would be no developing and improving knowledge therefore the experimentation is necessary. <i>Interesting how human life outweighs the importance of animal life.</i></p>
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The fourth question was as follows: What would have been helpful for you to be equipped for using animals for research?

<p>1. I was shown how to conduct my experiments and the various procedures involved and I think this was good preparation for using animals in my research. However, it is an experience where you can learn only so much theoretically, but only fully understand once you start working with the animals.</p>	<p>P1, feels that she was practically equipped to conduct the experiments using animals however, she believes that that practical “theoretical” experience only provided marginal help only once P1, had worked with the animals did she really understand the experience. <i>(Maybe greater attention needs to be paid to the emotionality of the experience rather than the practicalities, as it is clear the participants each experienced the practice differently and therefore their subjectivity of the experience need to be considered).</i></p>
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The fifth question was as follows: Is there anything else you would like to share that is of significance to the experience?

<p>1. That even though there are many procedures involved to ensure the animals are treated in an ethical manner, I personally feel that there could be a lot more done to ensure this. Students should first be</p>	<p>P1, feels that there should be more action taken in preparation for the experience, she advises that an interview be conducted for each student, were they are provided a space to disclose their feelings and opinions toward working with animals. As</p>
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interviewed and asked about their opinions and feelings towards working with animals, as not only could this affect the results of the studies they want to conduct, but also the manner in which they would possibly treat the animals.	P1, feels this will benefit the students' study results as well as provide support in the manner in which the animals are handled. <i>(Very interesting response, there is clearly dissatisfaction with the procedure and the lack of psychological and emotional consideration).</i>
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Appendix D

Step 2: The reduction and elimination to determine the invariant constituents. The objective is to describe what is seen and unseen and to explore the relationship between phenomena and self (Moustakas, 1994).

Table 2

1. Constituents of situation expressed more directly in terms of the experience of working with animals for research purposes for each question.

1. P1, reports feeling anxious about working with the animals, as well as feeling guilty and concerned about their well-being.
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2. Constituents of the experience expressed more directly in terms of the thoughts experienced prior, during and after the animal experimentation.

1. P1, did not want to cause any pain and suffering to the animal however, as a result of the quality or lack thereof, of the equipment provided it was inevitable. She felt very angry about the negligence on the department's part. The S. was also furious about her peers' abusive handling of the animals and the lack of discipline. She also felt it was very unethical that her peers were not reprimanded for their behaviour especially when other ethically behaved students had taken the time and consideration to treat the animals humanely.
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3. Constituents of the experience expressed more directly in terms of the feelings generated from conducting animal research.

1. P1, experienced feelings of guilt which transitioned into acceptance as she realised the benefit of such research for the health and well-being of mankind.

4. Constituents of the experience expressed more directly in terms of what the participants felt would have been helpful to equip them for conducting animal research.

1. P1, was provided with the necessary knowledge to conduct the experiment however, she feels nothing really can equip you for the experience.

Appendix F

Step 5. Conducting an ‘individual textual description’ of the experience.

It is important that the researcher eliminate any textual descriptions that do not relate to the invariant constituents and core themes. Step 5, allowed me to gain a better understanding of “what” and “how” the students experienced animal research.

Table 4

Participant 1	P1 experienced the phenomena as being morally and ethically difficult; morally as she felt “very sorry for them and guilty for causing them pain”, P1 experienced the moral conflict of having to inflict pain onto an animal for the purpose of research. P1 is also very angered by the lack of efficient equipment necessary to reduce the experience of pain for the animals, she writes “pain and discomfort for the animals, due to outdated and unkempt equipment it was sometimes unavoidable to cause stress in the animals”. P1 was emotionally affected by this she shares; “this angered me as it was unnecessary and can be easily avoided”. (<i>Note the use of the</i>
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	<i>words guilt, sorrow, pain, discomfort, angered, all signifying an issue of morality).</i>
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Appendix H

Step seven: Construction of a Textual-Structural Description

To achieve a deeper understanding of the experience for the participants', I merged step five and six, this allowed me to gain an understanding of “what” (texture) was experienced by the participants and “how” (structure) it was experienced for each participant (Hathorn, Machtmes & Tillman, 2009). Following are the textual-structural descriptions of each participant.

Participant 1 (P1)

The moral conflict experienced by P1 regarding her using animals for research purposes is related to the forced pain and suffering inflicted onto the animal for research purposes. P1 initially feared working with the animals as she was very concerned about the magnitude of pain inflicted. However, one having conducted the procedure she still felt guilty at having caused discomfort to the animal albeit, acknowledging that her actions and learning are for the betterment of the medical and health sciences. P1 fears that the lack in equipment standard cause unnecessary pain to the animals as she writes; “pain and discomfort for the animals, due to out-dated and un-kept equipment”. She is angered by the lack of supervision whilst the experimentation is performed and is unsettled and disheartened by her peers motional negligence and disrespect for the animals. The participant recommends that screening be conducted for all students to assess whether they have the emotional resilience to conduct such research.

