IDENTIFYING AND DEVELOPING CAPACITY FOR VETERINARIANS
TO ADDRESS ANIMAL ETHICS ISSUES

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BA Dip'T MBA MA (Professional Ethics & Governance)

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Abstract
Animal ethics is a growing community concern requiring effective responses from professionals in animal-related fields such as veterinary and animal science. Limited research indicates that veterinarians regularly face ethical dilemmas in relation to animal ethics issues, causing moral distress. However, while animal ethics teaching in veterinary and other animal science courses is growing internationally, it is still a relatively new discipline with no common approach or competencies for developing ethical behaviour toward animals.

This thesis is that animal ethics education should be based on a scientific approach to morality, building on existing scientific approaches to morality and moral behaviour in philosophy, neurobiology, evolutionary biology and moral psychology to identify and develop the capacity for veterinarians and others in animal-related fields to address animal ethics issues. It includes six studies with a particular focus on quantitative methodologies to measure moral judgment and moral sensitivity, two of four previously identified components of moral behaviour.

Based on a well-validated test of moral judgment on human ethics issues, the first study involved development of the Veterinary Defining Issues Test (VetDIT) to identify preferred levels of moral reasoning on animal ethics issues using three veterinary-related issues. Using this test, students of veterinary medicine, animal science and veterinary technology, at different stages of their programs in one Australian university, showed similar preferences for three types of moral reasoning i.e. Personal Interest, Maintaining Norms and Universal Principles on human ethics issues, but used more principled reasoning and less personal interest reasoning on animal ethics issues.

In the second study, the VetDIT was refined and a third version created to use as a post test in a moral judgment intervention study, which included moral development theory and a new template based on a universal ethical decision-making model, Preston’s Ethic of Response. This study found a three hour small group interactive workshop highly effective in developing principled reasoning as demonstrated by VetDIT moral judgment scores on pre- and post-tests. A lecture format using similar content had no effect.

The third study for this thesis identified that principled reasoning was not exclusive to animal-related professions, with similarly high levels of principled reasoning by human medicine and arts students. However, arts students showed more personal interest reasoning on both human and animal issues than students of veterinary and human medicine, veterinary technology and animal
science and less maintaining norms reasoning on animal ethics issues. Human medical students showed more maintaining norms reasoning on animal ethics issues than students in animal-related disciplines.

A complex relationship between intuitive action choices and moral reasoning types was demonstrated in a fourth study using the VetDIT responses of 646 students in five animal- and two non-animal-related professional programmes. Action choices showed significant relationships to specific questions in the test representing the three types of moral reasoning. However these different moral reasoning types were sometimes related to the same action choice and the same reasoning types related to different action choices. Further these relationships varied between program groups and other demographics.

The fifth study investigated first and fifth year veterinary students’ moral sensitivity, motivation and action to address animal ethics issues, by developing and using a new Animal Ethics Issues Survey. It showed the majority were concerned about, and had experienced moral distress regarding, humans’ treatment of animals. Most agreed that veterinarians should address the wider social issues of animal protection and prioritise animals’, over owners’ or caregivers’, interests. However, most had taken little or no action to address animal ethics issues, with no difference between first and fifth year students. Moral distress was positively correlated with personal interest reasoning and negatively correlated with maintaining norms reasoning, which was also negatively correlated with interest in involvement in animal issues. Principled reasoning was correlated with prioritising animals’ interests in the veterinarian’s professional role.

The sixth study involved development and use of an Animal Ethical Sensitivity measure to determine the effects of ethical sensitivity teaching with third year veterinary students. Results suggest that ethical sensitivity is distinct from moral judgment and can be developed. Scores increased for identification of humans’ and animals’ emotions, expression of empathy and identification of alternative actions and their impacts. Expression of one’s own emotions and identifying moral conflicts between stakeholders and between one’s own legal, professional, and ethical responsibilities developed the least.

Overall this research suggests that principled reasoning on animal ethics issues in both animal and non-animal related professionals is preferred over maintaining social laws and norms and personal interest reasoning. Interactive small group work appears to be effective in developing moral
reasoning on animal ethics issues, using moral judgment theory and a universal ethical decision-making model that combines the main ethical frameworks and principles. The VetDIT and Animal Ethical Sensitivity measures also provide reflective educational tools for developing and assessing moral reasoning and sensitivity, two key components for moral behaviour in relation to animal ethics issues.

By providing new knowledge on, and resources for identifying and developing the capacity of veterinarians to address animal ethics issues, this thesis has particular relevance for students and teachers, practitioners and professional bodies in animal-related fields. However, it is also relevant to other fields including philosophy, psychology, law, government and public policy which seek to develop practical ethics skills. Wider and more extensive research and teaching is invited to further validate and develop knowledge and resources on these two components and to identify, develop and measure the other two components for moral action - moral motivation and moral character.
Declaration by author

This thesis is composed of my original work, and contains no material previously published or written by another person except where due reference has been made in the text. I have clearly stated the contribution by others to jointly-authored works that I have included in my thesis.

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Publications during candidature

Peer-reviewed papers and a letter


Book Chapters


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# Table of Contents

## Chapter 1

Introduction ...................................................................................................................... 24

1.1 References ................................................................................................................. 32

## Chapter 2

Literature Review .............................................................................................................. 35

2.1 What is animal ethics? .............................................................................................. 35

2.1.1 What is ethics? ....................................................................................................... 36

2.1.2 Ethics as a scientific discipline ............................................................................ 36

2.1.3 What is animal ethics and how does it differ from animal welfare and animal law? 39

2.1.4 How does animal ethics fit with professional ethics? ........................................... 40

2.1.5 How does animal ethics fit with personal ethics/values ....................................... 42

2.2 What influences ethical behaviour? .......................................................................... 42

2.2.1 Philosophical perspectives of moral behaviour .................................................... 42

2.2.2 Neurological perspectives of moral behaviour ..................................................... 48

2.2.3 Psychological perspectives of moral behaviour .................................................... 50

2.3 Animal Ethics in Veterinary Education ..................................................................... 63

2.3.1 Different approaches ............................................................................................ 63

2.3.2 What research has been done to identify, develop and assess moral behaviour in the veterinary profession? ........................................................................... 65

2.4 Conclusions .............................................................................................................. 68

2.5 References ............................................................................................................... 69

## Chapter 3

Development of a Moral Judgment Measure for Veterinary Education ......................... 77

3.1 ABSTRACT ................................................................................................................ 77

3.2 INTRODUCTION ...................................................................................................... 77

3.3 MATERIALS AND METHODS ............................................................................... 78

3.3.1 Participants .......................................................................................................... 78

3.3.2 Procedures ............................................................................................................ 79

3.3.3 Materials .............................................................................................................. 79

3.3.4 Demographics ...................................................................................................... 81

3.3.5 Statistical Analysis .............................................................................................. 81

3.4 RESULTS .................................................................................................................. 82

3.4.1 Demographics ...................................................................................................... 82
Chapter 4  Assessing Veterinary and Animal Science Students’ Moral Judgment Development on Animal Ethics Issues .................................................................................................................. 91

4.1  ABSTRACT ............................................................................................................. 91
4.2  INTRODUCTION ................................................................................................... 91
4.3  MATERIALS AND METHODS .............................................................................. 93
4.3.1 Refining the VetDIT ......................................................................................... 94
4.3.2 Teaching Interventions .................................................................................. 95
4.3.3 Changes in Moral Judgment during the Program ............................................. 95
4.3.4 Demographics ............................................................................................... 99
4.3.5 Statistical Analysis ......................................................................................... 99
4.4  RESULTS ................................................................................................................ 99
4.4.1 Comparability of DIT Versions .................................................................... 100
4.4.2 Effect of Ethics Teaching and Changes during the Program ......................... 101
4.4.3 Demographic Influences .............................................................................. 102
4.5  DISCUSSION ......................................................................................................... 103
4.6  CONCLUSIONS .................................................................................................. 106
4.7  REFERENCES ...................................................................................................... 107

Chapter 5  Differences in Moral Judgment on Animal and Human Ethics Issues between University Students in Animal-Related, Human Medical and Arts Programs ...................................................... 109

5.1  ABSTRACT ............................................................................................................. 109
5.2  INTRODUCTION ................................................................................................... 109
5.3  MATERIALS AND METHODS .............................................................................. 112
5.3.1 Participants ...................................................................................................... 112

XV
Chapter 6  Understanding the relationship between moral reasoning and moral action choices regarding animal welfare decisions

6.1  ABSTRACT

6.2  INTRODUCTION

6.3  METHOD

6.3.1  Materials

6.3.2  Participants

6.3.3  Procedures

6.3.4  Statistical Analysis

6.4  RESULTS

6.4.1  Demographic characteristics

6.4.2  Actions chosen for each scenario

6.4.3  Relationship between action choice and moral judgment type based on item rankings

6.4.4  Relationship between action choice and moral judgment type based on item ratings

6.4.5  Relationship of action choices to demographic factors

6.5  DISCUSSION

6.5.1  Animal Welfare Implications
Chapter 7  Identifying veterinary students' capacity for moral behaviour on animal ethics issues .......... 159
 7.1  ABSTRACT .................................................................................................................. 159
 7.2  INTRODUCTION ......................................................................................................... 160
 7.3  MATERIALS AND METHODS ..................................................................................... 161
  7.3.1  Statistical Analysis ................................................................................................. 164
 7.4  RESULTS ................................................................................................................. 165
  7.4.1  Student Demographics .......................................................................................... 165
  7.4.2  Moral Sensitivity ..................................................................................................... 165
  7.4.3  Moral Motivation .................................................................................................... 167
  7.4.4  Moral Action ........................................................................................................... 171
  7.4.5  Moral Judgment ...................................................................................................... 173
  7.4.6  Correlations between Animal Ethics Issues Variables and Moral Judgment Scores .......... 173
 7.5  DISCUSSION ............................................................................................................. 175
  7.5.1  Moral Sensitivity ..................................................................................................... 175
  7.5.2  Moral Motivation .................................................................................................... 177
  7.5.3  Moral Action ........................................................................................................... 178
  7.5.4  Demographic Differences in Moral Sensitivity, Motivation, and Action ......................... 179
  7.5.5  Relationships between Moral Judgment and Moral Sensitivity, Motivation and Action .......... 180
  7.6  REFERENCES ......................................................................................................... 181

Chapter 8  Assessing Ethical Sensitivity to Animal Welfare Issues .............................................. 184
 8.1  ABSTRACT ................................................................................................................ 184
 8.2  INTRODUCTION ......................................................................................................... 184
 8.3  METHOD ................................................................................................................... 187
  8.3.1  Instruments .......................................................................................................... 187
  8.3.2  Ethical Sensitivity Scoring Development .................................................................. 188
  8.3.3  Participants and Procedure ..................................................................................... 189
  8.3.4  Demographics ........................................................................................................ 190
  8.3.5  Statistical Analysis ................................................................................................. 190
 8.4  RESULTS ................................................................................................................ 191
  8.4.1  Demographics ........................................................................................................ 191
Chapter 9

9.1 Context ............................................................................................................................................ 207

9.2 Summary of Results and Implications ............................................................................................. 208

9.2.1 A scientific approach to animal ethics education to inform the development of animal ethics competencies ................................................................................................................................. 208

9.2.2 A measure of moral judgment on animal ethics issues .................................................................. 209

9.2.3 Teaching strategies and tools for developing moral judgment on animal ethics issues ................. 210

9.2.4 A comparison of moral judgment on animal ethics issues of students in animal and non-animal related disciplines .................................................................................................................. 211

9.2.5 The relationship between moral reasoning and moral action choices in relation to animal ethics issues ............................................................................................................................................. 212

9.2.6 Veterinary students’ capacity in the four components of moral behaviour to address animal ethics issues ........................................................................................................................................ 213

9.2.7 A measure and teaching strategies for developing ethical sensitivity in relation to animal ethics issues .............................................................................................................................................. 214
A summary of demographic effects on moral judgment and moral sensitivity across the various studies, and their implications ................................................................. 215

Limitations ........................................................................................................... 218

Future Research ................................................................................................. 219

Conclusions ........................................................................................................... 220

References ............................................................................................................. 221

APPENDIX A VetDIT V1 SCENARIOS ................................................................ 224
APPENDIX B VetDIT V2 ....................................................................................... 226
APPENDIX C VetDIT V3 ....................................................................................... 232
APPENDIX D UQ ANIMAL ETHICS ISSUES SURVEY ................................. 238
APPENDIX E ANIMAL ETHICAL SENSITIVITY QUESTIONS ......................... 244
APPENDIX F ANIMAL ETHICAL SENSITIVITY SCORE SHEET ....................... 245
List of Figures

Figure 4-1 Relationship between age and Personal Interest scores (%) .......................................................... 103

List of Tables

Table 3-1 Comparison of 88 UQ veterinary students’ mean moral reasoning scores for PI, MN, and UP reasoning methods in animal and human ethics scenarios with the scores of 2,096 US freshmen for human scenarios23(p.35) (to match CSED criteria, students who reported that English was not their primary language were excluded). ................................................................. 82
Table 3-2 Number and percentage of students in agreement with (strongly agreed or agreed), unsure of, or in disagreement with (disagreed or strongly disagreed) the effects of ethical decision-making strategies and models.................................................................................................................. 84
Table 4-1 Student cohorts, VetDIT versions, and numbers of students (% of cohort) .............................. 94
Table 4-2 Moral judgment and ethical decision-making workshop (3 hours) ............................................ 96
Table 4-3 Ethic of Response Template (ERT), sample scenario: breeding modification for blind hens.................................................................................................................................................. 97
Table 4-4 Demographics for first-year BVSc, first-year BAppSc (Production Animal Science), and third-year BVSc Students ................................................................................................................................................. 97
Table 4-5 Mean PI, MN, and UP scores for VetDIT versions 1 and 2 and male and female third-year veterinary students ........................................................................................................................................... 100
Table 4-6 Median PI, mean MN, and mean UP scores for VetDIT versions 2 and 3 and male and female first-year production animal science students .................................................................................................. 100
Table 4-7 Mean Personal Interest, Maintaining Norms and Universal Principles scores (%) for students on different courses before and after ethics teaching ........................................................................ 101
Table 4-8 Student assessment of decision-making and ethical decision-making models .......................... 101
Table 4-9 Student assessment of teaching ethical decision making in first year, in small groups, and as the program progresses .......................................................................................................................... 102
Table 5-1 Number (%) of 1st Year Vet Sci, Vet Tech, Bachelor of Applied Science (Anim Sci) students, and 3rd Year Veterinary Students by age range, median age, age group, sex, previous degree, English as the primary language, and experience with companion animals, farm animals and horses ........................................................................................................................................... 116
Table 5-2 Personal Interest (PI), Maintaining Norms (MN) and Universal Principles (UP) scores for animal and human scenarios for students of Bachelor of Arts (Arts), medicine/surgery (Med), applied science (Anim Sci), veterinary science (Vet Sci) and veterinary technology (Vet Tech)

Table 6-1 Number (%) of 1st, 3rd and 5th Year veterinary, 1st Year veterinary technology, production animal science, medical, and arts students, by age range, median age, age group, sex, previous degree, English as primary language, and reported experience with companion animals, farm animals and horses

Table 6-2 Number (%) of students who chose each action, by program

Table 6-3 Significant correlations between overall action choice, as the ordinal output, and schema (PI, MN, UP) from the different program groups, using ordinal logistic regression

Table 6-4 Significant correlations between action choice and item ratings in each scenario, by program type, correlation coefficients (CC) and P Values (P) from stepwise regression

Table 6-5 Significant correlations between overall action choice, as the ordinal output, and demographics for the different program groups, using ordinal logistic regression

Table 6-6 Number of students in different programs choosing action choices 1-3 in animal scenarios before (B) and after (A) ethics teaching interventions

Table 7-1: Responses of first- and fifth-year students to questions about their ethical sensitivity, on a scale of 1 (strongly agree) to 5 (strongly disagree)

Table 7-2 Significant (p ≤ .050) demographic effects on mean level of agreement, on a scale of 1 (strongly agree) to 5 (strongly disagree), for questions about ethical sensitivity (see Table 1 for questions)

Table 7-3 Responses of 148 first- and fifth-year students to questions about their ethical motivation and moral judgment capacity, on a scale of 1 (strongly agree) to 5 (strongly disagree)

Table 7-4 Significant (p ≤ .050) demographic effects on mean level of agreement, on a scale of 1 (strongly agree) to 5 (strongly disagree), for questions about ethical motivation and moral judgment capacity (see Table 3 for questions)

Table 7-5 Number and percentage of 144 respondents who rated each motivator as their primary reason for studying veterinary science (in order of declining importance) and as one of their top three motivators

Table 7-6 Number of specific observations on how their university shows interest/involvement in improving how animals are treated in the Australian community (in order of frequency) by first-year (n=34; 57%) and fifth-year (n=60; 68%) survey respondents
Table 7-7 Ethical Actions by 130 respondents who agreed they were concerned about ethical issues (Question 1), and 83 respondents who had taken action to resolve these concerns (Question 18)

Table 7-8 Actions taken by first-year (n = 35; 58%) and fifth-year (n = 62; 70%) students (total = 97; 66%) to improve how animals are treated in the wider community, and number of times mentioned

Table 8-1 Differences in mean ethical sensitivity scores* between elements both before & after teaching of 3rd year veterinary students (n=104)

Table 8-2 Significant effects (p<0.05) of teaching and demographics on ethical sensitivity scores of 3rd year veterinary students (n=104)
### List of Abbreviations used in the thesis

<table>
<thead>
<tr>
<th>Abbreviation</th>
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<tr>
<td>AEST</td>
<td>Animal Ethical Sensitivity Test</td>
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<td>Anim Sci</td>
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<td>DIT</td>
<td>Defining Issues Test</td>
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<td>ES</td>
<td>Ethical sensitivity</td>
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<td>Med</td>
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CHAPTER 1  INTRODUCTION

Animal ethics – how humans should behave toward animals – is a growing community concern.\textsuperscript{1-4} This concern has developed with increased recognition of animals' cognitive, social, emotional\textsuperscript{6} and moral\textsuperscript{6,7} capacities. Also, technological developments have increased accessibility to information about how animals are treated and ways to improve their lives, and the market for animal products has become globalised and intensified their use.\textsuperscript{8} Concerns vary based on gender, occupation, nationality, religion, use and species of animal and belief about animals’ mental capacities.\textsuperscript{9-12} Such complexity increasingly requires effective responses from professionals, government policy makers and industries which use animals.\textsuperscript{2}

Because veterinarians have specialist knowledge of animals’ physical needs and, although perhaps to a lesser extent, their mental, emotional and behavioural needs, their advice is often sought on courses of action to address animal ethics issues, not only by individual owners, but also by policy makers in industry and government.\textsuperscript{13} Veterinarians are therefore in a unique position to help, or harm, not only individual animals in their care, but whole species of animals used or impacted upon by society. However, professions involved with animal care such as veterinary medicine often have conflicting responsibilities – to animals and to owners.\textsuperscript{14} Unlike the human medical profession where the patient's well-being is generally regarded as paramount, for veterinarians the responsibility for the well-being of their patients, the animals, has to be weighed against the responsibility to satisfy the interests of companion animal owners, livestock industries, entertainment industries, and medical researchers, and legally the owners' interests are paramount.

This creates uniquely difficult ethical issues, conflicts and dilemmas for veterinarians regarding the treatment of animals, which can lead to moral stress \textsuperscript{2}, dissatisfaction and the possible abandonment of their profession. Yet little research identifies veterinarians’ capacities to address animal ethics issues of concern to themselves, or the community. In a small 2012 UK study of 58 practicing veterinary surgeons, Batchelor and McKeegan found that 57% faced one or two highly stressful ethical dilemmas each week and 34% typically faced three to five dilemmas each week. Three common issues - 'convenience euthanasia of a healthy animal, financial limitations of the client restricting treatment options, and clients wishing to continue treatment despite compromised animal welfare/quality of life - were classified as highly stressful.\textsuperscript{15} In a 1999 study of 927 vets (49% of vets registered with the Veterinary Council of New Zealand), euthanasia and responsibility for animals' lives were more of a concern of veterinarians in small animal practice than large and mixed
animal practice. Nevertheless, McGlone and Hicks reported a high degree of sensitivity among university animal science teachers in the United States to the teaching of painful animal production procedures such as castration of pigs and cattle.

Apart from impacts on animals and animal care professionals, addressing ethical issues is essential for the many animal use industries to provide predictability for investment. Failure to address ethical issues makes long range planning difficult, and can cause expensive delays and disruption to income and profits. The Australian live export industry experienced such disruption with the exposure of cruelty to cattle in a random sample of Indonesian abattoirs in 2011. Public outrage was widespread and government policy makers were faced with the need to make critical decisions in very limited time frames. They chose to suspend the live export trade for one month, which left producers with stranded cattle. It would therefore appear important to maximise the capacity of veterinarians to provide ethical advice to producers and other users of animals and to guide government policy in addressing animal ethics issues to prevent harm and disruption, preferably before the issues arise and are embedded in practice. Rollin comments that: “Veterinary medicine can still seize the leadership in this area and, by so doing, can both do good and do well.”

Achieving this is currently difficult logistically with often a disproportionate number of practicing veterinarians to the number of animals in the various animal use areas. For example, in Australia, a 2007 longitudinal study of 134 veterinarians, which tracked first year students to 15 years after graduation, indicated that 80% of the veterinary work being done by the 77% of those still practicing veterinary medicine was with dogs and cats, 8% with horses, 10% with farm animals, and 2% with other species. Estimates of animal numbers in these areas indicate there were approximately 5.9 million dogs and cats in 2007, 80 000 000 horses (excluding wild horses) in 2009, compared with 500 million animals farmed for food (excluding fish and other marine creatures) and 6.9 million animals used in research (in 2006).

That more needs to be done proactively to address animal ethics issues was highlighted at the 2009 Animal Welfare Symposium entitled "Swimming with the Tide: Animal Welfare in Veterinary Medical Education and Research" jointly hosted by the American Veterinary Medical Association and the Association of American Veterinary Medical Colleges. In summing up the symposium it was acknowledged that: “It is unclear to what degree, if at all, ethics is incorporated in many curricula in veterinary schools around the world and yet ethical consideration is key to practicing as a good clinician.”
Current teaching of ethics in animal related fields

While ethics teaching in veterinary and other animal science courses is growing internationally, it is only relatively new and considerable variation exists in what ethics and how ethics is taught. For example, a 2010 analysis of web-based resources of core curricula provided by 85 European veterinary faculties of the 99 available at the Federation of Veterinarians of Europe and relevant peer reviewed literature identified a wide range of ethics-related teaching activities underpinned by different pedagogical approaches and objectives and no explicit common aim in undergraduate veterinary ethics education across European faculties. No clear description of competencies existed within the regulations for veterinary training in Europe. Information on ethics teaching was found in 55 faculties, embedded in four underlying conceptual contexts: History of Veterinary Medicine, Animal Welfare, Animal Law, and Professionalism, with ethics in Animal Law being the most common. However it was difficult to assess the nature of the workload in ethics within these frameworks as the information did not discriminate between the different components. In Animal Law the normative and legal standards are given ethical appraisal (codes of conduct, and professional legislation, including welfare law and forensic medicine). Professionalism included professional roles and behaviour, philosophy including ethical theories, and management and organisation (including communication skills and conflict resolution). Elective disciplines of bioethics were found in some veterinary faculties, though it was indicated that competition with more practical electives could reduce any potential impact.

Research involving three case studies of different approaches to ethics training in European veterinary schools in 2009 revealed three different didactic approaches: a rules approach (Codes of Conduct and animal welfare legislation), values/virtues (improving understanding to justify actions), and skills (provide tools which allow viewing ethical issues from a range of perspectives). These approaches may be combined in different proportions. The web-based analysis of European veterinary courses in 2010 indicated that strategies included a combination of lectures with practical sessions by 29 schools, and exclusively lectures by 21 schools.

In a survey of all eight Australian and New Zealand veterinary programs by Hazel and Collins in 2011 all veterinary schools indicated they do teach animal ethics mostly in conjunction with animal welfare, research animals and animal ethics committees. Time allocated across the whole program varied from 11 hours to 53 hours, mainly in the first year. In addition, professional ethics was covered from between 4 and 72 hours, mainly in the third or fifth year of the programs. This
survey did not determine the approaches used. Lectures and tutorials were the main delivery mode for the teaching of ethics; however other teaching strategies such as video, team based learning, and role play were used in up to four of the eight schools. Assessment was mainly by multiple choice questions, assignment or tutorial questions. However several universities were using a wide range of assessment strategies including peer review, oral, role play, reflective reports, debate and discussion board. Identifying real life ethical dilemmas in veterinary practice and applying ethical theories to help solve them was identified as a way to generate need and motivation for ethics in the curriculum.

Course organisers reported students liked practical scenarios, discussions of dilemmas, seeing clinical relevance, and varied guest speakers. Some commented that students disliked ethics, not having a right answer, disliked philosophers pontificating and ethics in general, and that first years found it hard to move to third party views. The assessment challenges included large classes, quiet students who found it hard to speak up, and allocating marks for discussion to ensure attendance. In terms of philosophy or ethics training, half the schools involved staff who were either professional philosophers or had completed honours or masters degrees in philosophy. More recently, in 2014-15, these eight veterinary schools have developed an animal welfare and ethics portal to be a nationally shared online repository of animal welfare and ethics resources for veterinary teachers and students. This allows students to explore their views on ethical issues and animal sentience, and work through animal ethics scenarios. However there are no common competencies for veterinary ethics education in Australia and New Zealand, or indeed internationally, to ensure that veterinarians are equipped to address animal ethics issues.

A 2010-11 qualitative investigation of the reasons for teaching veterinary ethics at three European veterinary schools identified four overarching themes: ethical awareness, ethical knowledge, ethical skills, and individual and professional qualities. The objectives included recognizing values and ethical viewpoints, identifying norms and regulations, developing skills of communication and decision making, and developing a personal and professional identity. Whereas many of the objectives complemented each other, there was tension between whether ethics teaching should promote knowledge of professional rules or critical reasoning skills. The approach was largely descriptive in developing awareness and knowledge to encourage understanding of the range of perspectives on how animals should be treated, and from this for students to identify their own personal beliefs to guide their decision-making on ethical issues. There appeared to be “limited
agreement on which contents are best suited to veterinary teaching” and “no systematic approach to identify what concepts are considered within the realm of ethics in veterinary education.”

To what extent current teaching of ethics in veterinary and animal science fields is effective in developing abilities to address the wide range and complexity of animal ethics issues is therefore unknown. There appears to be little research into animal ethics concerns, expectations and capabilities for ethical action by veterinary students, teachers and practitioners.

A literature review (Chapter 2) was therefore conducted to investigate:

- What is animal ethics, and what are the differences between animal ethics, animal welfare, animal law, professional ethics in animal-related fields (veterinary ethics, bioethics, and agricultural ethics) and personal ethics/values?
- Is there a common scientific approach that can be used when developing ethics courses?
- What are the most important elements of ethical behaviour and how can these be measured?
- Does ethics education make a difference? If so what ethics education has been successful and may therefore be useful to help address animal ethics issues?
- What research has been done to identify, develop and assess the capacity of veterinarians and others in animal-related fields to address animal ethics issues, and how do they compare with those in non-animal related fields?

From the review of the literature, it is clear that a scientific approach to ethics and ethics education is possible and moral development has been addressed scientifically in a number of non-animal related professions with measurable outcomes. The source of the English word "ethics" is the Greek "ethos" meaning "character" or "custom" while the word "morality" has a Latin origin and is related to the term "mores" which referred to habits or customary traditions of a people. The various forms of these two words e.g. ethical, moral, are often used interchangeably and are in this thesis.

A scientific approach to ethics has been identified through firstly, grounding ethics in two natural facts: a). sentient beings’ desire for survival and well-being, and b). our interdependence, both of which are observable and measurable, and in keeping with trends in neurobiology. Secondly, treating the various constructive ethical frameworks and principles from moral philosophy as complementary cognitive tools, rather than competitive ones, enables the most fitting response to respect life and well-being, and maximise fairness amidst competing interests. By breaking down
moral behaviour into the four components of moral sensitivity, moral judgment, moral motivation and moral character, moral development can be observed and measured, with the goal of improving these four components to address animal ethics issues.

The review showed that little has been done to develop measures of the four components of moral behaviour in relation to animal ethics issues and strategies for their development in veterinary and other animal-related disciplines, so that competency can be determined. This research aims to begin to address this significant gap in knowledge. Focussing on two of these components of moral behaviour in relation to animal ethics issues, the main objectives of this research were to:

- Identify a scientific approach to animal ethics education to inform the development of animal ethics competencies (Chapter 2)
- Design a measure and teaching strategies for developing moral judgment on animal ethics issues (Chapters 3 and 4)
- Identify and compare moral judgment on animal ethics issues in animal and non-animal related disciplines (Chapter 5)
- Identify relationships between moral reasoning and moral action choices (Chapter 6)
- Identify veterinary students’ perceptions of their moral sensitivity, moral judgment, moral motivation and moral action in relation to animal ethics issues and how these relate to their measured moral judgment (Chapter 7)
- Design a measure and teaching strategies for developing ethical sensitivity in relation to animal ethics issues (Chapter 8)

Quantitative rather than qualitative methods were identified as being most suitable for developing practical student assessment measures for teaching purposes and for comparability with existing measures related to human ethics issues. Some qualitative data were gathered using open ended questions to determine reasons for students’ preferences for different ethical decision-making strategies and to identify animal ethics concerns, actions students had taken and difficulties in addressing animal ethics issues. Integrating more qualitative research to assist with validation and interpretation of quantitative results would be useful for further research, particularly to develop understanding of the other two components of moral behaviour i.e. moral motivation and moral character.

This research focuses on undergraduate animal-related programs to enable development of moral behaviour towards animals in all students who work with animals. Due to the time constraints of a
doctorate, students from only one university were used, enabling comparison of different year levels and courses. Further research involving students from various universities, post-graduate students, veterinary teachers and practitioners should follow once the measures are designed and refined.

The first study involved developing and piloting a Veterinary Defining Issues Test (VetDIT), based on an existing Defining Issues Test which has been extensively used to assess moral judgment on human ethics issues. This involved selecting and adapting three animal ethics scenarios experienced by veterinarians, and developing questions to represent different moral reasoning schema. Three original DIT human scenarios were included for comparison. Chapter 3 reports on this study which involved 88 first year veterinary students from one Australian university. It also reports on students’ perceptions of the usefulness of three ethical decision making strategies which were also trialled - Mepham’s Matrix, Human Continuum and Preston’s Ethic of Response.

After refinement of the pilot VetDIT to produce VetDIT-Version 2 and the development of a Version 3 for use as a post test, comparability was established between the tests with 271 veterinary and animal science students, and the tests used to compare the effects on moral judgment of a three hour small group interactive workshop and a lecture format. A longitudinal comparison of moral judgment was also made between matched first and third year students. This is discussed in Chapter 4.

As no previous studies had been done to determine whether reasoning on animal ethics issues differs between students in animal and non-animal related fields, the VetDIT results of 386 first year students of veterinary medicine, veterinary technology and production animal science were compared with those of 145 first year students in human medicine and the arts. This is discussed in Chapter 5.

In Chapter 6, the relationship between moral reasoning and moral action choices was explored using the VetDIT scores of 646 students from seven groups of various year levels and disciplines from earlier studies.

Chapter 7 is a study of the responses of 148 first and fifth year veterinary students to a questionnaire focussing on the other three components of moral behaviour – moral sensitivity, moral motivation and moral action. These students’ VetDIT scores were used to identify relationships between these three components and moral judgment.
Based on an extensive review of ethical sensitivity research, an Ethical Sensitivity (ES) Assessment Tool was also developed, involving a set of questions to draw out the various elements of ethical sensitivity. This was trialled with 115 third year Australian veterinary students, along with various teaching strategies to develop ethical sensitivity. The results of this study are reported in Chapter 8.

Chapter 9 summarises the main findings of the thesis, their implications for development of capacities to address animal ethics issues, limitations of the research and possible future research directions.
1.1 REFERENCES


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CHAPTER 2 LITERATURE REVIEW

As identified in the introduction, this review investigates:

- What is animal ethics, and what are the differences between animal ethics, animal welfare, animal law, professional ethics in animal-related fields (veterinary ethics, bioethics, and agricultural ethics) and personal ethics/values?
- Is there a common scientific approach that can be used when developing animal ethics courses?
- What are the most important elements of ethical behaviour and how can these be measured?
- Does ethics education make a difference? If so what ethics education has been successful and may therefore be useful to help address animal ethics issues?
- What research has been done to identify, develop and assess the capacity of veterinarians and others in animal-related fields to address animal ethics issues, and how do they compare with those in non-animal related fields?

2.1 WHAT IS ANIMAL ETHICS?

When animal ethics is mentioned, a wide variety of responses indicate there is confusion about what ethics, and animal ethics, actually mean and therefore whether it is necessary or wise to include it in education programs. Some people hold the view "that "ethics" is first and foremost, a realm of theory and arcane formulations".¹ Some regard ethics, or morality, as a personal matter for individuals, so ethical judgements are "subjective" opinion and not "fact" (relativism), and thus not subject to rational discussion and adjudication.¹ As Rollin discusses, some argue that ethics is relative to the culture one happens to live in (cultural relativism), while others claim that there is a common social ethic across cultures (common morality or social consensus ethic).² It has also been suggested that ethics takes a universal point of view.³

Therefore to understand what animal ethics education should involve, it is necessary to take a step back to examine the differences between ethics, morality, animal ethics, and professional ethics in animal related fields i.e. veterinary ethics, bioethics, agricultural ethics. The relationship between animal welfare, animal legislation and animal ethics also needs to be clarified. Animal welfare is a relatively new science with less than one hundred scientists worldwide teaching and carrying out research in animal welfare on a permanent or semi-permanent basis in 2005.⁴ Similarly animal law
is relatively new in law programs internationally. While animal welfare is increasingly seen as a necessary science due to community concerns, and animal legislation in need of review and revision, animal ethics is often defined in a much narrower way to refer to the principles of reduction, replacement and refinement in the use of animals in research and teaching, due to legislated animal ethics committees who assess individual research projects.

2.1.1 What is ethics?

There are two central facts which create the ethical aspect of living. One “fundamental fact which shapes and necessitates the ethical life [is] our interconnectedness.” Every action we take (or don't take) has an impact on other living things. The second fact is that sentient beings have interests, which can be defined as capacities for suffering or experiencing pleasure or "growth and flourishing" i.e. "being engaged in the struggle for survival and prosperity". Our capacity to prioritise our own needs and interests, because we have more knowledge of these and because any decision will directly affect our own happiness, makes equal consideration of the effect of our decisions on others' interests difficult. "Often we have competing interests, beliefs, temperaments, and traditions which constrain the decision that a group settles on." Addressing such social complexity requires considerable knowledge, skill and will. This is the domain of ethics.

Two main frameworks of ethics to address such complex decision making are utilitarianism, founded on our interdependence and therefore our need to balance interests to create the greatest happiness, or well-being which denotes a balance of pleasure and pain, and deontology, founded on duty or obligation to act according to universal principles which protect each individual's interests in life and well-being. A third framework, virtue ethics, is founded on developing a moral character which through the moral virtues e.g. courage, perseverance, and benevolence is able to achieve “happiness”, interpreted from Aristotle as “a state of contentment, a life integrated happily with a sense of purpose, lived out in community”. The central ethical question is not “What ought we to do? but “Who ought we become?” A fourth perspective focuses on caring and relationships.

2.1.2 Ethics as a scientific discipline

While ethics as a discipline may involve studying the actual values or rules of conduct by which we live (i.e. descriptive ethics), normative ethics aims to guide our conduct and help us decide what we ought to do, and meta-ethics looks at the meaning of ethical terms, the nature of ethics and the
grounds for pursuing it. Preston argues that in a sense all ethics should be practical i.e. applied ethics, which draws on philosophical ethics but emerges more from an interdisciplinary field sometimes including the life sciences, the social sciences, and the humanities as well as the speculative sciences like philosophy and theology, and the hermeneutic [or interpretive] skills associated with them. Applied ethics seeks to have an effective impact at the level of social and personal practice. Thus in order to develop ways to address animal ethics issues, applied ethics is the main concern of this thesis.

A scientific approach to ethics involves the development and use of empirical knowledge involving observation of, and experiment with, cognition, behaviour and neuroscience. There has been some debate about whether ethics can be approached scientifically, due to the fact-value distinction, often defined as the naturalistic fallacy. Following Hume, the philosopher G. E. Moore declared that any attempt to locate moral truths in the natural world was to commit a “naturalistic fallacy” i.e. there is no logical connection between the natural “is” and the moral “ought”. However, MacIntyre argues it is likely that Hume may have been misinterpreted. Hume encouraged careful scrutiny of the religious morality of the time which was likely to jump from “is” to “ought” without foundation in human needs, interests, desires and happiness. Hume’s own reasoning about justice was that it was based on consensus of what are common interests. MacIntyre further argues that in the Middle Ages, morality was grounded in human nature, but that the Protestant Reformation changed this, assuming that because humans were totally corrupt, their nature could not be the foundation of morality, and so moral law became “a collection of arbitrary fiats unconnected with anything we may want or desire”.

A number of scholars have identified this foundation of ethics in nature. Bentham in the eighteenth/nineteenth century argued that “nature has placed mankind under the governance of two sovereign masters, pain and pleasure. It is for them alone to point out what we ought to do, as well as to determine what we shall do.” When effective benevolence is brought into the realms of Deontology, when the greatest good, the universal happiness, is made the central point round which all action revolves, the golden era of moral science will commence.” Daleiden also argues that the morality of behaviour is a function of whether or not it leads to furthering human survival and happiness, and as the kind of behaviour most conducive to happiness can be investigated empirically, therefore is a proper matter for science.
More recently, Harris\(^1\) has broadened the scope of a scientific approach to ethics arguing that morality and values relate to facts about the well-being of conscious creatures. According to Harris, the split between facts and values is an illusion in at least three senses:

1. Whatever can be known about maximising the well-being of conscious creatures must at some point translate into facts about brains and their interaction with the world at large;

2. The very idea of “objective” knowledge (i.e. knowledge acquired through honest observation and reasoning) has values built into it, as every effort we make to discuss facts depends upon principles that we must first value (e.g. logical consistency, reliance on evidence, parsimony);

3. Beliefs about facts and beliefs about values seem to arise from similar processes in the brain: it seems we have a common system for judging truth and falsity in both domains.\(^{15}\)(p.11)

He argues that there is no difference between tackling morality as a science than any other of the areas regarded as sciences, such as physics and medicine. For example, medicine also has difficulty defining broad terms such as health and there will be those who ignore or view health differently, just as in ethics defining well-being may be difficult, ignored or viewed differently. Nevertheless, just as there are ways to identify better and worse health, there are ways to identify better and worse well-being. Human and animal well-being are natural phenomena. As such they can be studied in principle with the tools of science and spoken about with greater or lesser precision. \(^{15}\)(p.41)

Scientific methods can also be used to study and develop ethical behaviour. Solomon outlines how empirical ethics research can help to move an individual or organisation from moral vision and ethical analysis to ethically justifiable behaviour by recognising which moral principles are most at stake in given contexts, understanding why there is a gap between ethical policies and actual practice, revealing the nature of individual moral reflection and level of personal skill at ethical analysis, providing data which stimulates individual and institutional moral accountability. In addition new normative concerns can be generated by identifying and documenting moral problems and identifying causes so they may be earlier addressed.\(^16\) For example, Solomon’s research showed that physicians’ responses in interviews revealed an unfamiliarity with ethical concepts and forms of ethical analysis that could have helped them work through their choices confronting them and their patients, that they felt they had to conceal concerns about the wisdom of pursuing aggressive life supports, and gave considerable evidence that they were turning themselves into technicians whose only job was to offer facts and let patients and families come to decisions much on their own\(^{16}\) (p.42)
2.1.3 What is animal ethics and how does it differ from animal welfare and animal law?

Based on this scientific view of ethics, animal ethics can be defined as what humans should do to enhance survival and well-being of all sentient beings. Sandoe et al. identify: "That humans have ethical duties to animals is an assumption that underlies the study of animal welfare. There would not be much point in studying how animals fare in livestock production systems, for example, if we did not think that humans had any duty to look after animals in their care." However once we know, or have identified what we don't know yet, about what animals want, we still need to decide what to do.

Animal welfare is defined in this thesis as an animal’s physical and psychological state with respect to the quality and quantity of its experiences in its environment. Animal welfare science is the intellectual and practical activity encompassing the systematic study of animals' physical and psychological states in relation to their environments, through observation and experiment. The purpose is to identify what individual animals need (to remain alive and healthy) and want (preferences). As a field of study, animal ethics is therefore defined in this thesis as the intellectual and practical activity encompassing the systematic study of what humans should do in relation to animals’ needs and wants, and how to develop this moral behaviour amidst conflicting interests. In his Foreword to the veterinary textbook, "Ethics of Animal Use", Rollin argues: "With the proliferation of societal interest in animal issues, partially as cause and partially as effect, has come a significant philosophical literature on animal ethics. It is incumbent, therefore on any educated citizen, and particularly those who are involved in animal-using industries, to understand, at least at a basic level, the debate over the ethics of animal use, the various philosophical positions, that have been proposed in this area, and the ethical issues occasioned by the multifarious uses of animals in society." However, more than that, this thesis investigates how animal ethics can develop human ethical behaviour for ethical action, particularly in animal-related professions which are more regularly exposed to animal use and therefore have more opportunities to prevent and address ethical issues.

Just as welfare informs ethics, ethics informs law. However, success at getting a law into place depends on many variables and relies on the existing social structure. “Over time laws may undergo modification for many reasons, some that serve the interests of a powerful subgroup, some that serve the well-being of the group as a whole and some that reflect the psychiatric delusions of a manipulative despot.” Thus the law should be subject to continual ethical critique. Some of the most respected figures in human history such as Mahatma Ghandi, Nelson Mandela, Aung San
Suu Kyi and Emmeline and Christabel Pankhurst are those who have defied laws out of respect for the well-being of others and justice principles. The rapid expansion of animal law reflects the social struggle to ensure that laws reflect these principles in relation to animals.

2.1.4 *How does animal ethics fit with professional ethics?*

In ethics courses, professional ethics is often a focus. "The word "profession" means "to testify on behalf of" or "to stand for something" and is thus more akin to a vocation with an intrinsic commitment to the public good and a strong emphasis on community service." Preston suggests that professional education can encompass micro or macro concerns. Micro concerns may encourage the virtues of a good professional in terms of their qualities e.g. honesty, trustworthiness often aligned with a professional association's Code of Ethics. Macro concerns however seek to address the wider picture of the moral duties of the profession to address ethical concerns.

Longstaff distinguishes ethics education from ethics training in that the former fosters moral autonomy i.e. the capacity to maintain one's own ethos, whereas the latter fosters the capacity to maintain an organisation's ethos. While ethics training might appear to meet most of the organisation's objectives, fostering autonomous moral agency shows respect for persons to be able to make their own moral decisions. Moral autonomy is a critical factor in all people to overcome social injustices. Sampford believes that loyalty is not a virtue unless it is in the widest frame of reference to justice and the common good.

Within professional ethics in animal related fields, numerous separate disciplines have developed including veterinary ethics, bioethics and agricultural ethics, all of which encompass or overlap with animal ethics. In the first book on veterinary ethics, published in 1989, Tannenbaum defined "veterinary ethics" as a subset of "animal ethics" which he defined as the broader range of ethical issues relating to animals e.g. whether people have a moral obligation to protect endangered wildlife, whether it is morally acceptable to wear fur. He acknowledged that "there are important issues in veterinary ethics that cannot be tackled without venturing into the larger and sometimes more difficult realm of animal ethics", and that "we must expect discussions and conclusions in veterinary ethics will be revised and refined as we develop greater sophistication in animal ethics". He identified the following challenges in relation to animal ethics:

- Elevation of the status of companion animals
- Importance of the human side of the human-animal bond
The advent of high-tech veterinary procedures
- The role of food, farm and sport animal practice
- The emergence of animal welfare science
- Animal activism and challenges to traditionally accepted uses of animals. 23(p.7-10)

Bioethics is a relatively recent field of academic inquiry that deals with the ethical, legal, social and cultural implications of the biosciences and their application in biotechnology such as cloning and genetic modification (animal ethics issues) and use of DNA for crime detection or management of human genetic information (human ethics issues). 24

Many of the ethical issues in agriculture are animal ethics issues e.g. socioeconomic issues such as animal welfare and food safety, agricultural bioethics issues such as reproductive technologies, and genetic engineering of farm animals, animal productivity promoters, patenting of transgenic species, and the effects of agricultural technology on animals. Zimdahl 25 found only 15 universities or land grant colleges that had a course or included agricultural ethics in the USA in 1998/9. When he developed an agricultural ethics course in 1993 at his own university, he found much of the Curriculum Committee's concern was "that agriculture was faced with many serious challenges and students should not be led astray by the wrong answers to these difficult but undeniably important questions." 25(p.230) Zimdahl offered six reasons for why agricultural ethics was not being taught, identified here to provide insight into some possible issues with development of animal ethics courses for veterinary and animal science generally:

1. Agricultural scientists lack education in ethics
2. Agricultural scientists lack institutional and disciplinary incentives to reflect on their work and its effects.
3. Lack of administrative leadership due to lack of awareness of the advantages of teaching and understanding agricultural ethics.
4. Continuance of the prevailing assumption that agriculture is inherently ethically correct.
5. The felt necessity by agricultural scientists to defend themselves against what are perceived to be unjust and inaccurate criticisms of agriculture.
6. A reluctance to engage in ethical reflection because it may raise more problems than it solves. 25
2.1.5 How does animal ethics fit with personal ethics/values

Personal ethics or values differ based on the influence of our unique experiences and families, friends, community, and country. This can lead to a belief in ethical relativism i.e. that what is right or good is relative to the particular circumstances of cultures, groups or individuals, and that there are no objective ethical standards. Rollin explains an "ethical relativist is a person who believes that there are no objective ethical truths, that everyone's opinion is equally valid. He argues against ethical relativism, firstly because the relativist argument is self-defeating. If all ethical positions are equally valid and true then the absolute correctness of the view that ethics is relative cannot be asserted. Secondly, Rollin argues that the presence of multiple approaches to morality does not itself suffice to prove that there is no "true" ethic. As ethics is based on interdependence and the biological desire of all sentient beings for survival and well-being, we can judge different values by their capacity to fulfil this criteria. "A logical and common feature of ethics is being able to take a universal point of view. Ethics requires us to go beyond "I" and "you" or our own partial or sectional group to the universalisable judgement, the standpoint of the impartial spectator or ideal observer."  

Preston suggests that while we may classify ethical issues as matters of personal, professional and social responsibility, the links between them must not be overlooked. Our personal and professional roles can never be divorced from social responsibility and wider impacts on family life, the environment, and social justice. "Moral integrity demands consistency in motivation and action across the various spheres of one's life."

2.2 WHAT INFLUENCES ETHICAL BEHAVIOUR?

2.2.1 Philosophical perspectives of moral behaviour

Considerable debate has occurred about which of the main ethical frameworks developed by philosophers over centuries is best as a basis for moral behaviour. While Singer believes the awareness and capacity to identify the needs of others is basically utilitarian theory i.e. weighing up the interests of all those affected by my decision and adopting the course of action most likely to maximise those interests, he acknowledges that "it is simply not practical to try to calculate the consequences, in advance, of every choice we make. Even if we limited ourselves to the more significant choices, there would be a danger that in many cases we would be calculating in less than ideal circumstances." For this reason, Hare suggests it will be better if, for everyday life, we
adopt some broad ethical principles that experience has shown over the centuries to be generally conducive to producing best consequences, and do not deviate from them. Hare argues that it is wrong to think that a duty/rights based approach and a utilitarian approach, which requires a search for the greatest well-being for the greatest number, have to be at odds. Both hold us to giving equal respect to another's ends as if it were our own. Singer argues there is a rational link between the two within the wide range of ethics theories that are all compatible with the notion of universality.

Similarly, Beauchamp, on whose four principles (respect for autonomy, nonmaleficence, beneficence and justice) medical ethics has been largely based in recent years, also argues that there are universal moral standards. Beauchamp defines the "common morality" as the set of norms shared by all persons committed to the objectives of morality, which are promoting human flourishing by counteracting conditions that cause the quality of people's lives to worsen. Beauchamp states that the "common morality" is applicable to all persons in all places, and all human conduct is rightly judged by its standards. Virtually all people in all cultures grow up with an understanding of the basic demands that morality makes upon everyone e.g. don't kill, don't cause pain or suffering to others. Beauchamp also lists examples of moral character traits (virtues) recognised in the "common morality" e.g. nonmaleficence, honesty, integrity, conscientiousness. Beauchamp contends that these virtues are universally admired traits of character. Beauchamp and Childress argue that: "Although it cannot be dogmatically asserted that moral norms in the common morality cannot change, it is difficult to construct even a single actual or plausible hypothetical example of a moral principle in the common morality that has been valid only for a limited duration." However, Beauchamp and Childress do acknowledge that the scope of the application of the common morality does change. Over time we have radically altered our response to the question: "Who qualifies as belonging to the moral community?" They offer the example that research animals might be incorporated into the moral community so that research involving animals comes to be conducted under the same principles and rules as research involving human subjects.

Preston also argues that all the widely accepted ethical frameworks have something valuable to contribute to our ethical decision making. Drawing on the strengths of the main theories rather than their differences, he has created an ethical decision making model, the Ethic of Response, which takes seriously the claims of duties, rights and principles, as well as utility, together with the perspective of virtue theory and the feminist care ethic. The organising concept of this model is one of "responsiveness" based substantially on the approach of the American moral philosopher, H
Richard Niebuhr who believed that: “We live as responsive beings not only in the social but also in the natural world as living–giving or death-dealing”. Niebuhr argues ethics is about survival in a large scheme of existence whose end is nothingness, and that we respond to actions upon us as supporting or denying our physical, spiritual or social existence. Just as science seeks to interpret each particular occasion by reference to more general patterns so that the movement is toward the universal, in ethics the responsible self is driven by the movement of the social process, to find the most fitting response with reference to the future and the past in “a universal society of being”.

Our conscience is a function of this existence as a social being, “examining our own conduct as we imagine a fair and impartial spectator” would.

Preston acknowledges that his attempt in the Ethic of Response to straddle contrasting normative positions invites critique and "its comprehensiveness (which is one of its many virtues) surely requires super-human powers of judgement, knowledge and discernment." However, he questions whether there is any alternative. "Such a demanding process is necessary if we are to live by an ethic which respects human autonomy and reason, as well as the complexity of the human condition.”

2.2.1.1 Other Ethical Decision Making Models
Other ethical decision making models include some ethical frameworks, but have less focus on combining all ethical frameworks to find the most fitting decision in the context of a universal society of being. Drawing on the strengths and weaknesses of twenty health care models for ethical decision making published between 1976 and 2010, Park developed an integrated model with six steps as follows:

1. State an ethical problem
2. Collect additional information and analyse the problem
3. Develop alternatives and analyse and compare them e.g. using ethical principles of nonmaleficence, beneficence, patient autonomy and justice
4. Select the best alternative (with which most parties are satisfied) and justify your decision
5. Develop strategies to successfully implement the chosen alternative and take action
6. Evaluate the effects of any chosen action (p.x)

Mullan and Main describe a simplified version of key steps to use in ethical dilemmas faced by veterinarians:
1. Identifying possible courses of action
2. Consideration of all interested parties
3. Formulating an ethical decision, using deontological and utilitarian frameworks and the four principles listed above
4. Minimising any negative consequences of the decision.

In this model, “options which fail to adhere to the law or a professional code will be discounted at an early stage” 32(p.398), thus ethical decision-making is subservient to the law or professional code. Consideration of animal welfare interests are based on the five freedoms (freedom from thirst hunger and malnutrition; pain injury and disease; fear and distress; physical or thermal discomfort and freedom to perform most normal forms of behaviour), plus the severity, duration and numbers of animals affected by any decisions. This focus is on avoiding negative states, rather than on experiencing life and well-being.

The reflective equilibrium method of moral reasoning is used in teaching veterinarians in Utrecht University 35 to address veterinary and animal ethics issues regarding the human-animal bond. It is a coherence method i.e. the beliefs one holds can be shown to be right only if they cohere well with other things one believes. No set of moral norms is privileged. If beliefs clash, we can try to render our beliefs coherent by revising at least one of the clashing beliefs. Intuitive judgements are taken seriously but must also be coherent with more general reflective beliefs.

In the above models there is no clear structure for negotiating the various ethical frameworks and principles to find the most ethical option. For the psychology and counselling profession, Kitchener and Anderson 33 present a hierarchical model of ethical justification - from immediate intuitive moral response, to professional codes and laws, to ethical principles, to ethical theory, to meta-ethics, which can be consulted in sequence within the basic decision-making structures similar to those above. Mepham's Ethical Matrix 34 developed for bioethical issues is another conceptual tool which does offer a structure and process for rating a particular action choice, using principles based on the common morality. However while the Ethical Matrix provides an understanding of the issues confronting various stakeholders on a specific action, Mepham explains that it does not make it possible to automatically arrive at a unique course of action, for two reasons:

1. Different individuals may assign different weights to different principles and to the evidence.
2. It does not assess overall acceptability because such a judgement would be dependent on available alternatives. Ethical analysis usually entails comparing two situations i.e. the current situation and the situation if a proposed action takes place. However neither might be ethically acceptable by comparison with a third option which has not been investigated.34

2.2.1.2 Including animals in the scope of universal morality

Preston argues that we have ethical obligations because our lives take place in a web of interdependent relationships understood in a biocentric (life-centred) rather than an anthropocentric (human-centred) way i.e. "I am ultimately responsible to all living beings in the cosmos".5 To address the need for "appropriate values and principles" so that the ethic cannot be easily manipulated into relativism and subjectivism, Preston includes three values or principles which are widely endorsed by a range of ethical approaches:

- The respect for life principle – this extends beyond human beings to other forms of life in our biosphere and the cosmos; such respect is especially considerate of the rights of sensate beings. This principle requires that conflicts involving choices about life (including the initiation and termination, or the environmental threat to earth’s balance of life) are treated with the maximum possible care.

- The justice principle i.e. be fair by giving priority to considering the interests of the most disadvantaged and also future generations. "It invokes the adage: "there is nothing so unequal as the equal treatment of unequals", thereby endorsing positive discrimination in certain instances ... implying sacrifice by the most advantaged in the development of a more inclusive society."5

- The covenantal integrity principle. This involves truthfulness and honesty in all our relationships, the importance of self-consistency and inner integrity for moral agents, as well as the supreme importance of promise keeping.5(p.75)

While Preston acknowledges that there is the possibility of conflict between such values, these value guideposts have a claim to priority consideration in the ethic of response.

Similar to Preston’s respect for life principle, Schweitzer36 argued that the basic principle of ethics is devotion to all life in the world resulting from “the reverence felt by my will-to-live for every other will-to-live”.36(p.325) He comments in relation to the views of such philosophers as Descartes, Wundt and Kant that “European thinkers watch carefully that no animals run around in the fields of
their ethics,” while Indian and Chinese thought make ethics more kindly to animals, although often in a passive way. He argues that to make progress in ethics “one must become ruled more and more by the longing to preserve and promote life, and more and more obstinate in resistance to the necessity for destroying or injuring life.” He argues for a subjective approach, taking responsibility for all life in our reach, he is derisive of abstraction and encourages becoming less rational to develop an ethical disposition, keeping each other sensitive to what distresses us, by talking and acting together, allowing problems which seem insoluble to become soluble. He argues: “I can never unite the ethical and the necessary to form a relative ethical; I must choose between ethical and necessary, and, if I choose the latter, must take it upon myself to incur guilt by an act of injury to life.”

In animal ethics, many ethics arguments and frameworks have been developed to justify inconsistencies in respect for life in relation to animals, particularly in relation to the “common morality” principles applied to humans of "don't kill" and "don't cause pain and suffering." Contractarian, relational and respect for nature ethics all provide different reasons for ignoring all or some individual animals’ interests in life and well-being. At the other end of the spectrum, it has been argued that “claims about rights, whether for humans or animals, are divisive, because rights are not the foundation of our moral obligations”, but are based on concern for the interests of all those affected by our actions, which can be achieved through the perspective of “the impartial spectator”, or Kant’s idea of ensuring that the maxim of your action can be willed as a universal law or the more ancient “golden rule”.

Despite increased interest in animals’ interests, animals’ interests in life are often ignored. Bentham justified killing animals, claiming “their pains do not equal our enjoyments – there is a balance of good”, even though he is frequently quoted for his stance against deliberately causing animals suffering: “Who shall draw the line, - and where is it to be drawn between the gradations of animal life, beginning with man, and descending to the meanest creature that has the power of distinguishing between suffering and enjoyment?” However, the acceptability of killing animals for human use based on the argument of human’s seemingly superior rationality and self-consciousness has become more tenuous. Singer argues that a strong case against killing of chimpanzees, gorillas and orang-utans already exists based on their mental capacities, and an argument for extending the benefit to a secondary category which includes whales, dolphins, monkeys, bears, cattle and sheep and perhaps all mammals can be made, depending on how far we are prepared to go in extending the benefit of the doubt. Some scientific research suggests
honeybees may belong in this second category as well.\textsuperscript{38} Francione goes further than the position of Singer and Bentham by questioning the need to identify consciousness: “Any being that is sentient has an interest in life, because sentience is a means to the end of continued existence. To say that a non-human is sentient but does not have an interest in continued existence and does not prefer, want or desire to live is peculiar.” \textsuperscript{39(p.144)} Sapontzis also defends animals’ interest in life itself, regardless of proof of similar levels of consciousness, through this analogy: “Since life is a necessary condition for experiencing pleasure, death is of negative value for children even though, like animals, they do not understand what “death” is. Just as something can be in someone’s interest even though s/he takes no interest in it – because it impacts her/his well-being without her/his knowing this – so something can be of value for someone without her/his evaluating it.”\textsuperscript{40}

In reviewing the history of the moral status of animals in western philosophy, Steiner\textsuperscript{7} argues for developing a sense of the necessary complementarity of the capacities (the capacity to flourish and realise “ends”) and kinship approaches (our commonality as purposive creatures in the struggle for existence and flourishing who can fare well or ill) to animal ethics. Further, De Waal argues that while Huxley "saw human ethics as a victory over an unruly and nasty evolutionary process (Huxley 1989 [1894])\textsuperscript{41(p.7)}, a "Veneer Theory" that morality is only a thin veneer overlaid on an amoral or immoral core, rather than nature and culture being a well-integrated whole (a view supported by Hobbes (1991 [1651] and Freud (1961 [1930]), his own research with non-human primates supports the view of Darwin (1982 [1871], Westermarck (1912 [1908], 1917 [1908], Kropotkin (1972 [1902], Trivers (1971) that "morality is a direct outgrowth of the social instincts we share with other animals", where “morality is neither unique to us nor a conscious decision taken at any specific point in time: it is the product of social evolution.\textsuperscript{41(p.6)} Thus animals have been identified as not only being in the sphere of moral concern, but as part of the moral community relying on cooperation and demonstrating a range of retributive emotions such as resentment and anger, and pro-social emotions such as empathy, sympathy, and altruism. The following section argues that there appears to be a neurological basis for this.

\subsection{Neurological perspectives of moral behaviour}

Advances in the biological and social sciences have made it possible to explore the connections between morality and the evolution of the mammalian brain. The origin of morality or ethics seems to be survival and well-being. Churchland\textsuperscript{8} argues that in all animals, nervous systems are organised to take care of the basic survival of the body they are part of. Self-caring is selected over self-
neglect. She hypothesises that an extension of self-caring to caring for others typical of mammals depends on the neural-body mechanisms that "maternalise" the female mammalian brain, which in turn depends on oxytocin, a very ancient chain of amino acids found in all vertebrates, and arginine vasopressin, along with other hormones. Tending to an infant is rewarding; it feels good. By contrast, anxiety levels rise when an infant is crying, taken away or is suffering and this feels bad. Once in place, the modification that yielded caring for offspring could be further modified to yield caring for others that are not offspring.\(^8\) Both the insula, which appears essential for the nastiness of pain, and the anterior cingulate cortex which dominates the motivational (do something) aspect of pain, respond to physical pain, but they also respond to social pain, triggered by separation, exclusion, or disapproval, and to pain resulting from errors and poor predictions.\(^42\)

As we grow up we get approval for conforming to, and disapproval from transgressing against, social practices, and we feel pleasure or pain accordingly.\(^43\) Early moral learning is organised around prototypes of behaviour, and relies on the reward system to make us feel emotional pain in the face of some events (e.g. stealing) and emotional joy in the face of others (e.g. rescuing).\(^44\) Thus what is learned regarding what is right and wrong can have such a strong emotional effect that it can appear to be absolute and rational, with substantial inertia to change; and individuals can risk quite a lot, sometimes even their lives, in defence of the group, or for a principle or even the idea of heaven, while others’ practices may seem barbaric and irrational.\(^8\) Our conscience when viewed as strong feelings of right and wrong is in keeping with what we know about social learning i.e. given normal neural networks, the pain from being shunned and the pleasure of belonging, along with imitation of those we admire, gives rise to powerful intuitions about the absolute rightness and wrongness of behaviour. "This inner voice of conscience is sensitive to advances in knowledge and to maturing experiences ...more like auditory imagination, aided by visual imagination of the consequences of a choice, generated by the brain as it exercises its problem solving capacity, rather than like the pure pronouncements of a brain-independent, metaphysically separate Platonic storehouse of moral knowledge."\(^8(p.193)\) Thus Churchland concludes that “our brains, and the brains of animals generally, are organised to value survival and well-being”.\(^8(p.189)\) She too rejects the Naturalistic Fallacy on the grounds that our perceptions are permeated with value, and so there is a relationship between nature and what is good, though it is complex, just as the relationship between nature and health is. “Morality seems to me to be a natural phenomenon – constrained by the forces of natural selection, rooted in neurobiology, shaped by the local ecology, and modified by cultural developments.”\(^8(p.191)\)
So from both philosophical and neurological perspectives, morality seems to be a natural phenomenon based on our innate physical structure designed to favour our own and others’ survival and well-being. How we do this is programmed in many different ways by the particular society in which we develop, and as the rules of societies may not be developed in the best interests of everyone’s survival and well-being, individuals can develop beliefs which are in fact unethical.

2.2.3 Psychological perspectives of moral behaviour

In the 1950's behaviourism dominated psychology and the dominant view of moral development was socialisation. "Moral development was a matter of learning the norms of one's culture, of accepting them and internalising them, and of behaving in conformity with them." Kohlberg theorised that it was the individual who determines right and wrong. The individual interprets situations, derives psychological and moral meaning from social events, and makes moral judgements. Kohlberg argued that sometimes conformity to social norms was morally wrong e.g. Adolf Eichmann, dutiful administrator of the Nazi concentration camps; and non-conformity is morally right e.g. Martin Luther King defying legal authorities to address racial discrimination.

2.2.3.1 Moral Judgement

Kohlberg emphasised moral judgement as the most interesting process of moral development. Like Piaget, he focussed on cognition and assumed there would be sequential stages of moral development. His three levels were originally based on Dewey's philosophy of impulsive, group forming and reflective stages of moral development. However throughout his life, Kohlberg made changes in his approach. There are also similarities with Rawls' Theory of Justice stages of morality i.e. morality of authority, morality of association, and morality of principles, based on ever-widening and more complex levels of cooperation from child/parent, to school/neighbourhood and finally to the wider world of complex institutions which necessitate a move to more principled thinking to balance the needs of unfamiliar parties, beyond the subjective caring for family or groups one knows.

The following is a summary of Kohlberg’s six-stage hierarchy of moral development:

Level I: Preconventional
Stage 1: Egocentric Orientation. Individual is motivated by obedience to authority figures and avoidance of punishment. Doesn't consider interests of others or see more than one point of view.

Stage 2: Instrumental Orientation. Self-interested and exchange-oriented: "You scratch my back, and I'll scratch yours."

**Level II: Conventional**

Stage 3: Interpersonal Conformity. Individual does good deeds to gain approval and meet expectations of own social group: "Do unto others as you would have them do unto you."

Stage 4: Social Order Orientation. Rule and law-oriented. Conforms to maintain status quo (social or religious). Fears a breakdown of the system if enough people do wrong.

**Level III: Postconventional**

Stage 5: Social Contract Orientation. Individual respects others' rights and is aware that people hold a variety of opinions and values. Recognizes some universal rights like life and liberty. Realizes that law and morality sometimes conflict.

Stage 6: Universal Principles Orientation. Follows self-chosen universal principles of justice, such as equality and dignity of all human beings. When laws violate these, individual follows the principles.

### 2.2.3.1.1 Measures of Moral Judgement Development

A range of general assessment measures for moral development have been developed. However, the methods which have been used most frequently are the Moral Judgement Interview, the Sociomoral Reflection Measure and the Defining Issues Test.

**The Moral Judgement Interview**

Kohlberg's method of gathering data to investigate his theory was a Moral Judgement Interview (MJI). He devised moral dilemmas, asked subjects, ranging in age from children to adults, to decide on a course of action and then interviewed them to determine how they came to their chosen solution. He reinterviewed the same subjects over three year intervals to determine if people do change in their processes of making moral judgements.49
Sociomoral Reflection Measure

An alternative dilemma-free measure which has been used quite extensively is the Sociomoral Reflection Measure. Its Short Form consists of a questionnaire of 11 items, scoring manual and self-training materials for achieving reliable, valid and accurate stage scoring. It has been used in at least 75 moral judgement studies in 23 countries and group administered to children as young as 8 or 9. The results of this 2007 database were used collectively with the results from Snarey's database of 45 Kohlberg Moral Judgement Interview studies conducted in 27 countries to review Kohlberg's universality claims of moral development across cultures. The study led to the conclusion (as did the DIT) that: “Kohlberg was in principle correct regarding universality of basic moral judgement development, moral values, and related social perspective taking processes across cultures.”46(p.491)

The Defining Issues Test

As a simpler means of empirically validating the theory of stage development than Kohlberg's interview method, Rest developed the multiple-choice Defining Issues Test (DIT) in the 1970's. Rather than the subject having to produce reasons for a particular line of action in a given moral dilemma, which has been criticised for placing "a high premium on the ability [of the subject] to generate arguments, verbally represent complex arguments and talk like a moral philosopher"49, the subject evaluates 12 items to indicate the level of importance of each item for consideration in making a decision on a 5 point Likert scale and then ranks the four most important of the 12 items. The items are written as fragments of ways of thinking about the dilemma, which represent the 3 levels and six stages identified by Kohlberg. 45

Rather than Kohlberg's stages, Rest focuses on three overlapping schema:

- Pre-conventional or Personal Interest
- Conventional or Maintaining Norms
- Post-conventional or Universal Principles

His Postconventional Schema differs from Kohlberg's in that it is not defined in terms of any single moral philosophy. This was to avoid criticisms of Kohlberg's highest stage which focussed on justice and thus a lack of emphasis on care, and other moral frameworks. However in his latest work, Kohlberg also identified that where the application of both utilitarian and deontologic principles led to the same choice or consensus between different choices by Stage 5 subjects, that choice could be considered the more moral in a universal sense i.e. if we were to put that action to the test we would expect to find that it protects rights and extends welfare more than any other competing action would.50 Rest's ideals may be any of the moral principles proposed by various
philosophers as long as these principles are not self-serving at the expense of others, respect others, serve group goals and further cooperation and the common good e.g. the greatest good for all, guaranteeing minimal rights and protection for everyone, engendering caring, and mandating fair treatment.49

A developmental score is based on ratings and rankings of 72 items over six stories requiring moral judgement. Rest reformulated Kohlberg’s six stages into three schema because the empirical findings from the DIT clearly support only three in its capacity to describe the developmental aspects of moral judgement. The most commonly used score has been the Post Conventional or Principled Score (P Score) based on the number of times the subject picks a Stage 5 or 6 item. However the subject can also be scored on their ranking at the Pre-Conventional or Personal Interest Stages 1-3, and the Conventional or Maintaining Norms (law and order orientation) of Stage 4.

In 1998 the Defining Issues Test was updated by streamlining the instructions, and shortening to 5 items, and developing a new index called the N2 index to integrate the relationship between choices of Post-Conventional reasoning (the highest stage) and Pre-conventional reasoning (the lowest stage) into one score. It involves:

a. the extent to which the subject ranks in top place the postconventional items (virtually identical with the P Score; and
b. the difference in rating of items of Stages 2 + 3 from Stages 5 + 6.49

The difficulty with designing the DIT is that the researcher has to choose develop and validate items which are designed to represent different stages of moral judgement, or as Rest defined them, different conceptions of organising cooperation. Rest and his colleagues Bebeau, Narvaez and Thoma chose to maintain the Defining Issues Test in the same form for more than 25 years, to enable comparability across studies, and for reliable empirical findings based on systematic validation, based on the belief that a test for moral judgement should satisfy the following criteria:

1. Differentiate groups assumed to be of greater or lesser expertise in moral reasoning (e.g. moral philosophers are expected to show higher scores than junior high school students)
2. Show significant upward change in a longitudinal study
3. Be sensitive to interventions designed to improve moral reasoning (show pre and post test gains on moral education programs)
4. Show evidence of a development hierarchy (i.e. that higher is better or more advanced)
5. Significantly predict to real-life moral behaviour
6. Significantly predict to political attitudes, political choices and the way in which a person participates in the larger society
7. Have adequate reliability\(^{(p.61)}\)

The construct validity criteria above were confirmed by a wide variety of studies from many different researchers, and composites of these studies, through the scoring service provided by Rest and colleagues at the Centre for the Study of Ethical Development at the University of Minnesota (since moved to the University of Alabama). Rest and colleagues were also able to compile a large sample of 45,856 DIT's scored between 1989 and 1993 from many researchers (over 800 studies). These studies\(^{(49)}\) confirmed that:

a. Post conventional reasoning exists. While Kohlberg was unable to find empirical evidence through his Moral Judgement Interviews of Stage 6 and only limited evidence of Stage 5\(^{(51)}\), the postconventional scores on the DIT were approximately normally distributed and plentiful.\(^{(49)}\)
b. Average DIT ratings for post conventional reasoning increased from less expert groups e.g. junior high school students to more expert groups i.e. graduate students in philosophy/political science
c. In longitudinal studies, the level of formal education is the strongest predictor of DIT scores.
d. In intervention studies, significant but modest effect size of + 0.41 were found for "dilemma discussion" interventions, compared with an effect size of + 0.09 for control groups. Intervention that showed the lowest gains were traditional academic courses e.g. history, social studies and literature. Older groups showed greater change than younger groups in intervention studies. Intervention studies shorter than 3 weeks did not produce significant gains on the DIT.
e. Higher DIT scores are associated with higher comprehension of moral concepts, ego development, and reflective judgement, and with better recall and reconstruction of moral argument in narratives (showing greater cognitive capacity for high Post-conventional scorers).
f. Higher DIT scores are linked with more desired behaviour e.g. more pro-social behaviour or highly valued job performance in relation to delinquency, experimental measures of cheating, cooperative behaviour, whistle blowing on misdeeds at work, mock jury trials, nurses' decisions about medical care, coaches' ratings of aggression amongst athletes, and clinical performance of medical interns, teachers' perceptions of classroom discipline, and accountants' perceptions of management's competence and integrity. 32 out of 47 studies were statistically significant with the strength of association between moral judgement and behaviours typically accounting for between 5% and 20% of the variance. This relatively low association level has led to Rest's analysis of the moral behaviour literature to determine what else contributes to moral behaviour apart from moral judgement (discussed below).

g. DIT scores are strongly and consistently associated (sometimes up to 40%) with measures of political attitude and choice in studies spanning the 1970's to the 1990's.

While other moral judgement measures exist, Rest's Defining Issues Test (DIT) has been the most prominent and frequently used by researchers. The DIT has convergent-divergent validity i.e. it correlates in the 0.6 – 0.7 range with other measures of moral thinking i.e. MJI, Comprehension of Moral Judgements test. The DIT is not correlated with Social Desirability and most other personality trait measures. The DIT is moderately correlated with aptitude and IQ measures (0.2 to 0.5 range generally) and Rest states that a modest correlation would be expected due to the cognitive nature of moral judgement. Criticisms of the DIT have included claims that the DIT is simply another way of measuring verbal ability, political bias and religious beliefs. Rest et al. countered these criticisms, citing controlled studies that indicate that the DIT still produces significant trends, after controlling for verbal ability and political attitude and religious ideology. High correlations between the DIT and political attitudes do not mean that they are the same thing, as there are many facets to political identity in both left and right wing political groups and these can be at the maintaining norms or the post-conventional stage. However Rest does state that development in moral judgment is accompanied by shifts in political attitude due to conservative politics being more supportive of authority and established practices and liberal politics being more congenial to post-conventional thinking. Similarly, there is a significant correlation between people with high scores on religious fundamentalism and maintaining norms stages, but Rest claims they are not measuring the same thing. Many people of faith have a postconventional understanding of their religion and its moral
meaning for their lives e.g. Niebuhr and Tillich and divisive splits have occurred in religious denominations and public policy based on the bipolar construct of orthodoxy/progressivism.

Some remaining criticisms of the DIT include its cognitive bias, limited applicability to micro-morality and lack of attention to moral judgment development in childhood, due to the reading level required. Narvaez, Bebeau and Thoma have acknowledged that, while the special function of moral judgment is to provide guidance for action choice amongst conflicting moral claims, there are other constructs (i.e. the other three components of the Four Component Model, discussed below) that deal with the affective aspects such as compassion, acceptance of responsibility and motivation to do what moral judgment has determined is the right thing, and courage and perseverance to carry out the moral action. They argue that Kohlberg’s theory is more illuminating of macro-issues than micro-issues because it involves considering cooperation at a society level involving not only relatives and friends, but strangers, competitors, diverse clans, ethnic groups and religions. They acknowledge that the DIT is only applicable from ninth grade or approximately 12 years of age, and therefore cannot help with the growing research on early childhood development of morality but that this does not necessarily invalidate Kohlberg’s claims about adolescent conceptions of morality. However they also do not advocate the DIT as the ultimate solution to morality research and have expanded their research to include intermediate concepts of morality such as informed consent, due process, whistle blowing, and intellectual freedom in various professions, as well as a third more concrete level of codes of ethics. Narvaez has continued to explore the roots of moral capacities and, increasingly, the power of early experience in moral development.

2.2.3.1.2 What education influences moral judgement development?
A review of 33 moral judgment studies in medicine, law, and veterinary medicine confirms many individual reports showing that professional school educational programs do not promote moral judgment development unless the program contains a well-validated ethics curriculum. What has been found to be effective is direct teaching of moral judgment development theory and application of role taking and justice theory emphasising the central importance of the well-being of the individual and a universalizable morality. Penn conducted comparative intervention studies and achieved significant gains in students’ moral judgement scores as measured by the DIT, similar to that achieved in four to six years of a college, or graduate degree, by directly teaching the component skills of moral judgement, i.e. Kohlberg’s theory of moral development and philosophical methods of ethical analysis and their application to relevant cases. Adding formal
logic to the program showed a statistically significant trend for even greater gains. The effectiveness of Penn's method is supported by a review of moral development studies\textsuperscript{65} which showed much lower gains in dilemma discussion and personality development programs. In the review, interventions longer than 12 weeks had no more impact than those of 3-12 weeks. However durations less than 3 weeks tended to be ineffective. To test the generality of Penn's approach, McNeel\textsuperscript{66} designed a general education course for senior students based centrally on Penn’s materials. Results showed that there was a similarly strong growth in principled reasoning (41.7 - 50.6; d=0.65) achieving in 3 and a half months about 80% of the average effect size associated with 4 years of liberal arts college.

A number of other educational approaches have been identified. Hartwell\textsuperscript{67} found similarly substantial growth of law students’ moral reasoning on the DIT by small groups of students engaging in moral discourse to resolve attorney-client ethical dilemmas. Students had to take on the role of moral decision makers in collaboration with others to come to a consensus on a rule that best responded to the issue and state a principled justification for the rule, or offer an interim report if no consensus was achieved. In a 2006/7 study\textsuperscript{68} of 1469 students across 19 US colleges and universities, Mayhew et al found the net effect of co-curricular and classroom based experiences and educational practices during their first year of college significant but quite small. They concluded that the most important factors for higher moral reasoning DIT scores was learning environments and teaching practices that provide students with frequent challenging opportunities for effortful consideration of issues of fairness from broadened, less ego-centric perspectives and critically engaging with peers and faculty in co-curricular activities.

2.2.3.1.3 Other influences on moral judgment
Apart from specific educational effects, higher moral reasoning has been identified in females than males, though the effect size is small.\textsuperscript{69} Mayhew’s multi-institutional study\textsuperscript{68} also verified higher female scores, verifying that claims of gender bias toward males in the Kohlbergian approach cannot be substantiated. The issue of gender bias was a persistent controversy in the 1970's and 1980's\textsuperscript{9,68,70} with critics concerned that, by relying on a male norming sample, Kohlberg's definition of morality as concepts of justice routinely failed to recognise female concerns which Gilligan argued were based on a distinctly different moral system i.e. an ethic of care.\textsuperscript{71} Conn along with others, including Kohlberg, argued that postconventional reasoning integrates benevolence and care, but that "caring has no ordering ethic of its own" and that "we necessarily turn to justice for direction".\textsuperscript{72} Two possibilities suggested for female advantage on the DIT are the constructs
theoretically related to moral judgement such as altruism and affective arousal; and verbal superiority on a reading/writing test.\textsuperscript{68} Other empirical links between moral judgment and aspects of cognition such as academic ability and motivation have been well-established in research.\textsuperscript{69}

2.2.3.1.4 Does moral judgement produce moral action?

Thoma suggests "the degree to which we can understand moral action is the acid test for the whole research endeavour" into moral judgment.\textsuperscript{73} As Blasi\textsuperscript{74} points out, "morality requires by definition the investment of knowledge in action." Blasi defines the responsible actualisation of what one knows to be right and true as integrity. "Reasoning is cheap and painless, action and integrity are not. Integrity requires the development of the whole person."\textsuperscript{74}

Research has repeatedly indicated a discrepancy between what psychologists define as the appropriate ethical decision and the intention to implement the decision toward ethical action\textsuperscript{75} e.g. when responding to scenarios involving a colleague acting unethically, 50% of graduate students and an average of 32% of practicing psychologists indicated they would not intervene in an ethical dilemma as they identified they should according to the American Psychologists Ethics Code 1992. When the closeness of the relationship with the colleague was manipulated, Wilkins et al found that respondents were likely to hold themselves and close friends more responsible for implementing ethical actions than distant colleagues.\textsuperscript{75}

Several hundred studies have addressed this issue: Does moral judgement predict to real-life behaviour? In general, these reviews reveal that moral judgement is statistically linked with hundreds of measures of behaviour.\textsuperscript{45} For example, in professional fields, a review of five studies in accounting and auditing field\textsuperscript{76} found that auditors’ with low DIT UP scores were:

- more likely to violate independence rules
- unlikely to predict whistle-blowing as a means for disclosing wrong-doing
- substantially worse at detecting fraud
- more likely to underreport on audit tasks
- less sensitive to client characteristics such as integrity and competence.

DIT scores predict clinical performance ratings of nurses, with high moral reasoning virtually excluding the possibility of poor clinical performance, and the very highest level of clinical performance rarely achieved by those at the lowest level of moral thought.\textsuperscript{77} Self and Baldwin\textsuperscript{78}
discuss how moral judgement scores predict to clinical performance ratings in medical doctors with a statistically significant trend for orthopaedic surgeons with limited or no malpractice claims per year to demonstrate higher UP scores than those with multiple claims, and a significant relationship if their P scores were higher i.e. over 50. In sport, lower UP moral judgement scores have been related to athletic aggression. However the linkage is not strong (typical are correlations of 0.3-0.4).

2.2.3.2 Other Components of Moral Behaviour
Through review of the morality literature and research, Rest formulated three other major psychological determinants of moral behaviour which, with moral judgement, he defined as the Four Component Model of Moral Behaviour:

- moral sensitivity - interpreting the situation
- moral judgement - judging which action is morally right/wrong
- moral motivation - prioritising moral values relative to other values
- moral character - having courage, persisting, overcoming distractions, implementing skills.

Rest believes that moral failure can occur because of deficiency in any component. All four are determinants of moral action. It is not supposed that the four represent a temporal order such that a person performs one, then two, then three, then four - rather the four components comprise a logical analysis of what it takes to behave morally.

2.2.3.2.1 How can the other 3 components be measured and developed?
The Four Component Model provides a means of developing and comparing different approaches to moral education:

- Component 1 Moral sensitivity is supported by approaches which develop improved face to face communication and sensitivity to cultural diversity
- Component 2 Moral Judgement is supported by the dilemma discussion approach - a major technique used in colleges and professional schools to prepare students to make decisions which are morally defensible.
- Component 3 Moral Motivation is supported by a communitarian approach such as involving students in community service thus moving motivations from individualistic selfish values to communitarian values.
- Component 4 Moral Character is supported by traditional character education to develop qualities such as impulse control and self-discipline.

It is rare to find ethics education programs that encompass all 4 approaches, although this has been occurring in nursing and dentistry professions for approximately 30 years. While all four components involve moral knowing, they invoke qualitatively different cognitive processes, requiring different assessments. There also may be affective and behavioural dimensions for each.

To make progress in understanding moral behaviour and influencing moral development, Rest thought it was important to design educational materials that address each component by itself, before we ask students to integrate them.

2.2.3.2.2 Moral sensitivity
A 2005 review of ethical sensitivity research identified 37 studies and 23 measures to assess ethical sensitivity across a range of professions i.e. dentistry, nursing, counselling, business, science and teaching. Most of the measures were still being explored and had yet to be extensively validated. There were marked differences in the way that stimulus materials were designed to elicit sensitivity, with only some emphasising interpretation i.e. “what is happening”, rather than “what should be done”, the latter being a moral judgment question. Two that were validated included the Dental Ethical Sensitivity Test (DEST) and the Racial Ethical Sensitivity Test (REST).

The DEST has two forms each consisting of four short dramas in which ethical issues are embedded. The dramas, written to present common ethical problems frequently encountered in dental practice are presented as audiotapes in an assessment setting. Participants respond to a conversation between the professional and the patient, or two professionals. At a certain point in the evolving drama, participants are asked to take on the role of the professional and interact using actual dialogue. They then respond to some probe questions to elicit their interpretation of the situation. Such questions are effective in revealing a participant's biases. The responses are scored on a 3 point scale (as to whether the participant has no, some or complete recognition of i) the characteristics of the patient that need to be addressed and ii) what actions serve the rights and welfare of others.
The REST for teachers developed in 2000\textsuperscript{85} was based on six principles common to professional codes and used five videotaped scenarios portraying acts of racial intolerance and ethical insensitivity. Participants viewed two videos and responded to semi-structured interviews. A computerised version was produced in 2003,\textsuperscript{86} followed by the Quick-REST with a more time-efficient Likert-style survey.\textsuperscript{87}

Ethical sensitivity tests are used as a teaching tool to alert students to their strengths and weaknesses, along with case discussions and role play.\textsuperscript{81} The review concluded that ethical sensitivity:

- can be reliably assessed and improved through instruction
- is a distinct construct from moral judgment
- appears to have a positive relationship with age
- may be affected by gender, level of education and professional experience (there were mixed results for all of these demographics)
- needs further research and validation of instruments.\textsuperscript{83}

A 2007 review\textsuperscript{88} of moral sensitivity research reported a paucity of well-validated tools and a lack of consensus on what ethical sensitivity is, which places limitations on the extent to which moral sensitivity can be empirically investigated. However the review identified preliminary evidence that moral sensitivity and behaviour are linked e.g. a 1999 study\textsuperscript{89} found that individuals who perceived a decision as an ethical one were more likely to cooperate and express intentions to act in an environmentally sustainable way than were those who perceived it as a business, personal, environmental or legal decision.

2.2.3.2.3 Moral Motivation

Although moral motivation and moral character development were not addressed in this thesis, some awareness of the educational efforts to measure these provide a more complete picture of the scope for moral development to address animal ethics issues. Bebeau\textsuperscript{82} suggests that identity formation is a significant factor in moral motivation. Kegan\textsuperscript{90} proposed that one’s identity moves from being embedded with close others to becoming authentic and shedding others’ definitions of us that are self-limiting or leave us vulnerable to pressures of self-interest or loss of autonomy. One strategy to identify and develop moral motivation has been to code essays written by entering dental students in response to probe questions based on Kegan’s interviews aimed at eliciting a student’s stages of identity development. One third of the students appeared to have a more developed sense
of the moral self i.e. a greater tendency to incorporate other-directed concerns such as access to care, serving medical assistance patients, and volunteering to help those in need.\textsuperscript{91}

Two measures have been designed to elicit conceptions of professional role. The Professional Role Orientation Inventory \textsuperscript{92} has been used mainly in the dentistry profession. It assesses commitment to prioritising professional values over personal values using four ten-item scales: Authority, Responsibility, Agency and Autonomy. It consistently differentiates beginning and advanced student groups and practitioners. The Professional Decisions and Values Test \textsuperscript{93} was developed to assess lawyer and physician action tendencies and underlying values in situations with ethical problems. A third area identified as important for moral motivation development is explicit professional socialisation and practice in confronting real or perceived misconduct.\textsuperscript{94, 95}

\textbf{2.2.3.2.4 Moral Character and Implementation}

Assessing moral character and competence in implementing decisions is commonly done through performance assessments. In dentistry, such assessments involve eight judgements made about an individual student's ability to implement action plans for eight complex cases that present difficult human interaction problems. Students are required to plan strategies, try out dialogue on a peer, then submit a case write up that includes an interpretation of the facts that must be addressed, an action plan, and a verbal dialogue to illustrate implementation of the plan.\textsuperscript{63}

A ten year longitudinal study by Mentkowski et al.\textsuperscript{96} with students from entering Alverno College to five years after college found that capacity for moral reasoning was maintained for at least five years after college and also identified the concept of moral self, developed as a result of an ability-based undergraduate curriculum that taught and assessed growth fostered by the college in: abstract, sound and insightful reasoning, effective and metacognitive performance, perceptive insightful and adaptive self-reflection that forms individual identity as a learner and a professional; and integrative ethical development.

\textbf{2.2.3.3 Overview}

Significant change in each of the four components can be achieved with a curriculum of limited duration.\textsuperscript{82} Bebeau’s dental ethics curriculum consisted of 45 contact hours over 4 years. The number of contact hours was sufficient to bring about change that can be attributed to the curriculum. It includes:
• baseline assessment on outcome measures of moral judgement and identity formation
• small group instruction with required attendance and participation
• emphasis on performance, self-assessment and personalised feedback
• use of validated classroom assessment methods
• involvement of high status professionals in design of the measurement instruments and in providing personalised feedback to students at critical points
• involvement of faculty with ethicists in design of instruction and teaching
• a final assessment prior to graduation on identity formation, and moral judgement followed by personalised feedback as they set goals for their future professional development

2.3 ANIMAL ETHICS IN VETERINARY EDUCATION

2.3.1 Different approaches

Different approaches to the diversity of thoughts and theories regarding how animals should be treated have been used in veterinary animal ethics education. Tannenbaum, in the first ethics education text, "Veterinary Ethics", took a relativist approach arguing that while there is ethical truth, ethics is intensely personal i.e. each of us must decide for ourselves what we think is right and wrong. However, he claimed that the very future of veterinary medicine as a profession depended on its making certain ethical choices rather than others.

In the 2008 text "Ethics of Animal Use" designed for veterinarians and animal scientists, Sandoe and Christensen take a pluralist approach by outlining five prominent ethical positions selected because they have direct and obvious implications for the ongoing debate on animal use, and three views about what makes a good animal life. They then apply these conceptual tools to a range of animal ethics issues "to facilitate mutual understanding and respectful dialogue" as "professionals must now accept that there are different ethical views, and that his or her own view is not the only one that a person can reasonably hold." The five ethical theories chosen by Sandoe et al are:

- Contractarian view – an agreement based on self-interest in which parties are included if they stand to gain from subscribing to it, and they are capable of entering into and keeping an agreement. Animals are excluded because humans generally have nothing to gain by voluntarily refraining from killing them, or treating them as mere means, and animals cannot generally make agreements with humans
- Utilitarian view - one needs to consider not just the interests of all affected humans, but of all affected sentient beings when deciding the greatest happiness for the greatest number.
- Animal rights view - animals like humans are a subject of a life, with inherent value and they should not be treated as a means for human ends. The principle of dignity should be extended to animals, including respectful treatment and respect for life.
- The relational view - the nature of the human-animal relation and strength of the specific human-animal bond affect how we treat animals (e.g. companion animals have a special status).
- Respect for nature view - the protection of the species, genetic integrity, ecosystems and other collective entities matter, rather than the interests of the individual.\(^{10(p.30)}\)

In his 2006 text "Introduction to Veterinary Medical Ethics",\(^2\) Rollin defines ethics in terms of Ethics 1 which includes personal, professional and social ethics; and Ethics 2 which is the rational criticism and examination of Ethics 1. Whereas we learn Ethics 1 from parents, friends, teachers, churches, movies, books, internet, we rarely learn to engage in Ethics 2, in a disciplined and systematic way to address incoherence or inconsistencies in Ethics 1 that go unnoticed, unrecognised and uncorrected. He argues that members of a profession are first and foremost members of society and are thus bound by the social consensus ethic, the most objective form of Ethics 1, which combines both utilitarian and deontological views to maximise the interests both of the social body and the interests of the individual.

However veterinarians also perform specialised and vital functions in society. This kind of role requires special expertise and training and involves special situations ordinary people do not face. Part of this special training needs to be Ethics 2, “the logical, rational study and examination of Ethics 1, which may include the attempt to justify the principles of Ethics 1, the seeking of inconsistencies in the principles of Ethics 1, the drawing out of Ethics 1 principles that have been hitherto ignored or unnoticed, engaging the question of whether all societies ought ultimately to have the same Ethics 1,\(^{12(p.10)}\) and helping with ethical progress. Because professionals in animal related fields have a demanding role in dealing with the many issues that society expects to be addressed, Rollin claims that they need to be zealous in seeking out - and listening to - rational criticisms of their personal ethics. Failure to do so can put them in conflict with consensus social ethics, resulting in loss of autonomy.

Rollin focuses on animal ethics issues because he regards the moral status of animals as the fundamental ethical question of veterinary medical ethics and because so little ethics (both Ethics 1 and Ethics 2) is devoted to animal issues in ordinary life. Thus his text raises arguments for and
awareness of the new social ethic for animals based on the notion of rights, as the key ethical concept for protecting individuals’ interests from being submerged for the sake of the general welfare. He provides practical and mainly animal ethics dilemmas experienced by practicing veterinarians, with reasoned responses to "stir reader's moral thoughts about situations they may encounter".2

Thus there are a range of ethical perspectives, from relativist to a pluralist approach to a critical approach to the social consensus ethic.

2.3.2 What research has been done to identify, develop and assess moral behaviour in the veterinary profession?

Although professional or occupational group has been a very popular topic for moral judgment exploration using the DIT, studies have predominantly related to teaching, human medicine, accountancy and auditing, dentistry, and nursing with few studies relating to veterinary medicine (20, 19, 17, 16, 14 and 5 studies respectively by 1999).49 Several moral judgement studies related to veterinary medicine, led by Donnie Self and colleagues, used different subject populations, different sample sizes and different instruments of assessment. Comparing students moral judgment scores between first and fourth year, no increase was found in the study using Kohlberg's Moral Judgement Interview, or the study using Rest’s DIT. However increases were found using Gibb’s Sociomoral Reflection Measure.100 In an intervention study using the DIT to assess the effect of a compulsory one semester veterinary ethics course of 15 contact hours, which involved seven one-hour didactic lectures on moral theory, ethical decision-making and The Veterinarian's Oath, and four two-hour sessions involving small group case study discussions, moral reasoning scores did not significantly improve overall, though males’ post test mean scores decreased and females’ scores increased, resulting in a statistically significant gender difference (p<0.0005) in post test scores.101 A small study to investigate moral orientations of justice and care, using Gilligan's Real-Life Conflict and Choice Interview, found no significant correlations between any of the demographic characteristics and the components of moral orientation. In a more recent study, the DIT moral reasoning scores of first year UK veterinary students on human ethics issues showed a wide range of moral reasoning abilities, but mean scores were similar to that expected of students of their age and stage of education, and clinical students was no higher than those of first year vet students.
Studies of veterinary practitioners’ moral judgement are rare. Several qualitative studies have been conducted to identify moral aspects of veterinary practitioners’ views and behaviour in relation to animals. Morgan\textsuperscript{104} found that different veterinarians construct moral problems differently thereby creating diverse interpretations of ethically challenging situations. She concluded that understanding how veterinarians construct moral dilemmas, their decision making in these situations, and the obstacles that hinder the promotion of animal welfare is important to the veterinary profession. She highlighted the need for increased dialogue amongst members of the profession to clarify further their ethical responsibilities to clients and patients, as well as animal protection systems to support veterinarians in their responsibilities to promote animal welfare and mitigate animal pain and suffering. Atwood-Harvey found that veterinarians rely heavily on organisational support structures to cope both with their feelings and participation in a morally objectionable medical practice such as declawing cats, suggesting that moral distancing devices are used to relieve moral discomfort and to maintain problematic animal practices, and moral agency is socially organised, controlled and creatively used.\textsuperscript{105} De Graaf identified that many moral disagreements rest on factual disagreements about what animals are capable of experiencing and identified four different worldviews of practicing veterinarians which framed the moral issues they saw.\textsuperscript{106}

Using the DIT, Self et al.\textsuperscript{107} compared the moral reasoning skills of 69 small animal veterinarians and 33 large animal veterinarians in Texas, and found no significant difference between the two groups. More recently, a study\textsuperscript{108} using the DIT with 38 practicing and 27 academic veterinarians and 33 members of the public showed that there was a large variation in veterinarians’ moral reasoning abilities on human ethics issues, that academic, but not practicing, veterinarians had higher scores than members of the public, and that moral reasoning in veterinarians did not increase with years of experience.

Profession-specific moral dilemmas for moral judgment testing have been developed by a number of researchers in other professions such as journalism,\textsuperscript{109} management,\textsuperscript{110} and education.\textsuperscript{111} However, for all of the moral judgment tests above, none have related to animal ethics issues. In 1994, Self indicated there was interest in conducting research using vignettes directly relevant to veterinary ethics.\textsuperscript{97} However personal communications with Self in 2012 confirmed this research had not been done and that much more research needed to be done. In a 2010 article, Wiseman-Orr et al\textsuperscript{112} proposed a plan with a small interdisciplinary group to undertake development of a veterinary specific tool for assessing ethical reasoning, however further progress on this plan has
not been found in the published literature. In their DIT study published in 2015 based on human ethics issues, Batchelor et al.\textsuperscript{108} noted that scenarios which raise issues about the treatment of animals would be helpful for further moral judgement research.

This research aims to help fill this gap by adapting the DIT, the most extensively used moral judgment test, to incorporate animal ethics issues faced by veterinarians, enabling comparison with moral reasoning on human ethics issues. It is hypothesized that those who choose a profession involving healing animals, may display higher levels of moral reasoning for animal than human ethics issues and may have higher moral reasoning on animal ethics issues. However the constraints of human-centred cultures and legal frameworks may also impact on moral judgement.

As well, research into moral judgment development in other animal-related professions such as veterinary technology, production animal science, animal research science, all of whom may reason differently from veterinarians about animal issues because of their differing roles with animals, seems to be non-existent. This research therefore also aims to explore moral judgment in these various fields.

There is also a huge knowledge gap about the development of the other three components of ethical behaviour of veterinary and other animal related professionals in relation to animal ethics issues i.e. moral sensitivity, motivation and character and their capacity for moral action. Self-rating questionnaires to assess empathy (an element of ethical sensitivity) toward animals have been developed,\textsuperscript{113, 114} but do not address the broader aspects identified as necessary for moral interpretation. Using the Animal Empathy Scale,\textsuperscript{114} female veterinary students showed more empathy than males, and maintained this, while males showed less empathy in later years of their course. More recently, research\textsuperscript{103} which coincided with the development of this thesis, involved developing veterinary students’ ethical awareness by designing new tools i.e. the Animal Welfare Associated Reflective Exercise (AWARE) using three well-established ethical frameworks; and a modified version of AWARE, the Reflection on Professional Ethics (ROPE), which focused on the Royal College of Veterinary Scientists’ ten guiding principles, the bioethical principles and virtue ethics. These tools are being used for reflection on animal welfare issues in veterinarians’ pre-clinical and clinical work placements at the University of Glasgow. Qualitative analysis of responses to the AWARE revealed higher levels of ethically relevant text than in previous unstructured reflections, but did not improve scores on standardised measures of ethical sensitivity or moral reasoning using human ethics issues. The ROPE showed veterinary students struggled to
meet all of their ethical obligations in difficult situations, that respect for client autonomy was met in most cases, and that virtue ethics was poorly understood. However there have been no animal ethics tools to specifically measure and develop moral sensitivity, moral motivation and moral character to enable animal ethics issues to be addressed.

2.4 CONCLUSIONS

Animal ethics or how humans should behave in relation to other animals is a growing community concern. Those in veterinary and other animal-related professions are in a unique position, often having to choose between the interests of their patients and their clients, creating moral distress. Due to their role, knowledge and regular exposure to animals, they are also in a unique position to provide leadership and are often called upon by society to do so. Yet there currently is no unified scientific approach to animal ethics education to develop competencies to provide this direction.

Comparison of the philosophical, neurological and psychological interpretations of morality and moral development reveal considerable concurrence, culminating in decisions based on ideals of fairness and respect for the common biological need of sentient beings for survival and well-being. These disciplines identify the need to broaden perspectives from the personal, to that of family and culture, and to a universal perspective, to generate cooperative action for every individual's goal of survival and well-being. This suggests a unified scientific basis for ethics education generally, and animal ethics education particularly.

In addition, the development of moral behaviour can be analysed scientifically through the four components of moral sensitivity, moral judgement, moral motivation and moral character. While there has been considerable research on veterinary students’ moral judgment development in relation to human ethics issues, and profession-specific moral judgment tools have been developed in other professions, there has been no research on developing veterinarians’ moral judgment on animal ethics issues, and little in relation to the other components of moral behaviour to identify competencies for moral action. This research aims to fill this gap to enhance the capacity of animal related professionals to address animal ethics issues.

As presented in the introduction, the main objectives of this research are to:

- Identify a scientific approach to animal ethics education to inform the development of animal ethics competencies (Chapter 2)
• Design a measure and teaching strategies for developing moral judgment on animal ethics issues (Chapters 3 and 4)
• Identify and compared moral judgment on animal ethics issues in animal and non-animal related disciplines (Chapter 5)
• Identify relationships between moral judgment and moral action choices (Chapter 6)
• Identify veterinary students’ perceptions of their moral sensitivity, moral motivation and moral action in relation to animal ethics issues and how these relate to moral judgment (Chapter 7)
• Design a measure and teaching strategies for developing ethical sensitivity in relation to animal ethics issues (Chapter 8)

2.5 REFERENCES


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CHAPTER 3 DEVELOPMENT OF A MORAL JUDGMENT MEASURE FOR VETERINARY EDUCATION

3.1 ABSTRACT
Veterinarians increasingly face animal ethics issues, conflicts, and dilemmas, both in practice and in policy, such as the tension between clients’ and animals’ interests. Little has been done to measure the capacity of veterinarians to make ethical judgments to prevent and address these issues or to identify the effectiveness of strategies to build this capacity. The objectives of this study were, first, to develop a test to identify the capacity of veterinarians to make ethical decisions in relation to animal ethics issues and, second, to assess students’ perceptions of the usefulness of three methods for the development of ethical decision making. The Veterinary Defining Issues Test (VetDIT) was piloted with 88 first-year veterinary students at an Australian university. The veterinary students were at a variety of reasoning stages in their use of the Personal Interest (PI), Maintaining Norms (MN), and Universal Principles (UP) reasoning methods in relation to both human ethics and animal ethics issues and operated at a higher level of reasoning for animal than human ethics. Thirty-eight students assessed three methods for developing ethical decision-making skills and identified these as being helpful in clarifying their positions, clarifying others’ positions, increasing awareness of the complexity of making ethical decisions, using ethical frameworks and principles, and improving moral reasoning skills, with two methods identified as most helpful. These methods and the VetDIT have the potential to be used as tools for development and assessment of moral judgment in veterinary education to address animal ethics issues.

Key words: moral judgment, veterinary ethics, animal ethics, Defining Issues Test, veterinary education

3.2 INTRODUCTION
Animal ethics education refers to the scientific study and development of morality regarding humans’ treatment of animals. Just as students can be taught scientific principles and methods of inquiry, universal moral principles and methods or frameworks can be taught to develop moral judgment. However, little has been done to assess strategies for applying these principles and methods or to measure the basis for veterinary students’ moral judgments, which would enable development to be reliably assessed, and no measurement has been made in relation to animal ethics issues.
Inconsistencies in veterinarians’ moral judgment and behaviour may result in animals being treated differently, according to how the veterinarians view the client or whether they take into account economic, social, and legal issues surrounding treatment. Veterinarians conceptualize animal patients and human clients in different ways and often do not consult ethical theory but frame moral questions to be amenable to empirical resolution, that is, a “tractable” morality. “Organizational support for moral distancing such as rationalization and redirecting blame” enables veterinarians to carry out morally contentious procedures such as the declawing of cats in the US and “to define themselves as working for the best interest of feline health while paradoxically supporting a practice that they define as morally ambiguous and ‘painful.’” Variation in veterinary students’ attitudes toward animals, based on whether they are viewed as pets, pests, or for profit, and variation of veterinary attitudes toward animals across cultures and gender also suggests a need for moral judgment development and methods to determine the moral validity of such variations.

Three studies in the 1990s measured the development of moral judgment in veterinary students, only one of which showed an increase during their course. An intervention study with a 15-hour ethics course slightly increased female scores but decreased male scores. Although profession-specific adaptations of moral judgment tests have been developed for other professions (e.g., journalism, teaching, and dentistry), there has been no quantification of moral judgment in relation to animal ethics issues faced by veterinarians. This study, therefore, first pilots a new veterinary-specific measure of moral judgment (Veterinary Defining Issues Test [VetDIT]) in relation to animal ethics issues and second uses the Ethical Decision-Making Survey (EDMS) to identify students’ perceptions of the effectiveness of three methods to enhance moral judgment.

### 3.3 MATERIALS AND METHODS

#### 3.3.1 Participants

A total of 98 first-year veterinary students at the University of Queensland, Australia, (80% of the cohort) completed the VetDIT in 2012, with 88 students (72% of the cohort) retained after standardized reliability checks (based on inconsistencies between items rated and ranked, missing data, selection of meaningless items, and indiscriminate answers). Of these students, 38 (31% of the cohort) completed the EDMS, with three incomplete returns discarded.
3.3.2 Procedures

Approval was obtained from the University of Queensland Ethical Review Committee. Students completed the VetDIT in one 50-minute session midway through their second semester and before their first lecture on ethics, ethical frameworks, and their application to animal use. Most students (84) accessed the test online using the university’s Blackboard software on their laptop computers; some (14) used paper copies. Students unable to attend the lecture and two students requesting more time were encouraged to complete the survey later online. In a 2-hour session one week later, three methods to enhance students’ ethical decision-making processes were used in the following order: Human Continuum, Mepham’s Ethical Matrix, and Preston’s Ethic of Response Decision-Making Model. The Human Continuum required students to physically position themselves on a line based on their level of agreement with an issue statement, listen to alternative positions, and reconsider their position. Mepham’s Ethical Matrix involved ethical analysis of a particular action based on the ethical principles of well-being, autonomy, and fairness. Preston’s Ethic of Response involved group activities synthesizing the main ethical frameworks (utilitarian, deontological, and virtue ethics) to find the most fitting response to an ethical issue. A survey gathered feedback on the usefulness of these techniques. For confidentiality and to enable correlations between questionnaires, students had a unique ID.

3.3.3 Materials

3.3.3.1 Veterinary Moral Judgment Test

James Rest’s Defining Issues Test (DIT) has been used extensively to assess moral judgment in a range of educational and professional contexts. Based on Kohlberg’s six hierarchical stages of moral reasoning, it uses three schemas as strategies for moral judgment:

- Schema 1: Personal Interest (PI)—recognizing authority and reciprocal relationships that result in reward or punishment
- Schema 2: Maintaining Norms (MN)—abiding by existing expectations of rules and regulations set by governments or professional groups with uniform categorical application society-wide, even though the laws may not benefit all participants in an equitable way
- Schema 3: Postconventional (here defined as Universal Principles [UP])—emphasizing the primacy of all moral ideals that are constructive, sharable, and not self-serving at the expense of others (i.e., must be fully reciprocal by benefiting all participants in an
equitable way)—a broader, less partisan approach than Kohlberg’s justice orientation\textsuperscript{18}

Development occurs through adoption of higher-level schemas.\textsuperscript{18}

We adapted the DIT to include six moral dilemma scenarios—three of the five human scenarios from the latest version of the test, DIT-2,\textsuperscript{19} and three animal scenarios (see Appendix A) developed by the research team i.e. the Veterinary Defining Issues Test (VetDIT). This method of organization enabled comparisons between the moral judgments on human ethics issues and veterinary-ethics issues and between first-year veterinary students and first-year university students in other fields who had taken DIT tests. The human ethics scenarios involved stealing during a famine, reporting previous criminal history of a government candidate, and cancelling a school meeting due to violence in previous meetings. The animal scenarios were based on moral dilemma cases potentially experienced by veterinarians\textsuperscript{20}: a request to euthanize a healthy dog, the reporting of substandard pig husbandry, and giving advice on a development proposal to breed blind hens for intensive agriculture.

For each scenario, students were asked to rate, on a scale of 1 (great importance) to 5 (no importance), 12 questions that might be considered in making a decision about what to do. Standard DIT-2 questions were used for the human scenarios, and new questions were created for the animal scenarios. Each question reflected one of the moral judgment schemas, that is, PI, MN, or UP. For example, for the “request to euthanize” scenario, three of the questions were:

1. Should the vet risk losing a client by refusing to euthanize the dog? (PI)
2. Since it is the owner’s legal right to euthanize the dog, should the veterinarian do what the owner wants? (MN)
3. Does the dog have a right to life even though his owner legally has the right to euthanize it? (UP)

Students rated the importance of each question and then ranked the four most important. Using these four, the ranking scores for each schema were totaled for each animal and human scenario and converted to percentages to account for any differences in numbers of items for the three levels.\textsuperscript{19} For validity testing, the responses to the human scenarios were processed by the Centre for the Study of Ethical Development (CSED), University of Alabama, which has computerized formulae and a large bank of responses for assessing international comparability.\textsuperscript{13,18,21,22} The three animal-
scenario scores were processed by one of the authors (JMV) and compared with the students’ human scores and norms from a large sample of combined studies. 23

3.3.3.2 Ethical Decision-Making Survey
Thirty-eight students evaluated (using a scale from 1 to 5, where 1 = strongly agree and 5 = strongly disagree) whether three techniques for ethical decision making (Human Continuum, Mepham’s Ethical Matrix, and Preston’s Ethic of Response Decision-Making Model) helped them to clarify and modify their own and other’s positions, increase awareness of the complexity of making ethical decisions, use ethical frameworks and principles, and improve their moral reasoning skills. They also ranked the techniques on their usefulness, explained their rankings, and indicated their level of agreement on statements relating to course timing and group size.

3.3.4 Demographics
Basic demographic information was gathered for the students, including gender, age, previous university degrees and which specific degrees were completed, and whether English was their primary language. Experience (from 1 to 5, where 1 = very great extent and 5 = never) with companion animals, farm animals, and horses was determined to identify its possible impact on moral judgment in relation to animal ethics issues.

3.3.5 Statistical Analysis
Variables were tested for normal distribution using the Anderson-Darling test. 24 Pearson’s correlations and regression equations were determined between the different stages of reasoning (PI, MN, and UP) using both the six individual scenarios and the separate combined scores for the three animal ethics scenarios and three human ethics scenarios. In relation to the latter test, for PI the residuals were not normally distributed and a Spearman rank correlation was used instead. The effect of demographic variables on moral judgment was tested by ordinal logistic regression with the logit function because most residuals were not normally distributed and ANOVA was therefore inappropriate. Effectiveness of the ethical decision-making techniques was tested by constructing a cumulative link mixed-effects model, with the logit link function and with the student as a random effect. Two models were fitted, one which did allow for differences among tests and one which did not. These were compared using a likelihood ratio Chi-square test (using the ANOVA function),
thus giving the significance of the test effect. The models were fitted using the “clmm” function in the ordinal package for the statistical program R.

3.4 RESULTS

3.4.1 Demographics

Students’ age range was 17 to 46 years old, with most (61%) being between 17 and 20, 26% between 21 and 25, and 12% over 25. Most (n = 59, 67%) were females; 19 (22%) had a previous degree; and 62 (85%) indicated that English was their primary language. The majority indicated more experience with companion than farm animals, with experience with horses in the middle: 57%, 2%, and 17% indicated a very great extent of experience; 18%, 11%, and 9% indicated a great extent of experience; 17%, 30%, and 17% indicated some extent of experience; and 8%, 55%, and 57% indicated minimal or no experience with companion animals, farm animals, and horses, respectively.

3.4.2 Veterinary Defining Issues Test

The mean moral reasoning scores for human scenarios were similar for veterinary students and US freshmen across a range of disciplines (Table 3-1). The proportion of veterinary students answering in the three schemas for the human ethics scenarios was classified by the CSED as follows: PI consolidated (n = 2, 2%); PI transitional to MN (n = 24, 27%); MN transitional from PI (n = 9, 10%); MN consolidated (n = 10, 11%); MN transitional to UP (n = 7, 8%); UP transitional from MN (n = 24, 27%); and UP consolidated (n = 12, 14%). For the animal ethics scenarios, the veterinary students showed greatest UP reasoning, then MN, and finally PI (Table 3-1).

<table>
<thead>
<tr>
<th></th>
<th>UQ veterinary students</th>
<th>US freshmen</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Animal ethics</td>
<td>Human ethics</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>PI</td>
<td>9.3</td>
<td>8.46</td>
</tr>
<tr>
<td>MN</td>
<td>28.6</td>
<td>13.34</td>
</tr>
<tr>
<td>UP</td>
<td>63.4</td>
<td>15.04</td>
</tr>
</tbody>
</table>

Table 3-1 Comparison of 88 UQ veterinary students’ mean moral reasoning scores for PI, MN, and UP reasoning methods in animal and human ethics scenarios with the scores of 2,096 US freshmen for human scenarios (to match CSED criteria, students who reported that English was not their primary language were excluded).

UQ = University of Queensland; PI = Personal Interest; MN = Maintaining Norms; UP = Universal Principles; CSED = Center for the Study of Ethical Development

There were correlations within and between the animal- and human-scenario scores. The moral reasoning scores for the chicken breeding scenario correlated with those for the animal euthanasia...
and school meeting scenarios for PI (correlation coefficient [CC] 0.23, \( p = .032 \) for both) and for UP (CC 0.40, \( p < .001 \) and CC 0.21, \( p = .051 \), respectively). The moral reasoning scores for the chicken breeding scenario also correlated with those for animal euthanasia for MN (CC 0.24, \( p = .025 \)). The scores for the pig husbandry scenario correlated with the euthanasia scenario for MN (CC 0.23, \( p = .031 \)) and for UP (CC 0.29, \( p = .007 \)). In the human ethics scenarios, the scores for the famine and school meeting scenarios correlated for PI (CC 0.31, \( p = .003 \)), MN (CC 0.21, \( p = .044 \)), and UP (CC 0.25, \( p = .019 \)), and the reporting scenario scores correlated with the famine scenario for PI (CC 0.21, \( p = .037 \)).

For PI scores, the combined three animal ethics scenarios were not related to the combined three human scenarios (Spearman rank correlation, \( p = .145 \)).

For MN scores, they were related:

\[
MN_{\text{animal}} = 20.8 (+ 3.18, \ p < .001) + 0.22 (+ 0.09, \ p = .017) \ MN_{\text{human}}; \ r^2 = 6.8\%
\]

The positive intercept demonstrates that the animal scenarios attracted a higher baseline MN score, but as veterinary students increased their MN score for human scenarios, their scores for animal ethics scenarios increased proportionately less.

A similar correlation was found for UP scores:

\[
UP_{\text{animal}} = 53.4 (\pm 4.34, \ p < .001) + 0.27 (\pm 0.121, \ p = .029) \ UP_{\text{human}}; \ r^2 = 4.6\%
\]

### 3.4.3 Correlations Between Demographic Characteristics and Moral Judgment Scores

For animal issues, PI scores tended to be higher for students who indicated companion-animal experience (\( OR 0.63; \ p = .057 \)) and those without previous degrees (\( OR 3.47; \ p = .060 \)). Male students had higher PI scores for human scenarios than female students (\( OR 2.94; \ p = .040 \)). There were no relationships between demographics and MN and UP scores.

### 3.4.4 Ethical Decision-Making Survey

Most students agreed that all three methods for developing ethical decision-making skills (Human Continuum, Mepham’s Ethical Matrix, and Preston’s Ethic of Response Decision-Making Model) were helpful for clarifying their own or others’ positions, increasing awareness of the complexity of making ethical decisions, using ethical frameworks and principles, and improving moral reasoning skills (Table 3-2).
<table>
<thead>
<tr>
<th>Objectives</th>
<th>Human Continuum</th>
<th>Mepham’s Ethical Matrix</th>
<th>Preston’s Ethic of Response model</th>
<th>p value *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clarify my position</td>
<td>Agree n(%)</td>
<td>Unsure n(%)</td>
<td>Disagree n(%)</td>
<td>0.010</td>
</tr>
<tr>
<td></td>
<td>30(86)</td>
<td>4(11)</td>
<td>1(3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Modify my position</td>
<td></td>
<td></td>
<td>0.300</td>
</tr>
<tr>
<td></td>
<td>18(53)</td>
<td>5(15)</td>
<td>11(32)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Clarify others’ positions and ethical reasoning</td>
<td>32(91)</td>
<td>3(9)</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>30(86)</td>
<td>4(11)</td>
<td>1(3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Be more aware of the complexity of making ethical decisions</td>
<td>31(87)</td>
<td>2(6)</td>
<td>0.140</td>
</tr>
<tr>
<td></td>
<td>23(68)</td>
<td>9(26)</td>
<td>2(6)</td>
<td>0.830</td>
</tr>
<tr>
<td></td>
<td>Use ethical frameworks and principles</td>
<td>22(63)</td>
<td>8(23)</td>
<td>0.730</td>
</tr>
<tr>
<td></td>
<td>Improve my moral reasoning skills</td>
<td>21(60)</td>
<td>7(20)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>21(60)</td>
<td>7(20)</td>
<td>7(20)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>22(65)</td>
<td>8(23)</td>
<td>4(12)</td>
<td></td>
</tr>
</tbody>
</table>

* Difference between the three models, determined by a cumulative link mixed-effects model

There was more uncertainty and disagreement regarding whether these strategies helped them modify their positions. The Human Continuum was most preferred for clarifying students’ own and others’ positions, Preston’s Ethic of Response model was the next preferred, and Mepham’s Ethical Matrix was the least preferred. For usefulness in developing knowledge and skills for ethical decision making, preferences were, firstly, Human Continuum ($n = 17$, 50%); secondly, Preston’s Ethic of Response ($n = 13$, 38%); and, lastly, Mepham’s Ethical Matrix ($n = 4$, 12%) (Chi-square 11.6, $p = .030$). Twenty-six students provided explanations for these rankings. The Human Continuum was valued because it provided information on other students’ preferences and was simple and physical. Preston’s Ethic of Response model was considered easier to understand than Mepham’s Ethical Matrix and provided a more detailed ethical evaluation.

Eighty-six percent of the students (30) strongly agreed/agreed that it was helpful to develop ethical decision-making skills in the first-year veterinary course, 11% (4) were unsure, and 3% (1) disagreed. Fifty-four percent of the students (19) agreed that it would be helpful to have small group sessions for practicing ethical decision-making skills, 37% (13) were unsure, and 8.5% (3) disagreed. Fifty-four percent (19) agreed that it would be helpful to have more sessions addressing animal ethics, 43% (15) were unsure, and 3% (1) disagreed.
3.5 DISCUSSION

It is important to identify veterinary students' levels of ethical reasoning to design appropriate teaching to support their moral development and give students insight into how their moral judgment skills compare with those of their peers and experts. For human ethics issues, students had similar levels of reasoning as other freshmen, with most at PI or MN reasoning levels on a well-established test, suggesting possible opportunities for progressing to higher stages of principled reasoning. In addition, educators need to be aware that progress may not be a linear function because students in transition from one stage to the next are likely to experience more confusion, resulting in less optimal moral actions, justifications, and choices.

The positive correlation between both UP and MN scores for the combined human and animal scenarios suggests some validity of the new VetDIT for the assessment of moral judgment on animal ethics issues in veterinary students. Higher mean UP scores for the combined animal scenarios, compared to the combined human scenarios, suggest that veterinary freshmen had higher levels of moral judgment in animal ethics dilemmas than human ethics dilemmas. Potential reasons for this finding include the possibility that more of the animal issues presented greater potential suffering than the human scenarios or that the majority of veterinary students entered the course with a desire to help animals, regardless of the impact on their personal interests. The animal issues may also have been more obviously stated than the original human issues. Also, in the UP schema, James Rest accepted the inclusion of different ethical frameworks beyond justice orientation (which was Kohlberg's original focus), therefore we chose to cover a wide range of philosophical frameworks, including deontological rights, utilitarian, communitarian, and virtue- and care-ethic perspectives, which may have appealed to different students. An extra UP option in two of the veterinary animal ethics scenarios, while not influencing the ratings of each option, may have increased the chance of UP items being ranked in the top four. However, the correlation and similarity of MN scores between human and ethics scenarios suggests that the new animal scenarios and issues were comparable to those in the original DIT-2. Veterinary students who prioritized maintaining existing laws and policies did so for both human and animal issues.

Male students had significantly higher PI scores on the human ethics scenarios than female students, suggesting that males were operating at lower levels of moral reasoning in human ethics dilemmas, though not in animal ethics dilemmas. Males’ higher PI scores for human dilemmas in this study were expected, as females have consistently obtained slightly higher UP scores at every educational level. A trend for students with more tertiary education to have lower PI scores on
animal scenarios in this study supports previous research on the positive influence of higher education on moral reasoning development.\textsuperscript{17}

Students found ethical decision-making techniques helpful for clarification but not so much for modification of their positions, which they may have been reluctant to do, unless given more time and exposure to alternatives. Ethics teaching interventions of 4–12 weeks have been found to be most effective for moral reasoning development,\textsuperscript{31} with students interacting on moral problems and practicing skills as moral agents.\textsuperscript{32} Student exposure to faculty applying these moral decision-making strategies to ethical issues throughout the veterinary course has been shown to be beneficial.\textsuperscript{33} Students’ preference for the Human Continuum strategy, which physically identifies one’s position in relation to others, and for Preston’s Ethic of Response, seen as providing more in-depth ethical analysis, suggests that a combination of these two techniques may provide optimal learning opportunities.

3.5.1 \textit{Practical Implications}

Veterinary students need to develop moral reasoning skills if they are to avoid inconsistencies in moral decision-making and reduce moral distress when faced with animal ethics dilemmas. The proposed tool to measure moral reasoning could be used to assess students’ development over the course of a veterinary program and identify those in need of additional help. It could also be used as a teaching tool to enable students to recognize and reflect on their moral reasoning. It could provide a means of identifying the success of programs to teach ethical decision making. Identifying the effectiveness of specific teaching methods could be helpful in developing standards and consistency in veterinary ethics education.

3.5.2 \textit{Limitations}

This study used a relatively small cohort of students and has yet to be rigorously validated with other cohorts and compared between students of different years and courses. Other validated scenario combinations would be useful for comparing students’ progress following teaching programs and over time. Methods for developing ethical decision making have only been assessed through student attitudes and in a large group lecture setting, and further validation of the effectiveness of these strategies in different cohorts and settings is needed.
3.5.3 Future Research

Further research is being undertaken to validate the test to determine whether the methods used to develop ethical decision making will show a change in pre- and post-VetDIT scores and whether higher scores on the VetDIT animal ethics issues than on the DIT-2 human ethics issues are unique to veterinarians, characteristic of other professionals, or due to the test design itself. Veterinary education researchers could investigate the consistency of reasoning across different scenarios and further develop and validate the test and strategies for veterinarians in different workplace situations. Investigating whether these methods and VetDIT scores relate to the use of moral reasoning and moral behaviour in actual animal ethics issues encountered in professional practice is also important.

3.6 CONCLUSION

Our trial of the VetDIT in this study identified several levels of moral reasoning in first-year veterinarians, specifically PI, MN, and UP. Although scores on human issues were similar to those of first-year students in a range of disciplines in US universities, veterinary students demonstrated more principled reasoning on animal ethics issues than on human issues. Strong support was shown by students for learning techniques to help with ethical reasoning, particularly the Human Continuum and, to a lesser extent, Preston’s Ethic of Response, for more comprehensive ethical analysis. Overall results suggest that the VetDIT provides a tool for assessment of moral reasoning ability for animal ethics issues in veterinary education and, combined with effective ethical reasoning techniques, may facilitate development of profession-specific moral reasoning capabilities in veterinarians.

NOTE


3.7 REFERENCES


CHAPTER 4   ASSESSING VETERINARY AND ANIMAL SCIENCE STUDENTS’ MORAL JUDGMENT DEVELOPMENT ON ANIMAL ETHICS ISSUES

4.1  ABSTRACT
Little has been done to assess veterinarians’ moral judgment in relation to animal ethics issues. Following development of the VetDIT, a new moral judgment measure for animal ethics issues, this study aimed to refine and further validate the VetDIT, and to identify effects of teaching interventions on moral judgment and changes in moral judgment over time. VetDIT-V1 was refined into VetDIT-V2, and then V3 was developed as a post-intervention test to prevent repetition. To compare these versions, veterinary and animal science students \( (n = 271) \) were randomly assigned to complete different versions. The VetDIT discriminates between stages of moral judgment, condensed into three schemas: Personal Interest (PI), Maintaining Norms (MN), and Universal Principles (UP). There were no differences in the scores for MN and UP between the versions, and we equated PI scores to account for differences between versions. Veterinary science students \( (n = 130) \) who completed a three-hour small-group workshop on moral development theory and ethical decision making increased their use of UP in moral reasoning, whereas students who received similar information in a 50-minute lecture did not. A longitudinal comparison of matched first- and third-year students \( (n = 39) \) revealed no moral judgment development toward use of UP. The VetDIT is therefore useful for assessing moral judgment of animal and human ethics issues in veterinary and other animal-related professions. Intensive small-group workshops using moral development knowledge and skills, rather than lectures, are conducive to developing veterinary students’ moral judgment.

Key words: ethics education, ethics workshop, moral judgment, veterinary ethics, animal ethics

4.2  INTRODUCTION
Moral judgment may not be sufficient for moral behaviour, but it is a necessary component.\(^1(p.512)\)
Although ethics teaching has been a part of veterinary curricula in the United States for the past 30 years,\(^2\) little has been done to assess moral judgment development, particularly in relation to animal ethics issues that are central to veterinary work. In 2012, the VetDIT was developed to address this need.\(^3\) It was based on the Defining Issues Test (DIT),\(^4\) which has been used extensively to assess
moral judgment in a range of educational and professional contexts. The DIT condenses Kohlberg’s six hierarchical stages of moral judgment into three hierarchical schemas:

- Schema 1: Personal Interest (PI)—recognizing authority and reciprocal relationships that result in reward or punishment for the person.
- Schema 2: Maintaining Norms (MN)—abiding by existing rules and regulations set by governments or professional groups.
- Schema 3: Post-conventional, referred to here as Universal Principles (UP)—emphasizing moral ideals that are constructive and not self-serving.

Development occurs through adoption of higher level schemas.

Our initial VetDIT included three animal ethics scenarios (euthanasia of a healthy dog, reporting of sub-standard pig husbandry, and breeding modification of hens) and three human ethics scenarios, which were from the test for comparison in Rest et al. (stealing during a famine, reporting previous criminal history of a government candidate, and cancelling a school meeting due to violence in previous meetings). Each scenario had 12 questions, which students initially rated for importance when making a decision about how to act on the issue. Students then identified the most important four questions, which were ranked 1–4 and which we then scored and allocated to the relevant schema (PI, MN, or UP). Each schema’s total scores for the three animal and three human scenarios were converted to percentages.

Our first study to develop and test the VetDIT suggested that first-year veterinary students had similar moral reasoning on human ethics issues as US Freshmen across a range of disciplines, however they had higher UP, similar MN, and lower PI reasoning on animal ethics issues than on human ethics issues. This study aimed to:

- refine and further validate the VetDIT;
- identify the effects of two different teaching interventions on veterinary and animal science students’ moral judgment; and
- identify changes in moral judgment of veterinary students between first and third year.

A systematic review of 172 DIT studies has demonstrated that moral development may occur as a result of higher education, beyond the development attributable to age, with students decreasing conventional judgment (relying on maintaining norms) and increasing post-conventional judgment (relying on ethical principles and frameworks). However, development may be affected by college context and program. Two studies of veterinary students showed no development in moral
reasoning, using DIT scores\(^8\) and Kohlberg’s Moral Judgment Interview (KMJI\(^9\)) as pre and post measures administered to students in a four-year program, although another using Gibb’s Sociomoral Reflection Measure demonstrated improvement.\(^10\) Medical students also showed no development after four years,\(^11\) or a decrease after year three,\(^12\) assessed by KMJI. Moral judgment can also be enhanced by ethics programs and interventions, including dilemma discussion, psychological education, and direct teaching of component skills (e.g., skills of logic, role taking, and justice operations).\(^13\) Penn argued that “just as students are not likely to develop skills in higher level mathematical and scientific judgment without direct teaching and modelling, it is unlikely that students will develop skills in higher level moral judgment without direct teaching and modelling.”\(^14\)(p.126) Using a comparison of 55 different intervention programs at various institutions,\(^15\) Penn confirmed the superiority of an intervention based on “moral development theory, stage typology, and philosophical methods of ethical analysis and their application to social issues.”\(^14\)(p.136)

Small-group discussion is believed to be particularly effective in moral judgment development. A review of medical ethics teaching showed that small-group discussion has a greater impact on moral judgment development than lectures.\(^16\) A 15-hour ethics course for first-year veterinary students, including four 2-hour small-group case study discussions with practicing veterinarians, produced an increase in female but decrease in male DIT UP scores post-test.\(^17\) However, a profession-specific DIT has never been used to measure course impact on veterinarians’ moral judgment of animal ethics issues.

Based on previous studies applying the generic DIT in other professions, it was hypothesized that the VetDIT would identify improvement in veterinary students’ moral judgment on animal ethics issues following an intensive three-hour small-group workshop, but not following a lecture. It was also hypothesized that there would be no improvement in moral judgment over the course of the veterinary program.

4.3 MATERIALS AND METHODS
Approval for this study was obtained from the University of Queensland Ethical Review Committee.
4.3.1 Refining the VetDIT

A 2013 review of the VetDIT (VetDIT-V1) by a group with expertise in philosophy, psychometrics, professional ethics, and animal welfare science resulted in a revised version, VetDIT-V2 (Appendix B). The 12 questions for each scenario were simplified and clarified. PI, MN, and UP items were balanced to include 11 of each across the three animal scenarios, with one irrelevant item in each scenario for reliability checks. A third version (VetDIT-V3) (Appendix C) was created as a post-teaching test to identify any moral judgment improvement, and to avoid the risk of students attempting to remember responses from the initial test or becoming disillusioned with a repeated test. The three new scenarios (euthanasia of a healthy cat, removal of sheep from a research study, and breeding modification of pigs) were similar in topic and structure to the VetDIT-V2 scenarios. All these animal scenarios were based on moral dilemma cases commonly experienced by veterinarians.18

Table 4-1 Student cohorts, VetDIT versions, and numbers of students (% of cohort)

<table>
<thead>
<tr>
<th>Cohort</th>
<th>Pre-test VetDIT Version</th>
<th>Post-test VetDIT Version</th>
<th>Matched validated students pre- and post-test (% of cohort)</th>
</tr>
</thead>
<tbody>
<tr>
<td>First-year BVSc 2013 (149)</td>
<td>V2</td>
<td>V3</td>
<td>130 (88%)</td>
</tr>
<tr>
<td>First-year BAppSc (Production Animals), internal students 2014 (291)</td>
<td>V2</td>
<td>V3</td>
<td>85 (29%)</td>
</tr>
<tr>
<td></td>
<td>V3</td>
<td>V2</td>
<td>79 (27%)</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>164 (56%)</td>
</tr>
<tr>
<td>First-year BAppSci (Production Animals), external students 2014 (54)</td>
<td>V2</td>
<td>V3</td>
<td>11 (20%)</td>
</tr>
<tr>
<td></td>
<td>V3</td>
<td>V2</td>
<td>16 (30%)</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>27 (50%)</td>
</tr>
<tr>
<td>Third-year BVSc 2014 (115)</td>
<td>V1 53 (46%)</td>
<td>V3 100 (87%)</td>
<td>80 (70%)</td>
</tr>
<tr>
<td></td>
<td>V2 59 (51%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To test for comparability of the three VetDIT versions for use as pre- and post-tests, two cohorts of students at the University of Queensland were used: third-year veterinarians to compare VetDIT-V1 and -V2 and first-year Bachelor of Applied Science (Production Animal) students (both internal and external students) to compare VetDIT-V2 and -V3. These groups were chosen due to their subject relevance and their availability to undertake tests during lectures on animal welfare and ethics. Cohorts were split in half alphabetically by surname to complete the different versions of the VetDIT (for numbers and cohort proportions of students, see Table 4-1). PI, MN, and UP scores for animal scenarios were processed by JV and compared with the human scenario scores, processed by the Centre for the Study of Ethical Development, University of Alabama (CSEDUA), which has the necessary formulae and historical responses for testing international comparability.19 A standardized reliability check on the human scenario responses by the CSEDUA 20 was used to
eliminate responses that showed inconsistencies between items rated and ranked, missing data, selection of meaningless items, and indiscriminate answers. A similar process was used for students who completed the animal but not human scenarios.

4.3.2 Teaching Interventions

All first-year veterinary science students (Table 4-1), arranged into groups of 25, were required to attend a three-hour workshop (Table 4-2) on moral development theory and ethical decision making. Based on students’ preferences in an earlier study, both the Human Continuum and Preston’s Ethic of Response Ethical Decision Making Model were used as tools for developing ethical decision making. These are complementary strategies, the former appealing to visual, verbal and interpersonal learners, providing instant recognition of the range of views of a whole group, exposure to clarifying one’s own views, hearing the range of other views, and the opportunity to show understanding and modify one’s own position. Preston’s model provides a universal ethical framework to evaluate the various positions and enable the most fitting ethical response. By comparing the two, students can identify the shortcomings of the former process. To make Preston’s Ethic of Response Model easier to use, a template (Table 4-3) was developed by JV which was sent to Preston for input and approval.

The third-year veterinary science students and first-year animal science students who were involved in the validation of the VetDIT versions were provided with similar content in one 50-minute lecture, without the interactive teaching strategies, guided practice, and small-group interaction. After adjusting PI scores for comparability of the different versions of the DIT completed by different cohorts before and after the teaching interventions, validated and matched students \( (n = 401) \) from the three cohorts were compared for growth in moral judgment, as determined by the VetDIT-V2.

4.3.3 Changes in Moral Judgment during the Program

To identify changes in moral judgment during the veterinary program, a longitudinal analysis of PI, MN, and UP scores for both human and animal ethics issues was conducted using matched first- and third-year veterinary students \( (n = 39) \). These students completed the VetDIT-V1 in their first year before an animal ethics lecture and large group exploration of ethical decision-making strategies, and in their third year before any further ethics teaching.
Table 4.2 Moral judgment and ethical decision-making workshop (3 hours)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Purpose</th>
<th>Resource</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal ethics issues questionnaire</td>
<td>Reflecting on ethical sensitivity, motivation, action</td>
<td>Animal ethics issues questionnaire</td>
<td>10 min</td>
</tr>
<tr>
<td>Human continuum</td>
<td>Taking a position on an ethical issue, considering others’ positions, identifying the wide range of views and comparing with own view, possibly modifying own position, and raising question of how to decide which positions are ethical</td>
<td>Suitable room for students to stand in a semi-circle from <em>Strongly Agree</em> to <em>Strongly Disagree</em> on an animal ethics issue (students take a position, discuss with others with similar positions, listen to the range of positions, and possibly shift positions)</td>
<td>10 min</td>
</tr>
<tr>
<td>Explanation of Kohlberg’s Theory of Moral Development and the value of Principled Reasoning</td>
<td>Understanding how we develop morally and how we can identify an ethical position</td>
<td>PowerPoint presentation</td>
<td>10 min</td>
</tr>
<tr>
<td>Modeling use of Preston’s Ethic of Response Template</td>
<td>Observing how to apply a comprehensive ethical decision-making model to an animal ethics issue</td>
<td>PowerPoint presentation of the Template’s step-by-step completion</td>
<td>10 min</td>
</tr>
<tr>
<td>Hot Potato activity in groups of three (quick recording and passing of worksheets to add new ideas)</td>
<td>Focusing on the issue and identifying a wide range of ideas</td>
<td>Worksheet for brainstorming facts, stakeholders, possible actions</td>
<td>5 min</td>
</tr>
<tr>
<td>Completing Preston’s Ethic of Response on a new issue (same for each group)</td>
<td>Using the main ethical frameworks (utilitarian, deontological, and virtue ethics) and universal principles of respect for life and well-being, justice as fairness, and integrity to come to a fitting ethical decision</td>
<td>Blank Template for each group; completed model template and justification paragraph for each student</td>
<td>20 min</td>
</tr>
<tr>
<td>Group reports on their decision and justification</td>
<td>Justifying ethical decisions using universal ethical frameworks and principles</td>
<td></td>
<td>10 min</td>
</tr>
<tr>
<td>Ethical decision making Survey</td>
<td>Evaluating ethical decision-making strategies used in workshop</td>
<td>Survey sheet for each student</td>
<td>10 min</td>
</tr>
<tr>
<td>Defining Issues Test (post-test)</td>
<td>Reflecting on one’s own moral schema (what is important when making a decision on an ethical issue?)</td>
<td>DIT for each student</td>
<td>20 min</td>
</tr>
<tr>
<td>Individual assessment</td>
<td>Application and justification for ethical decisions</td>
<td>Assessment sheet with new scenario to record justification; blank Template for each student</td>
<td>30 min</td>
</tr>
</tbody>
</table>
Table 4-3 Ethic of Response Template (ERT), sample scenario: breeding modification for blind hens

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Action: keep beak trimming</th>
<th>Action: breed blind hens</th>
<th>Action: move to less intensive production (low density free range and educating consumers to pay more)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Respect life</td>
<td>Respect well-being</td>
<td>Respect life</td>
</tr>
<tr>
<td>1 Hens</td>
<td>× Large numbers</td>
<td>× Painful trimming</td>
<td>× Lose one of their major senses/capacity for quality of life</td>
</tr>
<tr>
<td></td>
<td>have short lives</td>
<td>× Hens still frustrated</td>
<td>capacity for quality of life</td>
</tr>
<tr>
<td>2 Farmers /producers</td>
<td>√ Maintains production levels</td>
<td>× Increasing pressure from consumers, general public, welfare groups</td>
<td>√ Easier to manage hens</td>
</tr>
<tr>
<td>3 Consumers</td>
<td>√ Continued cheap eggs</td>
<td>× Some don’t like it and moving to keep own chickens</td>
<td>× More consumer backlash due to hens’ permanent loss of sight capacity</td>
</tr>
<tr>
<td>4 Egg industry</td>
<td>√ Maintain production levels</td>
<td>× Consumer/public concerns</td>
<td>√ Increased supply of cheap eggs</td>
</tr>
<tr>
<td>5 Researchers</td>
<td>× Less work</td>
<td></td>
<td>× More work in this area</td>
</tr>
<tr>
<td>6 General public</td>
<td>× Generally concerned about animal welfare</td>
<td></td>
<td>× Increasing concern about manipulation of animals’ capacities</td>
</tr>
<tr>
<td>7 Animal welfare groups</td>
<td>× More work to do to prevent beak trimming</td>
<td>× Upset due to animal welfare concerns</td>
<td>× Extremely concerned about manipulation of animals’ capacities</td>
</tr>
<tr>
<td>8 Retailers</td>
<td>√ Plentiful eggs to sell</td>
<td>× Some consumers unhappy</td>
<td>√ Plentiful eggs to sell</td>
</tr>
<tr>
<td>9 Vet</td>
<td>× Concerned about pain to chickens and ongoing feeding issues if done badly</td>
<td>× Loss of professional integrity to prevent harm to animals</td>
<td>× Concerned about permanent loss to hens’ capacities; unknown further impacts on the species</td>
</tr>
</tbody>
</table>

97
<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Action: keep beak trimming</th>
<th>Action: breed blind hens</th>
<th>Action: move to less intensive production (low density free range and educating consumers to pay more)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Respect life</td>
<td>Respect well-being</td>
<td>Respect life</td>
</tr>
<tr>
<td><strong>Utilitarian ethics</strong></td>
<td>5</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>(rating 1–5; 1 = greatest benefits)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Justice as fairness</strong></td>
<td>5</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>(rating 1–5; 1 = fairest for least advantaged)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Virtue ethics/integrity</strong></td>
<td>4</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>(rating 1–5; 1 = most virtuous, consistent)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\( √ = \text{Benefits}; \times = \text{Harms} \)

Template based on Preston’s Ethic of Response Ethical Decision Making Model\(^{21}\)

Students choose the most fitting action based on the three ratings and justify their choice using ethics language and reasoning from the template.
4.3.4 **Demographics**

Basic demographic information was gathered, that is, students’ gender, age, previous university degrees, which degrees had been completed, and whether English was their primary language. Experience (from 1 = *very great extent* to 5 = *never*) with companion animals, with farm animals, and with horses were determined to identify their effects on moral judgment in relation to animal ethics issues.

4.3.5 **Statistical Analysis**

A general linear model was used to compare versions and to test the significance of demographic variables on the PI, MN, and UP scores for the three animal scenarios in three VetDIT versions. Comparisons were made between V1 and V2, and between V2 and V3. Residuals were tested for normal distribution using the Anderson–Darling test. MN and UP scores were normally distributed for both comparisons. However, PI scores were not normally distributed, so $\sqrt{\text{PI}}$ was used for the V1 and V2 comparison. A Moods median test was used to compare V2 and V3, because normally distributed residuals could not be achieved after a variety of transformations. There was no significant difference between MN and UP scores from different versions, so no conversion of V1 and V3 data for these two schemas was needed. To allow comparison of PI scores between versions, V1 and V3 scores were multiplied by the constants, mean score V2/mean score V1, and mean score V2/mean score V3, respectively.

A general linear model was used to test for the impact of course, teaching intervention (pre- and post-test), the interaction between these two factors and demographic variables on PI, MN, and UP scores for the three animal scenarios. PI and MN residuals approximated a normal distribution, and data for UP was squared to produce a normal distribution of the residuals. The same model was used to test for longitudinal changes between the first and third years of the veterinary program. Residuals for human ethics and animal ethics MN scores were normally distributed. Residuals for PI and UP animal ethics scores were not normally distributed and Moods median tests were used.

4.4 **RESULTS**

Demographic information gathered for the three cohorts of students indicated mostly female students, no previous degree, English as the primary language, and greater experience with companion animals than farm animals or horses (Table 4-4).
### Table 4.4 Demographics for first-year BVSc, first-year BAppSc (Production Animal Science), and third-year BVSc Students

<table>
<thead>
<tr>
<th>Demographics</th>
<th>First-year BVSc (130)</th>
<th>First-year BAppSc (Production Animal Science) Internal (164)</th>
<th>First-year BAppSc (Production Animal Science) External (27)</th>
<th>Third-year BVSc (80)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Range</td>
<td>17–42</td>
<td>16–45</td>
<td>16–50</td>
<td>18–51</td>
</tr>
<tr>
<td>Median</td>
<td>20</td>
<td>18</td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td>&lt; 21</td>
<td>76 (58%)</td>
<td>129 (79%)</td>
<td>15 (56%)</td>
<td>25 (32%)</td>
</tr>
<tr>
<td>21–25</td>
<td>45 (35%)</td>
<td>24 (15%)</td>
<td>6 (22%)</td>
<td>40 (51%)</td>
</tr>
<tr>
<td>&gt; 25</td>
<td>9 (7%)</td>
<td>11 (7%)</td>
<td>6 (22%)</td>
<td>14 (18%)</td>
</tr>
<tr>
<td>Female</td>
<td>108 (84%)</td>
<td>143 (87%)</td>
<td>25 (93%)</td>
<td>62 (77%)</td>
</tr>
<tr>
<td>Previous degree</td>
<td>35 (27%)</td>
<td>10 (6%)</td>
<td>3 (11%)</td>
<td>15 (19%)</td>
</tr>
<tr>
<td>English as primary language</td>
<td>112 (86%)</td>
<td>153 (93%)</td>
<td>26 (96%)</td>
<td>66 (82%)</td>
</tr>
<tr>
<td>Companion animals</td>
<td>92 (71%) / 13 (10%)</td>
<td>137 (84%) / 13 (8%)</td>
<td>26 (96%) / 0%</td>
<td>66 (82%) / 2 (2%)</td>
</tr>
<tr>
<td>Farm animals</td>
<td>23 (18%) / 74 (57%)</td>
<td>56 (34%) / 56 (34%)</td>
<td>6 (22%) / 11 (41%)</td>
<td>20 (25%) / 23 (29%)</td>
</tr>
<tr>
<td>Horses</td>
<td>32 (25%) / 74 (57%)</td>
<td>69 (42%) / 64 (39%)</td>
<td>14 (52%) / 7 (26%)</td>
<td>21 (26%) / 31 (39%)</td>
</tr>
</tbody>
</table>

#### 4.4.1 Comparability of DIT Versions

There were no significant differences ($p < .05$) between versions in MN and UP scores, but PI scores were greater in V1 (Table 4-5) and V3 (Table 4-6) than in V2.

**Table 4-5 Mean PI, MN, and UP scores for VetDIT versions 1 and 2 and male and female third-year veterinary students**

<table>
<thead>
<tr>
<th>Schema</th>
<th>V1 %</th>
<th>V2 %</th>
<th>Male %</th>
<th>Female %</th>
<th>SED</th>
<th>$p$ (version)</th>
<th>$p$ (sex)</th>
</tr>
</thead>
<tbody>
<tr>
<td>√PI</td>
<td>3.9</td>
<td>3.0</td>
<td>4.1</td>
<td>2.7</td>
<td>0.37</td>
<td>.01</td>
<td>.04</td>
</tr>
<tr>
<td>PI</td>
<td>17.9</td>
<td>14.1</td>
<td>19.6</td>
<td>12.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MN</td>
<td>32.7</td>
<td>38.3</td>
<td>35.3</td>
<td>35.7</td>
<td>3.19</td>
<td>.92</td>
<td>.12</td>
</tr>
<tr>
<td>UP</td>
<td>51.4</td>
<td>49.9</td>
<td>48.5</td>
<td>52.9</td>
<td>4.05</td>
<td>.46</td>
<td>.76</td>
</tr>
</tbody>
</table>

$PI = Personal Interest; MN = Maintaining Norms; UP = Universal Principles; SED = Standard Error of the Difference between two treatments$

**Table 4-6 Median PI, mean MN, and mean UP scores for VetDIT versions 2 and 3 and male and female first-year production animal science students**

<table>
<thead>
<tr>
<th></th>
<th>V2 %</th>
<th>V3 %</th>
<th>Male %</th>
<th>Female %</th>
<th>SED</th>
<th>$p$ (version)</th>
<th>$p$ (sex)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median PI</td>
<td>3.4</td>
<td>6.9</td>
<td>10.3</td>
<td>3.4</td>
<td></td>
<td>.020</td>
<td>.022</td>
</tr>
<tr>
<td>MN</td>
<td>35.6</td>
<td>33.1</td>
<td>36.5</td>
<td>32.3</td>
<td>2.31</td>
<td>.303</td>
<td>.250</td>
</tr>
<tr>
<td>UP</td>
<td>60.1</td>
<td>58.3</td>
<td>54.5</td>
<td>63.9</td>
<td>2.50</td>
<td>.488</td>
<td>.0219</td>
</tr>
</tbody>
</table>

$PI = Personal Interest; MN = Maintaining Norms; UP = Universal Principles$
4.4.2 Effect of Ethics Teaching and Changes during the Program

The first-year veterinary students who completed the workshop decreased both PI and MN scores and increased UP scores (Table 4-7).

Students assessed the workshop elements positively. Of the whole cohort of 149 students, the majority agreed (Table 4-8) that Preston’s Ethical Decision Making Model helped to

- clarify and modify their position;
- clarify others’ positions and ethical judgment;
- become aware of the complexity of making ethical decisions;
- use ethical frameworks and principles; and
- improve moral judgment skills.

Table 4-7 Mean Personal Interest, Maintaining Norms and Universal Principles scores (%) for students on different courses before and after ethics teaching

<table>
<thead>
<tr>
<th>Course</th>
<th>Before Mean</th>
<th>After Mean</th>
<th>Interaction</th>
<th>p before/after</th>
<th>p course</th>
<th>p interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st year</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BVSc</td>
<td>PI</td>
<td>7.7</td>
<td>4.6</td>
<td>7.7</td>
<td>4.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MN</td>
<td>36.0</td>
<td>27.7</td>
<td>36.0</td>
<td>27.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>UP</td>
<td>60.8</td>
<td>69.7</td>
<td>60.8</td>
<td>69.7</td>
<td></td>
</tr>
<tr>
<td>1st year</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BAAppSci</td>
<td>PI</td>
<td>6.9</td>
<td>6.5</td>
<td>6.9</td>
<td>6.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MN</td>
<td>33.2</td>
<td>28.9</td>
<td>33.2</td>
<td>28.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>UP</td>
<td>4860</td>
<td>3742</td>
<td>4860</td>
<td>3742</td>
<td></td>
</tr>
<tr>
<td>1st year</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BAAppSci</td>
<td>PI</td>
<td>7.3</td>
<td>7.2</td>
<td>7.3</td>
<td>7.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MN</td>
<td>32.6</td>
<td>28.5</td>
<td>32.6</td>
<td>28.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>UP</td>
<td>3883</td>
<td>4668</td>
<td>3883</td>
<td>4668</td>
<td></td>
</tr>
<tr>
<td>3rd year</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BVSc</td>
<td>PI</td>
<td>7.5</td>
<td>4.8</td>
<td>7.5</td>
<td>4.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MN</td>
<td>31.4</td>
<td>36.2</td>
<td>31.4</td>
<td>36.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>UP</td>
<td>3625</td>
<td>282.8</td>
<td>3625</td>
<td>282.8</td>
<td></td>
</tr>
</tbody>
</table>

PI = Personal Interest; MN = Maintaining Norms; UP = Universal Principles

Table 4-8 Student assessment of decision-making and ethical decision-making models

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Human Continuum</th>
<th>Preston’s Ethic of Response Model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Agree</td>
<td>Neither agree or disagree</td>
</tr>
<tr>
<td>1. Clarify my position</td>
<td>112 (76%)</td>
<td>26 (18%)</td>
</tr>
<tr>
<td>2. Modify my position</td>
<td>55 (37%)</td>
<td>58 (39%)</td>
</tr>
<tr>
<td>3. Clarify others’ positions and ethical judgment</td>
<td>134 (91%)</td>
<td>11 (7%)</td>
</tr>
<tr>
<td>4. Be more aware of the complexity of making ethical decisions</td>
<td>120 (81%)</td>
<td>17 (11%)</td>
</tr>
<tr>
<td>5. Use ethical frameworks and principles</td>
<td>79 (53%)</td>
<td>41 (28%)</td>
</tr>
<tr>
<td>6. Improve my moral judgment skills</td>
<td>72 (49%)</td>
<td>65 (44%)</td>
</tr>
</tbody>
</table>
Most students agreed that developing ethical decision-making skills in the first-year veterinary course and practicing ethical decision-making skills in small-group sessions were helpful, and that more sessions addressing animal ethics issues in various aspects of veterinary work as the program progresses would be worthwhile (Table 4-9).

There was no effect of the single lecture on VetDIT scores for either first-year animal science or third-year veterinary science students (Table 4-7). There was no longitudinal change between matched first- and third-year veterinary students’ PI, MN, or UP scores on animal or human scenarios ($p > .200$).

| Table 4-9 Student assessment of teaching ethical decision making in first year, in small groups, and as the program progresses |
|-------------------------------------------------|--------------------|--------------------|------------------|------------------|--------------------|
| Strongly agree | Agree | Neither agree or disagree | Disagree | Strongly disagree |
| 1. Develop ethical decision making skills in first-year vet course | 65 (45%) | 61 (43%) | 11 (8%) | 5 (3%) | 1 (1%) |
| 2. Small-group sessions for practicing ethical decision-making skills | 52 (36%) | 73 (51%) | 11 (8%) | 6 (4%) | 1 (1%) |
| 3. More sessions addressing animal ethics issues identified in various aspects of veterinary work as the program progresses | 31 (22%) | 65 (45%) | 37 (26%) | 7 (5%) | 3 (2%) |

**4.4.3 Demographic Influences**

Of the third-year veterinary and first-year production animal science students, males had higher PI scores than females (Table 4-5 and Table 4-6, respectively). Of the production animal science students, males had lower mean UP scores than females (Table 4-6). Across the three cohorts of students (first- and third-year veterinary and first-year production animal science students), males had higher PI scores than females (8.6 compared with 4.6 for females; $p < .001$) and a lower mean UP score (male = 59.8; female = 67.2; $p < .001$). Across these three cohorts, PI scores decreased with age ($p = .035$) (Figure 4-1).
Students with a previous degree had higher mean UP scores than students without (65.3, compared with 62.0 for no previous degree; \( p = .057 \)). Students whose primary language was not English had higher mean MN scores (33.8 compared with 29.8 for English as primary language; \( p = .030 \)), and lower UP scores (61.2 compared with 66.0, \( p = .014 \)).

4.5  DISCUSSION
Veterinary ethics curricula in three European veterinary schools have been divided into four main concepts: animal welfare science, laws and regulations, professionalism, and theories and concepts (including the history of veterinary medicine). While all of these pre-existing veterinary topics have a relationship with ethics, either informing ethics (i.e., animal welfare science, and theories and concepts) or being informed by ethics (i.e., laws and regulations, and professionalism), they are not addressing ethics as a separate knowledge and skill set, a scientific study of morality and moral behaviour that is grounded in moral philosophy and moral psychology. In reviewing use of these fields in other professions, it is our opinion that veterinary ethics teaching involves developing capacity for ethical behaviour and leadership in relation to animal ethics issues, which are central to veterinary work, through the knowledge and skills of moral behaviour components (i.e., moral sensitivity, judgment, motivation, and action).

This study helped refine and validate a new veterinary-specific measure of moral judgment, the VetDIT. The VetDIT draws upon the development and validation of the original DIT, which took over 25 years to develop, and refinement and validation of the new VetDIT will also require an
ongoing development process. Establishing comparability between the original Version 1 and the refined Version 2 in this study enabled moral judgment comparisons longitudinally between first- and third-year veterinary science students. Establishing comparability between Versions 2 and 3 enabled these two tests to be used before and after ethics teaching interventions to identify moral judgment development, and to avoid disillusioned (and therefore likely careless) responses or repetitive responses. While two of the three reasoning schemas, which were those most used by students, were comparable, PI reasoning was different between the versions and had to be statistically adjusted. This suggests that some further review of the suitability of PI questions in versions 2 and 3 would be helpful.

This study also tested the new VetDIT using two of Rest’s construct validity criteria: sensitivity to interventions designed to improve moral reasoning (i.e., showing pre- and post-test gains) and upward change in a longitudinal study. In our study, veterinary students exposed to two hours of an initial VetDIT and ethics lecture, followed by an intensive 3-hour small-group interactive workshop, increased their UP scores from 60.8 to 69.7 (Table 7), a shorter time than the necessary 20+ hours of small-group case study discussion in a medical ethics course to achieve a significant change (of approximately 5 points) in generic DIT UP scores. The fact that these UP scores are higher than usually observed for human scenarios confirms our earlier observation that veterinary students do utilize universal principles more extensively for animal scenarios than for human scenarios. Students in our study who completed the initial 2 hours of VetDIT and ethics lecture, and the 50-minute lecture covering similar content on moral judgment and ethical decision making, did not increase their UP scores. The difference between these two interventions was the use of interactive teaching strategies and small-group discussion (in groups of three) in the workshop, requiring decision making and justification, guided by moral development stage theory and the cooperative use of the Ethic of Response Template (ERT) (Table 4-3). It is possible that the increase in UP scores in our workshop program, in a shorter period than observed for students in the medical ethics course, is due to a more direct and focused use of moral knowledge and skills along with the small-group interaction. Although the medical ethics program asked the faculty members who were not trained in ethical theory to encourage students to take a position on each moral dilemma and defend it, in our workshop, students were given the theoretical basis for moral development from personal interest to universal principles reasoning and a model that guided their use of the predominant ethical frameworks and principles (Table 4-3).
The extent of growth in VetDIT scores through this ethics teaching intervention is noteworthy in that it is similar to the average progress in UP scores between high school and college students, and between college and graduate students (mean UP increase of 10) on Rest’s original human scenario DIT. While some veterinary ethics courses take a pluralist approach and aim “to help students recognise their own ethical viewpoints as a means to develop a personal identity,” we exposed students to the science of morality through moral development theory and encouraged “the standpoint of the impartial spectator or ideal observer,” using an amalgamation of the main philosophical approaches as complementing rather than competing with each other. Penn achieved similarly high levels of growth through “direct and focused approaches to moral education” using “moral development theory, stage typology, and philosophical methods of ethical analysis and their application to social issues,” with peer discussion of moral issues less effective, as were general courses in humanities, and political/social sciences. McNeel also achieved similar growth in a general education ethics course with senior college students (mean UP increase of 9) using Penn’s approach.

Using animal rather than human ethics scenarios in both the teaching and the DIT may also be more effective for veterinary students whose main motivations for taking the course are “to work with animals,” “to help sick and injured animals,” and to “improve the way animals are treated.” It enabled students to transfer their learning from small-group work, using the various philosophical approaches on animal ethics issues to apply these to the VetDIT. Students’ positive response to Preston’s model and small-group work in the first year, and to addressing animal ethics issues as they arise in future years, further supports this approach.

This study suggests that students’ moral judgment is not progressing during the veterinary program. While the VetDIT demonstrated construct validity by identifying moral judgment development with a specific ethics teaching intervention, there was no improvement in the PI, MN, and UP scores of veterinary students between first and third year, for both human and animal scenarios. Previous studies using the DIT or Kohlberg’s Moral Judgment Interview human scenarios have also shown a lack of moral judgment growth during both veterinary and medical programs, despite students showing growth in many other university programs, particularly in liberal arts programs. Another study, in which students increased their DIT UP scores by 6 points following a first-semester medical ethics course, showed a smaller change of 2.8 points over the subsequent three years of the veterinary program, the latter change being one regarded as normal and expected in this age group over that period. The third-year veterinary students had completed a 2-hour workshop in a large
group setting to test three interactive ethical decision-making strategies in their first year. It is possible that initial growth occurred but was not retained. Previous medical ethics research suggests that “ethics education should be integrated throughout the curricula and viewed as a process.”

Demographic variations in moral judgment scores on the VetDIT animal ethics scenarios were mainly aligned with those in previous studies using human ethics scenarios. Higher animal ethics PI scores for males in third-year veterinary and production animal science, and lower UP scores compared with females on the same course, aligns with male veterinary students’ lower UP scores on human ethics issues. A meta-analysis of 56 DIT studies (> 6000 subjects) found that females had significantly higher moral reasoning scores than males but the difference is small, whereas age/education were more influential. Our study supports previous research, which has found that PI judgment decreases with age (Figure 4-1) and that those with more education in general have higher UP judgment. Our students with English as their primary language had lower MN scores and higher UP scores on animal issues than students whose primary language was not English. In contrast to this, cross-cultural human DIT studies found similarity of age/educational trends across cultures and that Kohlbergian stages are universal.

4.6 CONCLUSIONS

In a review of medical ethics education, Eckles et al. identified “a lack of systematic analysis of the measurable elements of ethical skills and the best means for assessing them” and suggested that “educators should consider whether the ethics skills taught should be distilled into a competency.” In veterinary education, there has been a similar lack of measurable elements. The VetDIT provides a measurement tool for assessing progress in moral development in veterinary ethics education. In terms of understanding and using higher stages of moral reasoning and applying a unified model of ethical frameworks and principles to determine the most fitting ethical decision, moral judgment development can be enhanced by a short, intensive session provided it includes small-group interaction. Providing the same information in a lecture format is not effective in promoting moral development. Moral judgment on animal and human ethics issues did not develop between years 1 and 3. Further work is needed to assess retention of moral judgment development and to ensure that the information and tools are transferrable and useful in veterinary practice.
4.7 REFERENCES

32 Moon YL. A review of cross-cultural studies on moral judgement development using the Defining Issues Test. AERA Annual Meeting; 1985 Apr; Chicago.

108
CHAPTER 5 DIFFERENCES IN MORAL JUDGMENT ON ANIMAL AND HUMAN ETHICS ISSUES BETWEEN UNIVERSITY STUDENTS IN ANIMAL-RELATED, HUMAN MEDICAL AND ARTS PROGRAMS

5.1 ABSTRACT
Moral judgment in relation to animal ethics issues has rarely been investigated. Among the research that has been conducted, studies of veterinary students have shown greater use of reasoning based on universal principles for animal than human ethics issues. This study aimed to identify if this was unique to students of veterinary and other animal-related professions. The moral reasoning of first year students of veterinary medicine, veterinary technology, and production animal science was compared with that of students in non-animal related disciplines of human medicine and arts. All students (n=531) completed a moral reasoning test, the VetDIT, with animal and human scenarios. When compared with reasoning on human ethics issues, the combined group of students evaluating animal ethics issues showed higher levels of Universal Principles reasoning, lower levels of Personal Interest reasoning and similar levels of Maintaining Norms reasoning. Arts students showed more personal interest reasoning than students in most animal-related programs on both animal and human ethics issues, and less norms-based reasoning on animal ethics issues. Medical students showed more norms-based reasoning on animal ethics issues than all of the animal-related groups. There were no differences in principled reasoning on animal ethics issues between program groups. This has implications for animal-related professions and education programs showing that students’ preference for principled reasoning on animal ethics issues is not unique to animal-related disciplines, and highlighting the need to develop student (and professional) capacity to apply principled reasoning to address ethics issues in animal industries to reduce the risk of moral distress.

Key words: animal ethics; human ethics; moral judgment; professional ethics; moral reasoning; veterinary science; animal science; medical science; ethics education.

5.2 INTRODUCTION
Moral judgment has been identified as a cognitive development process through three levels of reasoning – preconventional (based on avoidance of punishment and satisfaction of personal interests), conventional (based on a desire to maintain society’s laws and institutional rules) and post-conventional (based on universal ethical principles of justice and impartiality for the welfare of all individuals). To investigate moral judgment development, Kohlberg used a Moral Judgment Interview in which respondents discussed their concerns in relation to specific human ethics issues.
A 20 year longitudinal study found moral judgment development to be positively correlated with age, socio-economic status, IQ, and education. Other tests have been developed to simplify the process of assessing levels of moral judgment e.g. Gibb’s Sociomoral Reflection Measure and Rest’s Defining Issues Test (DIT), the latter being used extensively in higher education and professional contexts. While Kohlberg’s highest stage of moral development was focussed on justice, Rest’s is a broader definition which encompasses all ethical theories for organising cooperation in society that are based on:

- The primacy of moral criteria in which conventions are alterable with duties and rights following from the moral purpose
- Appeal to a positive and constructive ideal incorporating the greatest good for all, guaranteeing minimal rights and protection for everyone, engendering caring, and mandating fairness
- Sharable ideals that are not self-serving at the expense of others, that respect others, and are not shielded by a privileged source of authority not subject to scrutiny
- Full reciprocity which requires that social norms are not biased in favour of some at the expense of others and rely on consensus based on ideals and logical coherence rather than established practice and existing authority

Moral theories that advocate that morality is nothing but the personal expression of approval or disapproval, that cooperation is a bad idea, or that are based on strict adherence to fundamentalist religious views not subject to scrutiny are excluded.

Studies conducted to identify moral judgment development of students in different professions have used human ethics issues such as whether one should steal to feed one’s family during a famine. A review of 33 moral judgment studies (6600 respondents) in medicine, dentistry, law and veterinary medicine confirmed that professional education programs do not promote moral judgment development unless the program contains a well-validated ethics curriculum. However, three studies comparing first and final year veterinary students to identify impact of age/education on moral judgment development showed mixed results. One of these, a large study, using the DIT as the moral judgment measure, of first and fourth year veterinary student volunteers (n=98) demonstrated similar mean universal principles (UP) scores at the beginning and end of the four year veterinary medicine course. An earlier pilot study (n = 20) using the Moral Judgment Interview found similar results. The third study of 57 students showed an increase during the course, using Gibbs’ Socio-moral Reflection Measure. First year medical students have shown
higher levels of moral judgment scores on DIT human ethics scenarios (mean UP score of 51) than college students generally (mean UP score of 46), but lower than philosophy students (mean UP score of 64). In DIT studies, formal education has had the most significant effect on UP scores, more than age, socio-economic status, region of country, sex, religion or profession, and UP scores tend to plateau at the highest level of a person’s formal education.

Very few studies have been done to assess moral judgment in relation to animal ethics issues. With an expansion of intensive use of animals worldwide, increasing knowledge of animals’ capacities and sentience, changes in relationships with companion animals, and the growing interest of society, the veterinary profession has become increasingly aware of the need to be skilled in ethical decision-making in relation to animals’ welfare and treatment. The World Health Organisation and governments have engaged veterinarians to develop policy and assist animal industries to develop better health, welfare and ethical practices in the various uses of animals. In many jurisdictions, animal research and teaching using animals can only be conducted with the approval of an animal ethics committee, which often includes a veterinarian. Yet there are currently no consistent international competencies required for moral judgment development in veterinary and other animal science courses and little is known about how veterinarians reason in relation to animal ethics issues.

To address this gap in knowledge, a test to identify moral judgment development in relation to animal ethics issues experienced by veterinarians, the VetDIT, based on Rest’s Defining Issues Test (DIT), was developed and piloted in 2012. The VetDIT includes three animal ethics issues and, for comparison, three human ethics issues from the DIT. This study showed that while veterinary students in the first year of their university program had similar reasoning levels to US Freshmen on human ethics issues, they had lower Personal Interest (PI) and higher Universal Principles (UP) reasoning scores on animal than on human ethics issues. It was considered that this could be due to the three animal issues presenting greater potential suffering than the three human scenarios, or because of students’ desire to help animals, demonstrated through their choice of an animal-related career. In an Australian study, 70% of students indicated “helping sick or injured animals” and 40% indicated “improving the way animals are treated” in their top three motivators for studying veterinary medicine. In the first VetDIT version, there was an extra UP option in two of the three scenarios which may have increased the chance of UP items being ranked as important. This was addressed with the refinement and validation of a revised VetDIT- Version 2 (V2) in which the
scenarios and questions were simplified and clarified, and the number of PI, MN and UP items balanced across the three scenarios.

The aim of this study was to use the revised VetDIT-V2 to compare moral judgment development in relation to animal ethics issues of students of animal related disciplines i.e. veterinary medicine, veterinary technology, animal science with non-animal related disciplines i.e. human medicine and arts students. Because previous research has shown the majority of veterinarians choose their course to help animals\textsuperscript{18}, it was hypothesised that veterinary students may use more principled reasoning on animal ethics issues, than students of animal science whose focus was largely animal farming, human-focussed medicine and a general ethics course grounded in moral philosophy with only one lecture on the ethics of animal experimentation. It was also hypothesized that arts students studying an ethics course may show more principled reasoning, particularly on human ethics issues, as they would be more aware of ethics theory.

5.3 MATERIALS AND METHODS

5.3.1 Participants

A total of 531 first year students from five courses at the University of Queensland, Australia completed the VetDIT Version 2 and were retained after standardised reliability checks (based on inconsistencies between items rated and ranked, missing data, selection of meaningless items, and indiscriminate answers).\textsuperscript{19} Three groups were from animal-related programs, and two from non-animal programs, as follows:

Animal-related programs

- 130 first-year Bachelor of Veterinary Science (Vet Sci) students (88\% of the cohort) in their second semester, prior to animal ethics teaching, although 35 students (27\% of the respondents) had a previous degree in which they may have had some ethics teaching;
- 65 1\textsuperscript{st} Yr Bachelor of Applied Science - Veterinary Technology (Vet Tech) students (55\% of the cohort) in their second semester with no previous ethics teaching in their course, although 5 students (6\%) had previous degrees which may have included some ethics teaching;
- 191 first year Bachelor of Applied Science - Animal Science (Anim Sci) students (55\% of the cohort) in their first semester, with 52\% completing the test prior to two hours of ethics lectures, and 48\% post teaching. No adjustment was made to the post test scores as these
lectures had no significant effect on their DIT scores. Some 13 students (7% of respondents) had a previous degree which may have included some ethics teaching.

Non-animal related programs

- 95 first year Bachelor of Medicine, Bachelor of Surgery students (Med) (21% of the cohort) at the beginning of their course with no medical ethics teaching. However all these students had completed a previous degree and may therefore have had some ethics teaching.
- 50 first year Bachelor of Arts (Arts) students (49% of the cohort) in the last three weeks of an Introduction to Ethics course.

5.3.2 Procedures

Written approval for this study was obtained from the University of Queensland Behavioural and Social Sciences Ethical Review Committee. It included students’ providing written consent for their DIT response to be used for research purposes, by recording a unique ID based on a provided formula on their DIT response, also enabling anonymity and confidentiality. Students completed the VetDIT in one 50 minute session. The test was incorporated into the teaching programs for Vet Sci, Anim Sci, Vet Tech and Arts students, and for the first two was accessible electronically on the University’s teaching portal for those attending or unable to attend the session. Med students were invited to participate following a one hour session on research opportunities and offered an incentive to participate by being eligible for a draw in a cash prize of $100.

5.3.3 Materials

The VetDIT Version 2 is based on the Defining Issues Test (DIT-2), which uses Kohlberg's six hierarchical stages in three developmental levels of moral judgment but redefines them as three schemas i.e. general cognitive structures which are applied to help understand new information:

- Schema 1 Personal Interest (PI) - recognition of authority and reciprocal relationships which result in reward or punishment for the person
- Schema 2 Maintaining Norms (MN) - abiding by existing rules and regulations set by governments or professional groups.
- Schema 3 Post-conventional, referred to here as Universal Principles (UP), emphasising moral ideals which are constructive and not self-serving at the expense of others.
Development occurs through adoption of higher level schemas. However, unlike Kohlberg’s interpretation where progress occurs through one stage at a time, in the DIT, people may utilise more than one schema in their reasoning, and there may be cross-cultural variations.4

The VetDIT V2 (Appendix B) includes three animal ethics scenarios: Euthanasia of a healthy dog, Reporting of sub-standard pig husbandry, and Breeding modification of hens. Three of the five human scenarios in Rest et al’s DIT-222 were included for comparison: Stealing during a famine, Reporting previous criminal history of a government candidate, and Cancelling a school meeting due to violence in previous meetings. Each animal scenario has 12 questions with three or four questions representing each of the different levels of reasoning i.e. Personal Interest, Maintaining Norms or Universal Principles (UP based on a mixture of deontological, utilitarian, care or virtue ethics frameworks), plus one meaningless item for validity testing. Across the three scenarios, eleven questions represent each of PI, MN and UP reasoning. Anyone wanting to use the test should contact us to see if there are revised versions and for the scoring process. Students initially rate each question according to how important they consider it to be when making a decision about what to do in each scenario. Students then rank the four questions they consider most important. These rankings are then scored, with 4 for the highest ranked, reducing to 1 for the fourth ranked question. These scores are allocated to PI, MN or UP based on which schema each ranked question represents. Each schema’s total scores for the three animal and three human scenarios are converted to percentages.

To identify the importance given to different ethical frameworks within UP i.e. deontological, utilitarian, care and virtue ethics, ranked scores were tallied for each of these frameworks using the same scoring system, e.g. if a deontological question “Does the dog have a right to life?” was ranked as most important, 4 points; ranked second, 3 points; ranked third, 2 points; and ranked fourth, 1 point. The summated points for each ethical framework were compared to identify students’ priorities when making decisions on animal ethics issues.

Validation of the VetDIT is ongoing. However studies so far have shown that it is sensitive to interventions designed to improve moral reasoning, and differentiates groups which one would expect to have greater expertise i.e. students with a previous degree.20
5.3.4 **Demographics**

Demographic information was gathered when completing the VetDIT, that is, students’ age, sex, previous university degrees, which degrees, whether English was their primary language and perceived experience with companion animals, farm animals and horses. Out of the 531 students, one student did not provide information on their previous degree, and two students on whether English was their primary language.

5.3.5 **Statistical Analysis**

Minitab Statistical Software (Version 16. State College, PA: Minitab Inc) was used to analyse the data. A general linear model was used to identify effects on PI, MN and UP DIT scores, of program, age, sex, previous degree, language, and experience with companion animals, farm animals (e.g. pigs, hens) and horses. Residuals were tested for normal distribution using the Anderson-Darling test. Universal Principles (UP) residuals for human scenarios were normally distributed and a General Linear model was used (with least square means) to identify program and demographic effects. MN Human and UP residuals for animal scenarios approximated a normal distribution, and PI residuals for both human and animal scenarios (P = 0.006 and <0.005) and MN animal residuals were not normally distributed, even after a variety of transformations. The Mood’s Median Test was therefore used to identify program and demographic effects on PI, MN and UP animal scenarios and PI and MN human scenarios. Program effects for these scenarios and differences between human and animal scores for PI, MN and UP were further identified using Mann-Whitney and Tukey’s pairwise comparisons. A regression analysis was used to identify the effect of age on UP human reasoning.

Correlations of PI, MN and UP scores between individual scenarios and between the combined three human and combined three animal scenarios were obtained using Spearman ranked data because the residual distributions were not normal by the Anderson-Darling test. Differences in the variation in PI, MN and UP scores between courses and for animal and human scenarios was analysed using coefficients of variation (CV) across individuals within courses, with CV for human and animal PI, MN and UP compared by a general linear model with 5 replicates being the CV for each course. Residuals were normally distributed by the Anderson Darling test. Comparison between human and animal scenarios was not possible by a general linear model as residuals were not normally distributed, so a Moods median test was used. Variation in scores between the six
individual scenarios was also analysed by coefficients of variation across individual scores, using a general linear model as residuals were normally distributed by the Anderson Darling test.

5.4 RESULTS

5.4.1 Demographic characteristics

Of the five groups of student respondents, Med students had the highest median age, and Arts students had the largest age range (Table 5-1). Students within the animal-related courses were predominantly female, while almost half in the ethics group and more than half in the Med group were male. All Med students had previous degrees, in contrast with just 27% of Vet Sci students, and less than ten percent of all other animal related courses. English was the primary language for the majority of students in all groups. Med students indicated the least exposure to companion animals, farm animals and horses. In the animal-related courses, Vet Tech and Anim Sci students reported that they had greater experience than Vet Sci students with companion animals, farm animals and horses.

Table 5-1 Number (%) of 1st Year Vet Sci, Vet Tech, Bachelor of Applied Science (Anim Sci) students, and 3rd Year Veterinary Students by age range, median age, age group, sex, previous degree, English as the primary language, and experience with companion animals, farm animals and horses

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Arts No. = 50</th>
<th>Vet Sci No. = 130</th>
<th>Vet Tech No. = 65</th>
<th>Anim Sci No. = 191</th>
<th>Med No. = 95</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>16-61</td>
<td>17-42</td>
<td>17-32</td>
<td>16-50</td>
<td>20-36</td>
</tr>
<tr>
<td>Standard Error of Mean</td>
<td>0.893</td>
<td>0.329</td>
<td>0.339</td>
<td>0.316</td>
<td>0.342</td>
</tr>
<tr>
<td>Median</td>
<td>18</td>
<td>20</td>
<td>18</td>
<td>18</td>
<td>23</td>
</tr>
<tr>
<td>No (%) &lt; 21</td>
<td>46 (91)</td>
<td>76 (58)</td>
<td>57 (88)</td>
<td>145 (76)</td>
<td>14 (15)</td>
</tr>
<tr>
<td>No (%) 21-25</td>
<td>1(2)</td>
<td>45 (35)</td>
<td>6 (9)</td>
<td>29 (15)</td>
<td>59 (62)</td>
</tr>
<tr>
<td>No (%) &gt;25</td>
<td>3(6)</td>
<td>9 (7)</td>
<td>2 (3)</td>
<td>17 (10)</td>
<td>22 (23)</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>28 (56)</td>
<td>108 (83)</td>
<td>62 (95)</td>
<td>168 (88)</td>
<td>39 (41)</td>
</tr>
<tr>
<td>No (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Previous Degree</td>
<td>2 (4)</td>
<td>35 (27)</td>
<td>5 (8)</td>
<td>13 (7)</td>
<td>95 (100)</td>
</tr>
<tr>
<td>English as primary language</td>
<td>48 (96)</td>
<td>112 (86)</td>
<td>63 (98)</td>
<td>179 (94)</td>
<td>89 (94)</td>
</tr>
<tr>
<td>companion animals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very great or great experience / minimal or</td>
<td>38 (76)/</td>
<td>92 (71)/</td>
<td>55 (85)/</td>
<td>163 (85)/</td>
<td>58 (61)/</td>
</tr>
<tr>
<td>no experience with:</td>
<td>7 (14)</td>
<td>13 (10)</td>
<td>6 (9)</td>
<td>13 (7)</td>
<td>18 (19)</td>
</tr>
<tr>
<td>Farm animals</td>
<td>13 (26)/</td>
<td>23 (18)/</td>
<td>18 (28)/</td>
<td>62 (32)/</td>
<td>13 (14)/</td>
</tr>
<tr>
<td>Horses</td>
<td>9 (18)/</td>
<td>32 (25)/</td>
<td>24 (37)/</td>
<td>83 (43)/</td>
<td>15 (16)/</td>
</tr>
<tr>
<td></td>
<td>26 (52)</td>
<td>74 (57)</td>
<td>30 (46)</td>
<td>70 (37)</td>
<td>68 (72)</td>
</tr>
</tbody>
</table>
5.4.2 Comparison of Animal and Human Scores

Comparing scores on animal (n=531; median PI 3.4, median MN 34.5, mean UP 62.7) and human scenarios (median PI 28.1, median MN 31.6, mean UP 38.0), the animal scenarios had lower PI (p<0.001), similar MN (p=0.27) and higher UP scores (p<0.001).

5.4.3 Program Effects

On animal issues, Arts students had higher levels of PI reasoning than Anim Sci and Med students (p. < 0.05; see Table 5-2). Vet Sci and Vet Tech students had higher levels of PI reasoning than Med students, and were similar to Anim Sci students. Arts students had lower MN reasoning scores than Med, Vet Sci and Vet Tech students, but not Anim Sci students. Vet Sci, Vet Tech and Anim Sci students’ MN reasoning scores on animal issues were lower than Med students' scores. There was no effect of program on UP reasoning for animal issues. On human issues, Arts students had higher PI reasoning scores than Vet Sci, Anim Sci and Med students, but not Vet Tech students. Med and Vet Sci students had higher UP scores than Anim Sci students. There was no effect of program of study on MN reasoning for human issues (Table 2).
<table>
<thead>
<tr>
<th>Reasoning Type</th>
<th>Course</th>
<th>Previous Degree</th>
<th>No Previous Degree</th>
<th>Male</th>
<th>Female</th>
<th>English Primary Language</th>
<th>English Not Primary Language</th>
<th>P Value Course</th>
<th>P Value Previous Degree</th>
<th>P Value Sex</th>
<th>P Value Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal</td>
<td>Arts</td>
<td>3.4</td>
<td>0.0</td>
<td>3.4</td>
<td>3.4</td>
<td>3.4</td>
<td>3.4</td>
<td>3.4</td>
<td>3.4</td>
<td>0.004</td>
<td>0.03</td>
</tr>
<tr>
<td></td>
<td>Med</td>
<td>3.4</td>
<td>3.4</td>
<td>6.9</td>
<td>3.4</td>
<td>3.4</td>
<td>3.4</td>
<td>3.4</td>
<td>3.4</td>
<td>0.004</td>
<td>0.03</td>
</tr>
<tr>
<td></td>
<td>Anim Sci</td>
<td>3.4</td>
<td>3.4</td>
<td>6.9</td>
<td>3.4</td>
<td>3.4</td>
<td>3.4</td>
<td>3.4</td>
<td>3.4</td>
<td>0.004</td>
<td>0.03</td>
</tr>
<tr>
<td></td>
<td>Vet Sci</td>
<td>3.4</td>
<td>3.4</td>
<td>6.9</td>
<td>3.4</td>
<td>3.4</td>
<td>3.4</td>
<td>3.4</td>
<td>3.4</td>
<td>0.004</td>
<td>0.03</td>
</tr>
<tr>
<td></td>
<td>Vet Tech</td>
<td>3.4</td>
<td>3.4</td>
<td>6.9</td>
<td>3.4</td>
<td>3.4</td>
<td>3.4</td>
<td>3.4</td>
<td>3.4</td>
<td>0.004</td>
<td>0.03</td>
</tr>
<tr>
<td>Human</td>
<td>PI, median</td>
<td>35.1</td>
<td>35.1</td>
<td>35.1</td>
<td>35.1</td>
<td>35.1</td>
<td>35.1</td>
<td>35.1</td>
<td>35.1</td>
<td>35.1</td>
<td>35.1</td>
</tr>
<tr>
<td></td>
<td>MN, median</td>
<td>35.1</td>
<td>35.1</td>
<td>35.1</td>
<td>35.1</td>
<td>35.1</td>
<td>35.1</td>
<td>35.1</td>
<td>35.1</td>
<td>35.1</td>
<td>35.1</td>
</tr>
<tr>
<td></td>
<td>UP, mean</td>
<td>35.1</td>
<td>35.1</td>
<td>35.1</td>
<td>35.1</td>
<td>35.1</td>
<td>35.1</td>
<td>35.1</td>
<td>35.1</td>
<td>35.1</td>
<td>35.1</td>
</tr>
</tbody>
</table>

a,b,c Medians and means with common superscripts do not differ significantly (p > 0.05). For parameters tested by Moods Median Test, pairwise comparisons are by Mann-Whitney Test; for parameters tested by General Linear Model, pairwise comparisons are by Tukey’s Multiple Comparison Test
5.4.4 Other Demographic Effects

For animal ethics issues, males had higher MN and lower UP reasoning than females (Table 5-2). Students with a previous degree had lower PI scores and there was a trend for higher MN scores than those with no previous degree. Students whose English was not their primary language had higher MN reasoning, and there was a trend for lower UP reasoning, than for those whose primary language was English.

For human ethics issues, males had higher PI and lower UP reasoning scores than females. Age had a large effect on UP reasoning scores on human scenarios, with UP scores increasing rapidly with age, although the $r^2$ value was low:

$$\text{UP (Human)} = 28.8 (+ 3.06) +0.45 (+ 0.144) \text{Age}, \text{R-Sq} = 1.8\%, \ p=0.002$$

There was no significant effect of perceived experience with companion animals, farm animals or horses on PI, MN or UP reasoning for either animal or human scenarios ($P > 0.10$).

5.4.5 Importance of different ethical frameworks in UP judgment on animal ethics issues

The weighted scores for different ethical frameworks used as the basis for UP questions, in order of importance in each scenario, were: Euthanasia scenario: deontological (right to life) 1563, utilitarian 875, care ethics 576, deontological (defy law to respect life) 387; Pig husbandry scenario: deontological 1490, utilitarian 893 and care ethics 571; Breeding blind hens scenario: Utilitarian 1450, Deontological (fairness) 1159, deontological (bodily integrity) 512, virtue ethics 148. Thus in the Euthanasia and Pig Husbandry scenarios, students prioritised deontological considerations of the animals’ right to life (euthanasia scenario) and treatment (pig husbandry scenario), over utilitarian, care and virtue ethics frameworks. In the breeding modification scenario, the deontological principle of fairness was second in importance to utilitarian considerations of weighing benefits and harms. Other deontological perspectives were of relatively low importance, i.e. in the euthanasia scenario, secretly rehoming the dog out of respect for its life; in the breeding modification scenario, respect for the bodily integrity of the hens.

5.4.6 Relationships between combined human and animal scenarios and between individual scenarios

Animal and human scores were correlated within the PI, MN and UP schemas: the correlations coefficients (CC) of the ranked combined animal PI, MN and UP with combined human PI, MN
and UP scores, respectively, were as follows: PI CC 0.20, P < 0.001; MN CC 0.17, P < 0.001; UP CC 0.15, P = 0.001.

PI, MN and UP scores for animal scenarios were all correlated between scenarios. Within schemas, the moral reasoning scores for the animal euthanasia scenario were highly correlated with those for the pig husbandry and breeding modification scenarios for MN (correlation coefficients CC 0.51, p<0.001 and CC 0.44, p<0.001) and UP (CC 0.56, p<0.001) and CC 0.55, p<0.001). For PI they were less highly correlated: PI (CC 0.19, p<0.001 and CC 0.14, p=0.001 respectively). The scores for the pig husbandry scenario were also correlated with the breeding modification scenario again more for MN (CC 0.54, p<0.001), and UP (CC 0.59, p<0.001) than for PI (CC 0.27, p<0.001).

There were some low but significant correlations between animal and human scenarios. These included the animal euthanasia scores being correlated with famine scores for MN (CC 0.12, p=0.005) and UP (CC 0.10, p=0.02) scores, but not PI scores (CC 0.05, p=0.22), and with the school meeting scenario for PI (CC 0.13, p=0.002) and UP (CC 0.11, p=0.013) but not MN scores (CC -0.002, p=0.96). The reporter scenario was not correlated with the animal euthanasia scenario. The pig husbandry scenario scores were not correlated with the famine or reporter scenario scores, but were correlated with the school meeting scenario scores for PI (CC 0.12, p=0.007) and UP (CC 0.13, p=0.003) but not MN (CC 0.02, p=0.60). The breeding modification scenario scores were not correlated with the famine, reporter or school board scenarios scores except for the school board UP scores (CC 0.13, p=0.002).

Low correlations between human scenarios included the famine scenario being correlated with the reporter scenario for PI scores (CC 0.20, p<0.001), the school meeting scenario for MN scores (CC 0.12, p=0.005) and the reporter and school meeting scenarios for UP scores (CC 0.23, p<0.001 and CC 0.10, p=0.02 respectively). The reporter scenario scores also correlated with the school meeting scenarios for PI (CC 0.10, p=0.02) and UP scores (CC 0.18, p<0.001) but not MN scores (0.06, p=0.16).

5.4.7 Variation in combined human and animal scenarios and in individual scenarios

There were no significant differences between courses in the coefficient of variation (henceforth variation) in PI, MN and UP scores (P > 0.10). Animal scenarios had much greater variation within a course than human scenarios (mean inter-quartile range [Q3-Q1] of CV for PI, MN and UP: 120
animal = 79.5, human = 7.8). For animal scenarios variation in PI > MN > UP, whereas all three were similar for human scenarios (CV animal PI 126.2, MN 44.9, UP 26.2; human PI 47.5, MN 45.8, UP 41.8, SED 2.82, P < 0.001).

5.5 DISCUSSION
This research supports a previous study\textsuperscript{17} finding that veterinary students prioritised principled reasoning when making decisions about animal ethics issues, more so than when reasoning about human ethics issues. However, it provides new evidence that predominantly principled reasoning on animal ethics issues is not unique to students of Vet Sci, despite their program choice being based on a desire to work with and help sick and injured animals.\textsuperscript{18} Regardless of professional interest, when considering animal scenarios, principled reasoning was prioritised by both animal-related (Vet Sci, Vet Tech, Anim Sci) and non-animal related fields (Med and Arts), more so than personal gain and obedience to authority (PI), or compliance with existing laws and policies (MN).

Across the whole sample, the median PI and MN moral reasoning scores on the combined human scenarios, including only those students without a previous degree (n= 382; PI 28.07, MN 32.39.), were similar to mean scores of a mixed sample of US college freshmen across a range of disciplines and universities, gathered from 176 data sets (n=2096; PI 28.5, MN 33.6)\textsuperscript{23} and the mean UP score (38.6) was higher than for US Freshmen (32.3). The difference in UP scores of the US Freshmen group could be due to variability in moral judgment that has been found to exist between different types of universities and regions within the US. First-year Med students, all of whom had a previous degree, had higher median PI scores and similar median MN and mean UP scores on combined human scenarios (n=95; PI 24.6, MN 31.6, UP 43.6), compared with mean scores of US professional degree students (n= 1582; PI 19.8, MN 31.4, UP 44.9).\textsuperscript{23} Differences in PI scores may have been due to different professional degrees. Also, as it was not clear at what stage the US students were in their professional degrees, and may have completed their professional degrees, the positive effects of education/age on moral reasoning,\textsuperscript{4} may have resulted in lower PI scores than for first year Australian medical students, although higher UP scores would then also be expected.

The study also suggests that first year students most often prioritise deontological reasoning over utilitarian, care and virtue ethics frameworks. The highest level of importance was given to the principle of the right to life in the euthanasia of a healthy dog scenario and the right of pigs to treatment in the poor husbandry scenario. The principle of fairness was a close second in
importance in the breeding modification scenario (i.e. “Is it fair to manipulate animals to fit production systems?”), with greatest priority given to utilitarian reasoning i.e. weighing up the harms of existing intensive farming practices such as debeaking of hens, against breeding blind hens. Previous studies have shown that first year veterinary students at the University of Queensland support veterinary medicine requiring a commitment to animals’ interests over the interests of their owners/caregivers. Further studies are needed to determine if first year students in various disciplines at other universities also prioritise deontological reasoning. However students’ motivation to take personal risks to protect an animals’ life seems questionable, based on the low priority given to: “Should the veterinarian secretly rehome the dog out of respect for its life?” in the euthanasia scenario. As well, very few students prioritised the right to bodily integrity i.e. “Is it disrespectful to interfere with the ‘wholeness’ of a bird?” with more importance being given to consideration of the extent of suffering than the comfort and pleasure from the birds’ sense of sight.

This prioritising of principled judgment on animal ethics issues, particularly the right to life and treatment, fairness, and weighing up the benefits and harms to all involved has implications for professional practice. Many animal-related professionals routinely engage in practices that restrict the welfare of animals within their care. Some have argued that medical, legal and veterinary professionals face challenges in living up to moral ideals because systems around them are dominated by personal interests, commercialism, and conventional morality. A moral climate of disillusionment and cynicism about the possibility of applying the ideals of postconventional moral reasoning in real life situations may result in inhibiting moral judgment and moral motivation to apply these ideals. Despite having a professional degree, practicing veterinarians have been shown to have similar moral judgment scores to the general public on human ethics issues, and show no improvement with years of experience Further studies are needed to assess practising veterinarians’ moral judgment in relation to animal ethics issues.

Historically, the growth of the veterinary profession seems to have been based on PI reasoning, with a need to keep animals healthy to maximise usefulness i.e. fit and healthy horses used for power, transport and war, and animals farmed for food free from disease to raise productivity and support human population growth. Following a major foot-and-mouth disease outbreak, and the need for more consistency in veterinary standards to keep animals healthy and useful, formalisation and regulation of the veterinary profession occurred in the UK from 1844. Veterinary associations have tended to use legislated norms (MN reasoning) as the basis for policies and positions on
animal ethics issues. The Australian Veterinary Association’s Code of Professional Conduct requires its members to “always consider the health, welfare and respectful treatment of animals” and “understand and comply with all relevant laws and guidelines, especially those regarding animal welfare, veterinary client confidentiality, and the prescribing of restricted substances.” These two requirements reflect conflicting demands between principled and maintaining norms reasoning. The code currently does not encourage leadership in developing or promoting laws and standards which apply universal ethical principles to decisions on animal ethics issues. This mismatch with current students’ prioritisation of principled reasoning is likely to contribute to moral distress “when one knows the right thing to do, but institutional or other constraints make it difficult to pursue the desired course of action.” (Jameton cited in Raines) Moral distress has also been identified when moral decisions are followed, but in doing so they clash with legal regulations. One way of addressing moral distress has been for the organisational culture to facilitate moral shift, in which the responsibility of, for example, killing healthy animals in a shelter, vet clinic or for medical training is shifted from the medical personnel to the animal owners who are seen as neglectful and irresponsible (Arluke cited in Scotney) or to the those in authority in the organisation, such as the owners of the clinic or the pound that provided the animals. Other coping behaviours include overcompensating with or distancing from patients, and leaving the profession. None of these resolve the ethical issues.

A universal principles approach to animal ethics education may therefore provide a unifying international objective for veterinary ethics education. Some teachers of veterinary ethics have taken a pluralist approach, encouraging students to identify their own personal perspective and promoting tolerance of a range of societal perspectives on how animals should be treated. Kohlberg and Candee argue that on both philosophic and psychological grounds, use of social relativism is invalid. Moral judgment has been identified by Kohlberg at the highest stage, as having “universalizable intent and that agreement and consensus are necessary and desirable features of moral discourse” “Even if following the moral method does not lead to substantive agreement, critical elements are impartiality, ... universalisability, prescriptivity, reversibility and generality” While Kohlberg focussed on the justice principle, he acknowledges that “in many situations, consideration of principle, even those posed as conflicting principles by moral philosophers, like the utilitarian principle of welfare and the Kantian principle of justice, are in agreement about particular situations. The empirical support for this claim is that principled Stage 5 thinkers [those who use UP reasoning] indeed do agree upon which action is right in many conflicting situations”. Rest also argued for a broadening of the highest level of
moral development to incorporate all moral ideals which are constructive, sharable and not self-serving at the expense of others. As this study suggests that the majority of tertiary students from both animal and non-animal disciplines, in Australia at least, do prioritise and apply universal principles to animal ethics issues, even more than to human ethics issues, the challenge for educators is to enable these high levels of moral judgment to be acknowledged and applied to address animal ethics issues, and embed them in professional and legal practice.

It is possible that since all course groups in this study had higher levels of UP reasoning on animal, compared with human, ethics issues, the higher levels may be due to the subject matter or the test instrument. In contrast to the human ethics issues in the DIT, all three animal ethics scenarios involved vulnerable animals in potentially severely harmful situations. It is possible that compassion, an empathic moral sentiment, may have prompted more principled reasoning than in the human scenarios. Compassion has been identified as having cognitive process involving evaluation of the subjects’ situation as serious, undeserved and an important part of one’s own scheme of ends and goals.

Differences in PI and MN reasoning on animal and human ethics issues between students in different programs may reflect demographic differences. Arts students’ higher PI reasoning than animal science and medical students on animal ethics issues, and most other groups except Vet Tech on human ethics issues, and lower MN reasoning than most other groups on animal ethics issues except animal science may be due to having the smallest proportion of students with a previous degree and the youngest age group. Many studies have shown that education and to a lesser extent age are positively correlated with moral judgement. As Arts students had completed most of an ethics course, it is somewhat surprising that they had more PI reasoning. Students of liberal arts programs have been found to have higher moral reasoning growth than those in vocationally oriented higher education courses perhaps due to the focus on “bringing students into contact with a highly diverse range of facts and views about the world ... which address the complexities and dilemmas that arise as different people seek to live cooperatively in the world.” However, overall there was relatively little PI, compared with MN and UP, reasoning and these students were in the first year of their Arts program.

Medical students higher use of MN reasoning on animal ethics issues than Arts, Vet Sci, Vet Tech and Anim Sci students may be the result of other demographic factors. Higher MN scores were identified in males than females on animal ethics issues in this study, and there was a trend for
previous degree to also have a positive effect on MN scores. The Med student group had the highest proportion of male students, particularly compared with Vet Tech, Anim Sci, and Vet Sci groups, and to a lesser extent, the Arts group. As well, all Med students had a previous degree, compared with very low proportions with previous degrees in the Arts, Anim Sci and Vet Tech student groups and a low proportion in Vet Sci. Although education level is the most important factor in developing moral judgment,⁴ the effects of different programs and colleges have also been identified.⁹ Medical and veterinary science students had similar levels of UP reasoning to other groups on animal ethics issues, but higher UP reasoning on human ethics issues. It is possible therefore that the previous mainly science programs were not developing principled moral reasoning in relation to animal ethics, as much as human ethics issues.

Higher MN and lower UP reasoning of students whose primary language was not English on animal ethics issues, but not on human ethics issues, aligns with an earlier study of Australian first year veterinary students indicating that students whose primary language was not English were less strongly concerned about how animals are treated in the Australian community and were more uncertain that they had experienced moral distress.¹⁸ Students who place more importance on maintaining existing social and legal norms are likely to be less conflicted and therefore less concerned about, or perhaps even unaware of, inconsistencies in current social and legal practices related to the treatment of animals. Cultural differences in attitudes toward animal use⁴⁰,⁴¹ have previously been identified. As this study involved students from one Australian university, further research is needed to determine if students’ moral judgment development is similar in other universities and in other cultural settings. International research into the relationship of field of university study to attitudes toward animals identified that agriculture students (agriculture, forestry, fishery and veterinary) were more accepting of killing animals, unnatural practices on animals (such as genetic selection and modification which change their natural state) and animal experimentation; humanities and arts students (religion, theology, languages, history, archaeology, philosophy, fine and performing arts) were less accepting of unnatural practices on animals and animal experimentation than students of other disciplines.⁴²

This study further validates the VetDIT-V2 as a measurement tool due to the positive correlations between scores for the animal scenarios, which were strongest for MN and UP scores, and the correlations between the combined scores for the three animal and three human scenarios (though low). The greater variation within animal scenarios between PI, MN and UP scores, with PI scores having greater variation, than MN which were greater than UP scores, compared with similar
variations between PI, MN and UP scores within human scenarios, was most likely due to the very low numbers of students who selected PI and the much greater number of students who selected UP items as important in the animal scenarios.

5.6 CONCLUSIONS

This comparison of first year Vet Sci, Vet Tech, Anim Sci, Med and Arts students’ moral judgment on animal and human ethics issues using the VetDIT-V2 suggests greater use of universal principles on animal ethics issues than human ethics issues, regardless of whether the students have chosen animal-related professions. Students used minimal PI reasoning on animal ethics issues, less than on human ethics issues. Use of MN reasoning was similar on both animal and human issues, and reflected the levels used by a mixed sample of US students at equivalent educational levels. Medical students, all of whom had a previous degree and the largest proportion of male students, used more maintaining norms reasoning than any other group. On animal ethics issues, male students and students whose English was not their primary language used more MN and less UP reasoning. On human ethics issues, males used more PI and less UP reasoning and UP scores increased with students’ age. This study further validates the VetDIT-V2 as a tool for assessing and comparing students’ moral judgment development. The high importance given to principled reasoning by all first year student groups in this study suggests that for many students one of the key components enabling moral action is already well-developed. This has implications for animal-related professions and education programs to build on students’ moral judgment and develop capacity to address animal ethics issues, and thus also help avoid moral distress and a disillusioned professional experience.

5.7 REFERENCES


21 Blackboard Inc. Blackboard learn Release 91.


CHAPTER 6 UNDERSTANDING THE RELATIONSHIP BETWEEN MORAL REASONING AND MORAL ACTION CHOICES REGARDING ANIMAL WELFARE DECISIONS

6.1 ABSTRACT
Moral action by animal professionals to address animal issues is increasingly important with growing understanding of animals’ capabilities, and public and organisational pressures to improve animal welfare. Little is known about how animal professionals’ intuitive action choices relate to their moral reasoning on animal ethics issues. A moral judgement measure, the VetDIT, with three animal and three non-animal scenarios, was used to investigate the action choices of 646 students in five animal- and two non-animal-related professional programmes in one Australian university, and how these related to their moral reasoning based on Personal Interest (PI), Maintaining Norms (MN) or Universal Principles (UP) schemas. Action choices showed significant relationships to the PI, MN and UP items for consideration, though not the combined ranked scores of reasoning types for each scenario, with the relationships varying across program groups. Action choices also varied within UP and PI schema. Having a previous degree, more experience with farm animals, and a primary language other than English predominantly had a negative effect, and experience with horses or companion animals a positive effect, on action choices favouring life and bodily integrity of animals. Gender had no effect on action choice and ethics teaching showed minimal effect. This study helps to explain the complex relationship between intuitive moral action choices and moral reasoning on animal ethics issues. The VetDIT provides a useful research and educational tool for understanding this relationship to enhance ethical decision-making for improved animal welfare.

Key words: animal welfare, animal ethics, moral action, moral judgment

6.2 INTRODUCTION
How we act in relation to animals is increasingly of public concern, assisted by greater understanding of the emotive \(^1\) and moral capabilities \(^2\) of animals. This concern has significant implications particularly for animal-related professionals, who in their work have to make ethical decisions which directly affect the lives of individual animals, and, in policy decisions, the lives of many. However, while animal welfare science and animal ethics teaching in animal-related professions has been of increasing interest, there has been little focus on identifying and assessing capacity for moral action on such issues.
Animal welfare science develops understanding of what animals need and prefer. However it does not provide a means of deciding what humans should do with this knowledge in relation to often competing interests (moral judgment), or how to develop the other components of moral behaviour (moral sensitivity, motivation and character) to enact these decisions. This is the domain of animal ethics. Currently, veterinary ethics education has no common competencies internationally for developing and measuring these components.

Various measures of moral judgment on human ethics issues have been used to assess and develop moral judgment in human-related professions such as dentistry, teaching, nursing, medicine, and a little in animal-related professions such as veterinary medicine. Until recently, moral judgment on animal ethics issues had not been measured. Using an adaptation of Rest et al.’s extensively-used Defining Issues Test (DIT), we developed a moral judgment measure, the VetDIT, using animal ethics issues faced by animal related professionals, particularly veterinarians. With this measure we have demonstrated that first year veterinary students in Australia reasoned using mainly universal principles (UP) when deciding what is important to consider in relation to animal ethics issues, much more than reasoning based on maintaining the laws, professional codes or conventions of society (maintaining norms, MN), with little based on their own personal interest (PI). In contrast, their moral reasoning on human ethics issues, showed similar levels of priority given to UP, MN and PI reasoning, comparable with US students of similar age and education level. A further study found that if students are taught moral development theory and ethical decision making using a model that combines the main ethical frameworks as complementary rather than competitive, and students are engaged in using these in an interactive workshop, mean moral reasoning scores can be substantially improved on the VetDIT. A comparison of veterinary students with human medical and arts students as well as students in other animal related fields i.e. veterinary technician and production animal science students at the same university, showed that veterinary students are not unique in their prioritisation of higher level reasoning on animal ethics issues, with similarly high levels of UP reasoning in all other groups. However no previous work has been done on relating moral judgment schema to action choices on animal ethics issues and, “for many, the degree to which we can understand moral action is the acid test for the whole research endeavour” into moral judgment.

While the development of moral reasoning dominated the field for many years, more recently, there has been a trend to emphasize the role of intuitive and automatic emotional processes in moral
judgment. Haidt argues that intuitions are fast, effortless cognitive evaluations that lead to the sudden appearance of a moral judgment, with moral reasoning generated afterwards to justify it. Moral reasoning is still important because it challenges others’ intuitions, thus leading to moral change and progress. Greene and others have suggested a synthesis of intuitive and conscious reasoning in a “dual-process” theory in which “both automatic emotional responses and more controlled cognitive responses play crucial and, in some cases, mutually competitive roles”. Brain imaging experiments provide evidence that deontological judgments are driven by emotional responses, and that controlled cognitive processes play a special role in utilitarian judgments.

We believe the VetDIT provides an opportunity to compare and develop understanding of the relationship between these two moral cognition response types. Intuitive moral action choices or judgments (i.e. quick effortless automatic cognitive evaluations) are made immediately after reading each scenario on an ethical issue. Students then rate and rank various considerations (representing different moral schema but unidentified for the respondents) according to how important they are in making a decision on the ethical issue. This task requires deliberate and purposeful thinking, to understand, compare, contrast and synthesise moral considerations that may not have been previously consciously identified by the respondent. Moral reasoning has been defined as “a conscious mental activity through which one evaluates a moral judgment for its (in)consistency with other moral commitments, where these commitments are one or more principles and (in some cases) particular moral judgments”. Both processes involve tacit and often unconscious knowledge about the various schemas or interpretive systems being used to make moral decisions. By analysing and comparing these, we can identify influences on decisions in relation to animal ethics issues to inform animal ethics education.

The benefit of analysing the relationship between intuitive responses and conscious reasoning is that moral intuitions can be changed by moral reasoning e.g. when people have new knowledge about the suffering of animals used for food sources, it may prompt reflection followed by a change in belief, and behaviour, ultimately leading to intuitive changes. Reason can also be altered intuitively e.g. when minority and majority groups pursue joint goals, emphasizing common humanity and interests, prejudice is often reduced.

As the relationship between action choices and moral reasoning on professional animal ethics issues has not previously been quantitatively explored, this study investigates:
• What action choices do students in various animal and non-animal related programs make in relation to professional animal ethics issues?
• How do intuitive action choices relate to moral reasoning on animal ethics issues?
• Are action choices affected by program choice, cultural background, experience with animals, education generally and ethics teaching in particular, age, or sex?

6.3 METHOD

6.3.1 Materials

The VetDIT\textsuperscript{11} is based on the Defining Issues Test (DIT)\textsuperscript{9} which uses dilemmas relating to human welfare to determine moral judgment development, condensing Kohlberg’s six hierarchical stages of moral judgment into three hierarchical schemas:

Schema 1  Personal Interest (PI) - recognition of authority and reciprocal relationships which result in reward or punishment for the person

Schema 2  Maintaining Norms (MN) - abiding by existing rules and regulations set by governments or professional groups.

Schema 3  Post-conventional, referred to here as Universal Principles (UP), emphasising moral ideals which are constructive and not self-serving at the expense of others\textsuperscript{7}.

Schemas are representations of some prior stimulus phenomenon that organise and guide the application of prior knowledge to new information\textsuperscript{23}, decreasing the amount of processing needed for encountered stimuli.\textsuperscript{24} “Moral schemas can be described as general knowledge structures used in social cooperation ...and are built from experience in social interaction”.\textsuperscript{19} Adoption of higher level moral stages and schemas occurs with age and education\textsuperscript{6,7}.

The VetDIT Version 2 (V2) includes three animal ethics dilemmas presented as scenarios: euthanasia of a healthy dog (Dog Euthanasia scenario), reporting of sub-standard pig husbandry on a farm (Pig Husbandry scenario), and breeding of blind hens to reduce feather pecking in intensive farming (Blind Hens scenario) (Appendix B). Another version, Version 3 (V3), includes similar treatments to different animals i.e. euthanasia of a healthy cat (Cat Euthanasia scenario), Research of a sick sheep from a research project (Sheep Research scenario), and breeding modification of pigs to reduce stress in intensive farming (Pig Stress scenario) (Appendix C).
For comparison three human ethics dilemma scenarios were included, from Rest et al’s DIT:\textsuperscript{9} stealing during a famine to feed a starving family (Famine scenario), media reporting a previous criminal history of shoplifting by a government candidate (Reporter scenario), and cancelling a School Board meeting due to violence in and after previous meetings (School Board scenario). After each scenario were three action choices relating to taking a deliberate action to resolve the dilemma, being uncertain about which action to take and deliberately not taking an action.

These action options were followed by twelve items presented as questions, representing eleven of each of PI, MN and UP moral reasoning schemas across the three animal scenarios, plus three non-relevant items for reliability testing. Students initially rated each of these questions for their importance when making a decision about how to act on each issue. They then identified the most important four questions, by ranking them 1-4. These rankings were weighted as follows: first ranked item x 4, second x 3, third x 2 and fourth x 1, and allocated to the relevant Personal Interest, Maintaining Norms or Universal Principles schema to give a score out of 10 for each schema in each scenario. Each schema’s total scores for the three animal and three human scenarios were then converted to percentages. As Rest et al.’s percentage scores for each schema on the combined 6 human scenarios were given scores adding to a possible 95, we scaled these up to be out of 100 to match our animal scenario calculations.

To identify various influences on action choices, as well as programme and year of study, the following demographic information was requested: gender, age, previous university degrees and which specific degrees were completed, whether English was the primary language, and experience with companion and farm animals, and horses (from 1 to 5, where 1= very great extent and 5= no experience).

6.3.2 Participants

A total of 646 University of Queensland students across 7 different programmes were included in this study:

- 130 first year B. Veterinary Science (hereafter veterinary) students (88\% of the cohort), who completed the VetDIT-V2 animal-related DIT before animal ethics teaching and the VetDIT-V3 after a 3 hour animal ethics workshops in groups of 25 students. Due to time constraints, human scenarios were not included in the V3 test.
- 42 third year veterinary students (37% of the cohort), who completed the VetDIT-V2 animal ethics scenarios and 80 students (70% of the cohort) who completed the human ethics scenarios before 2 hours of animal ethics lectures, after which all 80 students completed the VetDIT-V3.
- 35 fifth year veterinary students (35% of the cohort) completed the VetDIT-V2 halfway through the final year of their course, having had approximately six hours of animal ethics lectures in the first, third and fifth year of their course.
- 65 first year Bachelor of Applied Science - Veterinary Technology (hereafter veterinary technology) students (55% of the cohort), who completed the VetDIT-V2 and had had no animal ethics teaching.
- 164 first year Bachelor of Applied Science - Production Animal Science (hereafter production animal science) students (56% of the cohort) completed alternately VetDIT V2 then V3, or V3 then V2, before and after two hours of lectures on ethics and moral judgement theory and ethical decision making.
- 95 first year B. Medicine/B. Surgery (hereafter medical) students (21% of the cohort) who completed the VetDIT-V2 at the beginning of their course and had had no medical ethics teaching. All these students had completed a previous degree which may have included some ethics teaching.
- 50 first year B. Arts (hereafter arts) students (49% of the cohort) who completed the VetDIT-V2 in the after nine weeks (27 hours) of an Introduction to Ethics semester course.

### 6.3.3 Procedures

Approval for this study was obtained from the University of Queensland Ethical Review Committee. Students completed the VetDIT in one 50 minute session and indicated their willingness for the test results to be used for research purposes by recording a unique ID, enabling anonymity and confidentiality. The test was incorporated into the teaching programmes for first and third year veterinary students, production animal science and veterinary technology students, as a written paper, with these veterinary students also able to access the test electronically on the university’s internet site. Fifth year veterinary students were invited to complete the test in their lunch break following a professional communications lecture. Arts students completed the test during a relevant lecture. Medical students completed it following a one hour session on research
opportunities. Fifth year veterinary students and medical students were offered incentives to spend the extra time required, a free lunch and entry into a draw for a cash prize, respectively.

6.3.4 Statistical Analysis

Chi square was used for the first aim of this study, to identify significant differences between the total numbers choosing the different actions (should, can’t decide, and should not) in each scenario (listed in Table 6-2). Ordinal logistic regression was used with Logit function for the second and third aims to determine relationships between chosen action and overall scores for each moral reasoning schema (PI, MN, UP) for students on the various programs, with the inclusion of demographics (age, sex, previous degree, language, experience with companion animals, farm animals and horses) for each scenario. Schema effects by program are detailed in Table 6-3, and demographic effects in Table 6-5.

Also for the second aim, stepwise regression was used to relate students’ action choices to individual item ratings of importance, with forward backward modelling of the regression and alpha values set to enter questions when they were 0.15 or below. Relationships where alpha values were less than 0.10 are listed (Table 6-4). Chi square analysis was then used to identify any significant relationships between the proportion of PI, MN and UP items and action choice for animal or human scenarios. Nominal logistic regression was used to identify any differences between human and animal scenarios, caused by programme and schema, on relationships between PI, MN and UP schema and action choice.

For the third aim, chi square analysis was used to compare the effects of education program and year (1st, 3rd and 5th year veterinary science, 1st year vet technology, production animal science, medical, and arts students) on action choice. A chi square test was also used to compare action choices before and after a moral judgement workshop intervention (Table 6-6). For all Chi square analyses, an equal distribution of the three action choices was assumed, with Chi square testing for deviation from that distribution.
6.4 RESULTS

6.4.1 Demographic characteristics

Of the seven student cohorts, medical and fifth year veterinary students had the highest median age, and arts students had the largest age range (Table 6-1). Students within the animal-related courses were predominantly female, while almost half in the ethics group and more than half in the medical group were male. All medical students had previous degrees, in contrast with 27%, 19% and 11% of first, third and fifth year veterinary students, and less than ten percent of all other animal-related courses. English was the primary language for the majority of students in all groups, with the veterinary course having the most students whose English was not their primary language (14, 17 and 18% of 1st, 3rd and 5th years, respectively). Medical students indicated the least exposure to companion animals, farm animals and horses. In the animal-related courses, fifth year veterinary students reported greatest experience with companion animals and farm animals, followed by veterinary technology and production animal science students. The latter two groups reported greater experience with horses, and fifth year veterinary students reported the lowest proportion with minimal or no experience with horses.

Table 6-1 Number (%) of 1st, 3rd and 5th Year veterinary, 1st Year veterinary technology, production animal science, medical, and arts students, by age range, median age, age group, sex, previous degree, English as primary language, and reported experience with companion animals, farm animals and horses.

<table>
<thead>
<tr>
<th>Demographics</th>
<th>1st Yr Vet Sci</th>
<th>3rd Yr Vet Sci</th>
<th>5th Yr Vet Sci</th>
<th>1st Yr Vet Tech</th>
<th>1st Yr Prod Anim Sci</th>
<th>1st Yr Medical</th>
<th>1st Yr Arts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Range</td>
<td>17-42</td>
<td>20-51</td>
<td>21-29</td>
<td>17-32</td>
<td>16-50</td>
<td>20-36</td>
</tr>
<tr>
<td></td>
<td>Standard Error of Mean</td>
<td>0.329</td>
<td>0.493</td>
<td>0.331</td>
<td>0.339</td>
<td>0.316</td>
<td>0.342</td>
</tr>
<tr>
<td>Median</td>
<td>20</td>
<td>21</td>
<td>23</td>
<td>18</td>
<td>18</td>
<td>23</td>
<td>18</td>
</tr>
<tr>
<td>No (%) &lt; 21</td>
<td>76 (58)</td>
<td>25 (32)</td>
<td>0</td>
<td>57 (88)</td>
<td>145 (76)</td>
<td>14 (15)</td>
<td>46 (91)</td>
</tr>
<tr>
<td>No (%) 21-25</td>
<td>45 (35)</td>
<td>40 (50)</td>
<td>31 (89)</td>
<td>6 (9)</td>
<td>29 (15)</td>
<td>59 (62)</td>
<td>1 (2)</td>
</tr>
<tr>
<td>No (%) &gt;25</td>
<td>9 (7)</td>
<td>14 (18)</td>
<td>4 (11)</td>
<td>2 (3)</td>
<td>17 (10)</td>
<td>22 (23)</td>
<td>3 (6)</td>
</tr>
<tr>
<td>No (%) females</td>
<td>108 (83)</td>
<td>62 (77)</td>
<td>31 (89)</td>
<td>62 (95)</td>
<td>168 (88)</td>
<td>39 (41)</td>
<td>28 (56)</td>
</tr>
<tr>
<td>No (%) with previous degree</td>
<td>35 (27)</td>
<td>15 (19)</td>
<td>4 (11)</td>
<td>5 (8)</td>
<td>13 (7)</td>
<td>95 (100)</td>
<td>2 (4)</td>
</tr>
<tr>
<td>No (%) English as primary language</td>
<td>112 (86)</td>
<td>66 (82)</td>
<td>29 (83)</td>
<td>63 (98)</td>
<td>179 (94)</td>
<td>89 (94)</td>
<td>48 (96)</td>
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</table>

<table>
<thead>
<tr>
<th>No (%) very great or great experience / minimal or no experience with:</th>
<th>Companion Animals</th>
<th>Farm Animals</th>
<th>Horses</th>
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<tr>
<td></td>
<td>92 (71)</td>
<td>/13 (10)</td>
<td>/2</td>
</tr>
<tr>
<td></td>
<td>/2 (2)</td>
<td>/2 (6)</td>
<td>/2</td>
</tr>
<tr>
<td>No (%) very great or great experience / minimal or no experience with:</td>
<td>/13 (14)</td>
<td>/57</td>
<td>/22</td>
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<tr>
<td></td>
<td>/6 (4)</td>
<td>/2 (3)</td>
<td>/29</td>
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</table>
### Actions chosen for each scenario

In the VetDIT Version 2, the majority of students \( (n = 311/572) \) chose “Should not euthanize the dog” in the Request to Euthanize a Healthy Dog scenario \((\chi^2 114.0, P<0.001)\), and “Should report the farmer to authorities” \( (n = 459/580) \) in the Pig Husbandry scenario involving a farmer failing to treat suffering pigs \((\chi^2 557.9, P< 0.001)\) (Table 6-2). In the Breeding Modification in Confinement Agriculture scenario, regarding breeding blind hens to potentially reduce feather pecking, more students, though not a majority, chose “Should advise against the research” \( (n = 236/569) \) than “Should advise the research proceeds” \( (N = 168/569) \) \((\chi^2 17.0, P < 0.001)\), with a larger proportion undecided than in the other two scenarios (Table 6-2). In Version 3 animal scenarios, designed to be comparable with Version 2, the majority also chose not to euthanize a healthy cat in the Cat Euthanasia scenario \( (n=281/364) \) \((\chi^2 316.4, p<0.001)\), to remove sheep from a research trial in the Sheep Research scenario \( (n= 288/362) \) \((\chi^2 352.3, p<0.001)\) and advise against the breeding programme in the Pig Stress scenario \( (n= 170/353) \) \((\chi^2 40.1, p<0.001)\). In the human scenarios, the majority chose “Should steal the food” in the Famine scenario \((\chi^2 212.4, p<0.001)\), “Should not report the story” in the Reporter scenario \((\chi^2 456.6, p<0.001)\), and “Should have the next open meeting” in the School Board scenario \((\chi^2 125.4, p<0.001)\).

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Action</th>
<th>1st Yr Vet</th>
<th>3rd Yr Vet</th>
<th>5th Yr Vet</th>
<th>1st Yr Vet Tech</th>
<th>1st Yr Prod An Sci</th>
<th>1st Yr Med</th>
<th>1st Yr Arts</th>
<th>Whole Group</th>
</tr>
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</tr>
<tr>
<td>Dog Euthanasia</td>
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<td>5 (15)</td>
<td>15 (23)</td>
<td>38 (23)</td>
<td>18 (20)</td>
<td>5 (10)</td>
<td>134 (23)</td>
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<tr>
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<td>2 Can’t decide</td>
<td>30 (24)</td>
<td>15 (36)</td>
<td>5 (15)</td>
<td>9 (14)</td>
<td>36 (22)</td>
<td>22 (24)</td>
<td>10 (20)</td>
<td>127 (22)</td>
</tr>
<tr>
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<td>3 Not euthanize</td>
<td>53 (42)</td>
<td>18 (43)</td>
<td>23 (70)</td>
<td>41 (63)</td>
<td>89 (54)</td>
<td>52 (56)</td>
<td>35 (70)</td>
<td>311 (54)</td>
</tr>
<tr>
<td>Pig Husbandry</td>
<td>1 Report the farmer</td>
<td>110 (85)</td>
<td>23 (55)</td>
<td>22 (63)</td>
<td>57 (88)</td>
<td>131 (82)</td>
<td>75 (80)</td>
<td>40 (82)</td>
<td>458 (79)</td>
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<td>2 Can’t decide</td>
<td>18 (14)</td>
<td>14 (33)</td>
<td>8 (23)</td>
<td>6 (9)</td>
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<td>15 (16)</td>
<td>8 (16)</td>
<td>97 (17)</td>
</tr>
<tr>
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<td>3 Not report the farmer</td>
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<td>5 (12)</td>
<td>5 (14)</td>
<td>2 (3)</td>
<td>6 (3)</td>
<td>4 (4)</td>
<td>1 (2)</td>
<td>25 (4)</td>
</tr>
<tr>
<td>Blind Hens</td>
<td>1 Advise the research proceeds</td>
<td>33 (26)</td>
<td>9 (21)</td>
<td>12 (34)</td>
<td>23 (35)</td>
<td>44 (27)</td>
<td>31 (33)</td>
<td>16 (32)</td>
<td>168 (29)</td>
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<td>2 Can’t decide</td>
<td>41 (32)</td>
<td>9 (21)</td>
<td>9 (26)</td>
<td>19 (29)</td>
<td>41 (26)</td>
<td>30 (32)</td>
<td>16 (32)</td>
<td>165 (28)</td>
</tr>
<tr>
<td></td>
<td>3 Advise against the research</td>
<td>55 (43)</td>
<td>24 (57)</td>
<td>14 (40)</td>
<td>20 (31)</td>
<td>73 (47)</td>
<td>32 (34)</td>
<td>18 (36)</td>
<td>236 (40)</td>
</tr>
</tbody>
</table>

<p>| Total No of Students | 130 | 42 | 35 | 65 | 164 | 95 | 50 | 581 |</p>
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<thead>
<tr>
<th>Scenario</th>
<th>Action</th>
<th>1&lt;sup&gt;st&lt;/sup&gt; Yr Vet</th>
<th>3&lt;sup&gt;rd&lt;/sup&gt; Yr Vet</th>
<th>5&lt;sup&gt;th&lt;/sup&gt; Yr Vet</th>
<th>1&lt;sup&gt;st&lt;/sup&gt; Yr Vet Tech</th>
<th>1&lt;sup&gt;st&lt;/sup&gt; Yr Prod An Sci</th>
<th>1&lt;sup&gt;st&lt;/sup&gt; Yr Med</th>
<th>1&lt;sup&gt;st&lt;/sup&gt; Yr Arts</th>
<th>Whole Group</th>
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<td>Animal V3</td>
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<td>(9)</td>
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<td></td>
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<td>(9)</td>
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<tr>
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<td>11</td>
<td>16</td>
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<td>(14)</td>
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</tr>
<tr>
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<td>Sheep Research</td>
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<td>97</td>
<td>62</td>
<td>129</td>
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<td>(8)</td>
<td>288</td>
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<td>(76)</td>
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<td></td>
<td>(81)</td>
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<td>(80)</td>
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<td></td>
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<tr>
<td></td>
<td>2 Can’t decide</td>
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<td>10</td>
<td>26</td>
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<td>(15)</td>
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<td>(15)</td>
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</tr>
<tr>
<td></td>
<td>3 Not remove from the trial and not treat</td>
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<td>Pig Stress</td>
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<td>(24)</td>
<td>(21)</td>
<td>74</td>
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<td>24</td>
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<td>(31)</td>
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<td></td>
<td>3. Advise against the breeding program</td>
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<td>(45)</td>
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<td>Total</td>
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<td>164</td>
<td>374</td>
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<tr>
<td>Human Famine</td>
<td>1 Take the food</td>
<td>83</td>
<td>53</td>
<td>20</td>
<td>29</td>
<td>94</td>
<td>56</td>
<td>38</td>
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<tr>
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<td>2 Can’t decide</td>
<td>21</td>
<td>14</td>
<td>5</td>
<td>17</td>
<td>35</td>
<td>19</td>
<td>9</td>
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<td>(20)</td>
<td>(18)</td>
<td>(19)</td>
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<tr>
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<td>3 Not take the food</td>
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<td>13</td>
<td>9</td>
<td>19</td>
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<td>(20)</td>
<td>(4)</td>
<td>(19)</td>
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<td>Reporter</td>
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<td>13</td>
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<td>7</td>
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<td>19</td>
<td>6</td>
<td>90</td>
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<td>(14)</td>
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<td>(14)</td>
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<td>(12)</td>
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<tr>
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<td>2 Can’t decide</td>
<td>8</td>
<td>7</td>
<td>7</td>
<td>21</td>
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<td>(13)</td>
<td>(16)</td>
<td>(4)</td>
<td>(11)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 Not report the story</td>
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<td>59</td>
<td>23</td>
<td>49</td>
<td>119</td>
<td>60</td>
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</tr>
<tr>
<td>School Board</td>
<td>1 Call off the next open meeting</td>
<td>29</td>
<td>24</td>
<td>10</td>
<td>19</td>
<td>48</td>
<td>17</td>
<td>15</td>
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<td>(26)</td>
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<tr>
<td></td>
<td>2 Can’t decide</td>
<td>21</td>
<td>16</td>
<td>10</td>
<td>11</td>
<td>27</td>
<td>17</td>
<td>9</td>
<td>111</td>
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<td>(17)</td>
<td>(18)</td>
<td>(18)</td>
<td>(18)</td>
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</tr>
<tr>
<td></td>
<td>3 Have the next open meeting</td>
<td>75</td>
<td>38</td>
<td>13</td>
<td>33</td>
<td>82</td>
<td>59</td>
<td>25</td>
<td>325</td>
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<td>Total</td>
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<td>35</td>
<td>65</td>
<td>164</td>
<td>95</td>
<td>50</td>
<td>619</td>
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</table>

### 6.4.3 Relationship between action choice and moral judgment type based on item rankings

From the ordinal logistic regression analysis, there were six significant correlations (p<0.05) between the chosen action and the total scores for PI, MN or UP moral reasoning from students’ ranked top 4 priorities out of 12 items for consideration in each scenario (Table 6-3). In the Pig Stress scenario, after 2 hours of ethics and moral judgment lectures, first year production animal science students with low PI scores were more likely to choose “Can’t decide” or “Should advise against the breeding programme”, and those with high MN scores were more likely to choose...
“Should advise the breeding programme proceeds”. For human scenarios, first and third year veterinary and first year medical students with higher MN scores were more likely to choose “Should not take the food” in the Famine scenario. Third year veterinary students with higher UP reasoning were more likely to choose “Should have the next open meeting” in the Reporter scenario.

Significant correlations between overall action choice, as the ordinal output, and schema (PI, MN, UP) from the different program groups, using ordinal logistic regression

<table>
<thead>
<tr>
<th>Animal/Human Scenario</th>
<th>Action*</th>
<th>Schema</th>
<th>Program</th>
<th>Coeff</th>
<th>Odds Ratio</th>
<th>Lower CI</th>
<th>Upper CI</th>
<th>P Value</th>
</tr>
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<td>Animal Pig Stress</td>
<td>1</td>
<td>PI</td>
<td>1st Yr Prod An. Sc.</td>
<td>0.79</td>
<td>2.20</td>
<td>0.99</td>
<td>4.85</td>
<td>0.05</td>
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<tr>
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<td>2</td>
<td>MN</td>
<td>1st Yr Prod An. Sc.</td>
<td>0.67</td>
<td>1.95</td>
<td>1.06</td>
<td>3.60</td>
<td>0.03</td>
</tr>
<tr>
<td>Human Famine</td>
<td>1</td>
<td>MN</td>
<td>1st Yr Vet. 3rd Yr Vet.</td>
<td>-0.44</td>
<td>0.65</td>
<td>0.47</td>
<td>0.89</td>
<td>0.008</td>
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<td></td>
<td>2</td>
<td>MN</td>
<td>1st Yr Vet. 3rd Yr Vet.</td>
<td>-0.46</td>
<td>0.63</td>
<td>0.43</td>
<td>0.91</td>
<td>0.01</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>MN</td>
<td>1st Yr Vet. 3rd Yr Med. Vet.</td>
<td>-0.41</td>
<td>0.67</td>
<td>0.46</td>
<td>0.96</td>
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</tr>
<tr>
<td>School Board</td>
<td>1</td>
<td>UP</td>
<td>3rd Yr Vet.</td>
<td>0.46</td>
<td>1.58</td>
<td>1.12</td>
<td>2.23</td>
<td>0.009</td>
</tr>
</tbody>
</table>

*For description of actions, see Table 2

6.4.4 Relationship between action choice and moral judgment type based on item ratings

A majority of students’ ratings of each item representing a moral reasoning type (PI, MN or UP) in each scenario were significantly related to a specific action choice by one or more programme groups (Table 6-4). Most of these items related in a predictable manner to the chosen actions, e.g. students who rated the question: “Should the veterinarian support the owner’s legal right to euthanize the dog” as very important, chose the action “Should euthanize”; and students who rated the question: “Does the dog have a right to life” as very important, chose the action – “Should not euthanize the dog”. Across the three V2 animal scenarios, and 7 programme groups there were 12 PI, 15 MN and 16 UP correlations between items and action choices. In the Dog Euthanasia scenario, 7 (2 PI, 3 MN and 2 UP) of 11 relevant items (one item in each animal scenario was not relevant and was only for test reliability) were related to actions chosen, by one or more programme groups. The item related most often to action choice, by 4 programme groups, was the MN item
“Should the veterinarian support the owner’s legal right to euthanize the dog?” In the Pig Husbandry scenario, 8 (4 PI, 2 MN, 1 UP) of 11 relevant items were related to actions chosen, with four items common across 2 groups. In the Blind Hens scenario, 9 (2PI, 4MN, and 3UP) of the 11 relevant items were related to actions chosen, with 2 UP items related in 5 of the 7 programme groups.
Table 6-4 Significant correlations between action choice and item ratings in each scenario, by program type, correlation coefficients (CC) and P Values (P) from stepwise regression

<table>
<thead>
<tr>
<th>Scenario</th>
<th>PI Item</th>
<th>Action</th>
<th>Program</th>
<th>CC* (P)</th>
<th>MN Item</th>
<th>Action</th>
<th>Program</th>
<th>CC* (P)</th>
<th>UP Item</th>
<th>Action</th>
<th>Program</th>
<th>CC* (P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dog Euth B***</td>
<td>Tell the client to find another vet to euthanize?</td>
<td>Not euth</td>
<td>5thV</td>
<td>-0.31 (0.02)</td>
<td>Owners legal right to euthanize?</td>
<td>Euth</td>
<td>1stV</td>
<td>0.34 (&lt;0.001)</td>
<td>Deon*** Secretly rehome the dog out of respect for its life?</td>
<td>Not euth</td>
<td>5th Vet</td>
<td>-0.24 (0.05)</td>
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<td></td>
<td></td>
<td>VTech</td>
<td></td>
<td>-0.134 (0.07)</td>
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<tr>
<td>Dog Euth B***</td>
<td>Does vet have time to consider this?</td>
<td>Euth</td>
<td>VTech</td>
<td>0.15 (0.02)</td>
<td>What does vet profession support?</td>
<td>Euth</td>
<td>1st V</td>
<td>0.18 (0.07)</td>
<td>Deon Does the dog have a right to life?</td>
<td>Not euth</td>
<td>VTech</td>
<td>-0.48 (0.009)</td>
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<td>Pig Husb B</td>
<td>Will farmer blame vet?</td>
<td>Don’t report the farmer</td>
<td>3rd V</td>
<td>-0.12 (0.06)</td>
<td>Decide based on AVA Code?</td>
<td>Report the farmer</td>
<td>1st Vet</td>
<td>0.13 (0.002)</td>
<td>Care Eth Best help by treating pigs for a lower price</td>
<td>Don’t report the farmer</td>
<td>3rd V</td>
<td>-0.10 (0.08)</td>
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<td></td>
<td></td>
<td>Med</td>
<td></td>
<td>-0.12 (0.01)</td>
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<td>Will the vet be upset if reports farmer?</td>
<td>Don’t report the farmer</td>
<td>3rd V</td>
<td>-0.24 (0.001)</td>
<td>Unlikely prosecution will be successful?</td>
<td>Report the farmer</td>
<td>3rd V</td>
<td>0.21 (0.003)</td>
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<td></td>
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<td>VTech</td>
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<td>-0.15 (0.001)</td>
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<td>Will other farmers employ the vet?</td>
<td>Don’t report the farmer</td>
<td>Prod An</td>
<td>-0.12 (0.001)</td>
<td>Vet’s prof role to make this decision?</td>
<td>Report the farmer</td>
<td>3rd Vet</td>
<td>0.26 (0.04)</td>
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<td></td>
<td>Worth the trouble of reporting one farmer?</td>
<td>Report the farmer</td>
<td>Arts</td>
<td>0.07 (0.09)</td>
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<td>Scenario</td>
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<td>Blind Hens B</td>
<td>Public likely to abuse vet if research</td>
<td>Against</td>
<td>Prod An</td>
<td>-0.09</td>
<td>(0.06)</td>
<td>Any different from other breeding practices?</td>
<td>For</td>
<td>Prod An</td>
<td>0.10</td>
<td>(0.08)</td>
<td>Util Benefits/Harms</td>
<td>For</td>
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<tr>
<td>Interesting</td>
<td>For research</td>
<td>VTech</td>
<td>Med</td>
<td>0.26</td>
<td>(0.02)</td>
<td>0.18 (0.05)</td>
<td>If it is legal, is there any reason not to modify animals?</td>
<td>For</td>
<td>Prod An</td>
<td>0.15</td>
<td>(0.001)</td>
<td>Deon Disrespectful to interfere with 'wholeness' of bird</td>
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<td>work for the</td>
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<td>Famine B</td>
<td>Natural for father to steal for family?</td>
<td>Steal</td>
<td>1stV</td>
<td>0.16</td>
<td>(0.007)</td>
<td>0.10 (0.05)</td>
<td>Uphold community laws?</td>
<td>Not steal</td>
<td>1st V</td>
<td>-0.20</td>
<td>(0.001)</td>
<td>Deon Values as basis for social cooperation</td>
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<td></td>
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<td>Prod An</td>
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<th>Scenario</th>
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<th>UP Item</th>
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<th>Program</th>
<th>CC* (P)</th>
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<tr>
<td>6 Stealing for family or self?</td>
<td>Steal</td>
<td>3rdV</td>
<td>0.13 (0.05)</td>
<td>Not steal</td>
<td>Med</td>
<td>-0.11 (0.08)</td>
<td>Util</td>
<td>Bring more total good for everyone</td>
<td>Steal</td>
<td>1st V</td>
<td>0.26 (&lt;0.001)</td>
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<td>3rd V</td>
<td>0.24 (&lt;0.001)</td>
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<td>0.16 (0.010)</td>
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<td>Arts</td>
<td>0.14 (0.026)</td>
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<td>Courageous enough to risk getting caught?</td>
<td>Steal</td>
<td>ProdAn VTech</td>
<td>0.29 (&lt;0.001) 0.18 (0.03)</td>
<td>Public right to know?</td>
<td>Report the story</td>
<td>1st V</td>
<td>0.20 (&lt;0.001)</td>
<td>Deon</td>
<td>Has the candidate become a better person?</td>
<td>Not report the story</td>
<td>1st V</td>
<td>-0.30 (&lt;0.001)</td>
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<td>5thV</td>
<td>-0.33 (0.05)</td>
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<td>ProdAn V</td>
<td>-0.23 (0.001)</td>
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<td>Tech</td>
<td>-0.17 (0.074)</td>
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<td>Arts</td>
<td>-0.17 (0.02)</td>
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<td>0.17 (0.007)</td>
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<td>Another reporter will get the credit?</td>
<td>Report the story</td>
<td>5thV Prod An</td>
<td>0.17 (0.04) 0.14 (0.002)</td>
<td>If true, not wrong to report it?</td>
<td>Report the story</td>
<td>5thV Prod An VTech</td>
<td>0.45 (&lt;0.001)</td>
<td>Deon</td>
<td>Would election process be fairer with or without report?</td>
<td>Report the story</td>
<td>5thV</td>
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<td>Scenario</td>
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<tr>
<td>School Board B</td>
<td>Would community be angrier if open meeting stopped?</td>
<td>Have next open meeting</td>
<td>Prod An</td>
<td>-0.20 (0.004)</td>
<td>Call off the open meeting</td>
<td>Legal authority to hold closed meetings</td>
<td>3rd V</td>
<td>0.28 (0.007)</td>
<td>Util Effect on community’s ability to handle controversial issues?</td>
<td>Have the next open meeting</td>
<td>Med</td>
<td>-0.31 (0.03)</td>
</tr>
<tr>
<td></td>
<td>Community regard as a coward?</td>
<td>Have next open meeting</td>
<td>Med</td>
<td>-0.13 (0.06)</td>
<td>Call off the open meeting</td>
<td>Deon</td>
<td>ProdAn</td>
<td>0.27 (0.09)</td>
<td>Trouble from only a few hotheads, and is community in general fair-minded &amp; democratic?</td>
<td>Call off the open meeting</td>
<td>ProdAn</td>
<td>0.27 (0.09)</td>
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</table>

* CC if + = Important is related to Action 1 OR Unimportant is related to Action 3; - = Important is related to Action 3 OR Unimportant is related to Action 1
**UP items are classified as Deon=Deontological, Util=Utilitarian, Care Eth = Ethic of Care.
*** B=Before ethics teaching intervention; A=After
Across the 3 human scenarios, there were 11 PI, 20 MN and 19 UP correlations between items and action choices. In the famine scenario, 7 (3 PI, 2 MN, 2 UP) of the 10 relevant items (there were 2 meaningless items in this scenario) were related to action choice, by one or more programme groups, with the MN item “Shouldn’t the community laws be upheld?” related in all 7 programme groups (Table 6-4). In the reporter scenario, 7 (2 PI, 3 MN 2 UP) of the 10 relevant items were related to action choice, with the UP item “Hasn’t Thompson shown in the past 20 years that he is a better person than his earlier days as a shoplifter?” related in 5 programmes, and an MN item: “Doesn’t the public have a right to know all the facts about all the candidates for office?” related in 4 programmes. In the School Meeting scenario, 5 (2 PI, IMN and 2 UP) out of 11 relevant items were related to action choice, with a UP item: “Is the trouble coming from a few hotheads, and is the community in general fair-minded and democratic?” and an MN item: “If the school board is threatened, does the chairman have the legal authority to protect the board by making decisions in closed meetings?” related in 3 programmes each.

Items representing different frameworks of UP reasoning i.e. deontological, utilitarian or care ethics produced different action choices in some scenarios (Table 6-4). For example, in the breeding blind hen scenario, the deontological item: “Is it disrespectful to interfere with the “wholeness” of a bird?” was correlated in five programme groups with advising against the research, while the utilitarian item rated as important: “Is it important to consider whether the benefits of less stress to the birds outweigh the harm of taking away one of their natural features?” was correlated in five program groups with advising the research proceed. In the dog euthanasia scenario, the deontological item rated as important: “Should the veterinarian secretly rehome the dog out of respect for its life?” was correlated with not euthanizing the dog; and the utilitarian item: “Should the veterinarian weigh up the possible consequences to all concerned of euthanizing the dog?” had no significant relationship (P > 0.10) with a particular action. However, in the famine scenario four program groups” ratings on the utilitarian item: “Would stealing bring about more total good for everyone concerned or wouldn’t it?” were correlated with “Should steal the food”, while the deontological item: “What values are going to be the basis for social cooperation?” was related to not stealing the food.

Items representing PI reasoning also related to different action choices in the same scenario (Table 6-4). For example, students who identified as important the PI item: “Would refusal to euthanize cause a confrontation with the owner and the boyfriend?”, chose the action of euthanizing the dog.
However, those who rated of high importance the PI item: “Should the veterinarian tell the client to find another veterinarian to euthanize the dog?” supported the action of not euthanizing the dog.

Overall, we found using nominal logistic regression that there were no significant differences in the number of PI, MN and UP item/action relationships between animal and human scenarios (Chi-sq 0.49, p=0.78) or between the different programmes (p=1.00), or for the different schema: PI (Animal Scenario Mean (A) 0.52; Human Scenario Mean (H) 0.52), MN (A 0.76, H 0.95) and UP (A 0.76, H 0.86) (p=0.99). As classification of the schema of each item in the three human scenarios has not been made available, the researchers on this paper came to consensus on the classifications. Different interpretations on a small number of items made no significant difference to this result.

### 6.4.5 Relationship of action choices to demographic factors

There were two significant effects of students’ university program on their action choices. First year vets were more likely to choose to euthanize a healthy dog than expected (45 actual Vs 30.7 expected, $\chi^2$ contribution 6.7) and Arts students were less likely than expected to choose this option (5 actual Vs 12 expected, $\chi^2$ contribution 4.2) (P = 0.004). Apart from this, programme of study had no effect on action choice (P > 0.05).

There were significant differences in action choices (p<0.05) based on whether English was students’ primary language. In the Blind Hens scenario, first year veterinary students whose primary language was not English were more likely to choose “Should advise against the research” (n=13; 72%), than those whose English was their primary language (n=42; 38%) (Table 6-5). In the Sheep Research scenario, production animal science students whose primary language was not English were less likely to choose “Should remove from the trial and treat the sheep” (n=2; 50%) and more were undecided (n=2; 50%) than those whose primary language was English (n=68; 91%). In the Dog Euthanasia scenario, third year veterinary students whose English was not their primary language were less likely to choose “Should not euthanize the dog” (n=1; 20%) than those for whom English was their primary language (n=17; 46%). For human scenarios, first year veterinary students whose primary language was not English were less likely to choose “Should not report the story” (n=7; 41%) in the reporter scenario than students whose primary language was English (n=94; 84%).
Reported experience with different animal groups also had some relationship to action choices. In the Blind Hens scenario, after ethics teaching, 56% of production animal science students (n=24) who chose “Should advise against the research” said that they had very great or great experience with horses compared with only 30% who said that they had minimal or no experience with horses (n=13). Furthermore, 69% of production animal science students (n=9) who chose “Should advise the research proceeds” reported very great or great experience with farm animals compared with 15% who had minimal or no experience with farm animals (n=2). Third year vet students reporting very great or a great deal of companion animal experience were more likely than other students to choose Action 3 - Should not euthanize the cat (n=47; 77%).

Having a previous degree had an effect on third and fifth year veterinary students’ action choices. Third year students without a previous degree were more likely to choose: “Should not euthanize the cat” (n=49; 80%), and “Should advise against the research” to breed blind hens (n=37; 62%), than those with a previous degree (n=7; 47% and n=6; 40% respectively). In the human famine scenario, fifth year veterinary students with a previous degree were more likely to choose Action 3: “Should not take the food” (50%), than students without a previous degree (23%).

There were few ethics teaching effects on action choices (Table 6-6), but a species effect was apparent: students who completed the euthanasia scenarios were more likely to choose “Should not euthanize” the cat than the dog, regardless of which of the two scenarios was completed before or after teaching. Action choices of different half cohorts of students on the same euthanasia scenario showed no teaching effect. In the husbandry scenarios, there was no difference between action choices.
choices of third year veterinary and first year production animal science students to address suffering pigs on a farm or sheep in a research facility. However, when comparing different half cohorts’ action choices on the same sheep research scenario before and after teaching, production animal science students were more indecisive (19 Vs 7 students choosing the option) and fewer (59 Vs 70) chose to remove the sheep from the trial after the teaching. First year veterinary students were more likely to act to report a farmer who was not addressing the suffering of his pigs, which was presented before teaching, than remove a suffering sheep from a research trial, which was presented afterwards. There was no difference in action choices of first and third year veterinary students between the breeding modification scenarios of hens and pigs, or between the same group of third year veterinary students on the Blind Hens scenario before and after ethics lectures. However more production animal science students (43 Vs 30) chose to advise against research to breed blind hens after ethics lectures.

Table 6-6 Number of students in different programs choosing action choices 1-3 in animal scenarios before (B) and after (A) ethics teaching interventions

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<tr>
<td>Action</td>
<td>B Dog</td>
<td>A Cat</td>
<td>B Dog</td>
<td>A Cat</td>
<td>B Dog</td>
<td>A Cat</td>
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<tr>
<td>1 Euthanize</td>
<td>44</td>
<td>17</td>
<td>9</td>
<td>3</td>
<td>19</td>
<td>5</td>
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<td>2 Can’t decide</td>
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<td>23</td>
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<td>6</td>
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<td>10</td>
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<td>3 Not euthanize</td>
<td>53</td>
<td>86</td>
<td>18</td>
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<td>Chi Sq</td>
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<td>P Value</td>
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<td>Action</td>
<td>B Pig</td>
<td>A Sheep</td>
<td>B Pig</td>
<td>A Sheep</td>
<td>B Pig</td>
<td>A Sheep</td>
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<td>97</td>
<td>29</td>
<td>30</td>
<td>72</td>
<td>59</td>
</tr>
<tr>
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<td>17</td>
<td>12</td>
<td>6</td>
<td>9</td>
<td>19</td>
</tr>
<tr>
<td>3 Pig-Do not report Sheep-Do not remove and treat</td>
<td>2</td>
<td>13</td>
<td>1</td>
<td>3</td>
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<th>2nd Yr Vet</th>
<th>2nd Yr Vet</th>
<th>1st Yr Prod An Sci</th>
<th>1st Yr Prod An Sci</th>
<th>1st Yr Prod An Sci</th>
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<td>B Hen</td>
<td>A Pig</td>
<td>B Hen</td>
<td>A Pig</td>
</tr>
<tr>
<td>1 Advise breeding program proceeds</td>
<td>33</td>
<td>21</td>
<td>9</td>
<td>7</td>
<td>3</td>
<td>31</td>
</tr>
<tr>
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<td>33</td>
<td>9</td>
<td>12</td>
<td>9</td>
<td>13</td>
</tr>
<tr>
<td>3. Advise against breeding program</td>
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<td>2.7</td>
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<td>P Value</td>
<td>0.12</td>
<td>0.63</td>
<td>0.16</td>
<td>0.26</td>
<td>0.67</td>
<td>0.009</td>
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149
6.5 DISCUSSION

This study identifies and compares the intuitive action choices of a range of students in animal and non-animal-oriented professions in relation to animal and human ethics issues, and how their initial quick judgments of what should be done relate to their levels of moral reasoning. Across the whole group the preferred action choices in both versions of the VetDIT were: 1) not euthanizing a healthy dog or cat, despite it being a client’s lawful request; 2) reporting to authorities if pigs are suffering from poor husbandry, or sheep are suffering in a research project, despite negative impacts this may have on the farmer, or one’s own profits in the former case, and the research in the latter; and 3) advising against research to breed blind hens or genetically-modified pigs to withstand more stress in intensive farming, despite it possibly reducing impacts of overcrowding. In the human ethics scenarios, preferred actions prioritised stealing to protect life, not reporting a story about an early misdemeanour of a person who had subsequently demonstrated strong character, and continuing with a meeting rather than cancelling due to threats of violence at and after a previous meeting. Most preferences tended to show greater support for the universal principles of respect for life and fairness, over the less universal values of compliance with a society’s laws, loyalty to clients, and taking the easiest or most profitable option for oneself. These intuitive action choices reflect the predominance of universal principles reasoning on animal ethics issues, over maintaining norms and personal interest reasoning identified in previous studies.10, 12

The limited correlation in each scenario between action choices and PI, MN and UP scores based on the top 4 ranked items suggests that any relationship between intuitive action choices and moral reasoning on both animal and human ethics issues is not straightforward. This is not surprising. Thoma et al.26 also found moral reasoning UP scores to be only marginally related to specific action scores (correlations in the low 0.3’s), which demonstrated “the perceived inability of moral judgement structures to provide unique answers about action choices in concrete situations”.26

Various reasons for this have been proposed. Firstly, moral schema may be ignored and other non-moral schemas used to influence action. For example, religious prescription can override a justice-based solution to a moral problem.27 Science has largely claimed to use an objective interpretive system distinct from ethical considerations, “enabling scientists to pursue their researches untroubled by ethical concerns about the way their discoveries are subsequently used”, and to justify “the most ethically indefensible acts in the name of biology” such as the coercive scientific eugenics research programme using victims of the Holocaust.28 Helping students to identify and prioritise moral schema, as distinct from other types of interpretive systems they may be using,
would therefore seem to be important. Secondly, the influence of moral development may not necessarily affect all forms of moral action in the same way. Variables of moral judgement and self-understanding can impact differently on different moral actions such as honesty, truthfulness, altruism, taking a stand in support of human rights and advocating the welfare and civil liberties of others. Thirdly, if neither action is clearly preferable from a principled point of view, then we should not expect the development of morally principled reasoning to increasingly favour one alternative over another.

However our analysis of the relationship between students’ ratings of individual PI, MN and UP items and action choices sheds more light on this complexity. Ratings of items were often correlated with specific action choices but not on every scenario and not uniformly across all program groups. Across the three scenarios, we found that 73% of the items did support specific action choices. Similarly, in human ethics scenarios, Rest and Thoma found that subjects could identify the alignment of DIT items with story action choices with a high degree of agreement. However, some items seemed especially sensitive to action choice differences, whereas others seemed less related to action choices. Across Rest’s 6 human DIT scenarios, and 72 items, nearly 80% of the item ratings significantly differed as a function of action choice groupings.

Our research suggests that different items from same schema can support different action choices. For example, in the blind hen scenario UP deontological items related to advising against breeding blind hens, whereas UP utilitarian reasoning, related to advising the blind hen research proceed. This may explain why scores based on combined rankings of different UP items were not correlated with a specific action choice. PI items were also aligned with different actions within the one scenario. Correlated MN items in each scenario related to the same action probably as this research was conducted in one country, Australia, so it would be expected that there would be a clear action choice based on its laws and customs. An international study, where relevant laws and social mores differ, may produce a greater variety of action choices linked to MN reasoning in particular scenarios. Despite MN items being correlated with the same action in each scenario, there were few correlations between action choices and ranked MN scores, suggesting that many students who rated MN items as important did not rank them as highly as UP or PI items.

Adding to the complexity, we found that different schemas can support the same action choice. For example, if a person rated highly the PI item: “Would refusal to euthanize cause a confrontation with the owner and the boyfriend?” this was aligned with the action of euthanizing the dog, as was
the MN item “Should the veterinarian support the owner's legal right to euthanize the dog?”. Another PI item “Should the veterinarian tell the client to find another veterinarian to euthanize the dog?” supported the action of not euthanizing the dog, as did the UP item “Does the dog have a right to life?” This demonstrates that when investigating relationships between action choices and moral reasoning, it is necessary to examine individual PI, MN and UP items, rather than combined PI, MN and UP scores. Further, analysing similarities and differences in ratings of items within PI, MN and UP schema will provide greater understanding of moral reasoning preferences.

The similarity in number of correlations between reasoning types and action choices across animal and human scenarios adds to the validity of the VetDIT. It also suggests that university students regardless of animal or non-animal related professional interest may be accessing all three levels of reasoning when making quick decisions about both animal and human ethics issues. Education to raise awareness of the different levels of reasoning and how they relate to their considerations and action choices will enable students to consciously work toward more universal choices in their professional roles and thus demonstrate ethics expertise.

Demographic factors had only limited influence on action choices. Students’ whose English was not their primary language were less likely to choose advising against the research in the Blind Hen Scenario, than students whose primary language was English, reflecting other studies which have found cultural differences in attitudes to various treatments of animals. Reported experience with different uses of animals also had an influence on action choices. Third year veterinary students indicating great experience with companion animals were more likely to choose to not euthanize a healthy cat than those students with little experience. Production animal science students indicating less experience with farm animals and more experience with horses were more likely to advise against the blind hen research than those with greater experience with farm animals or less experience with horses. Other studies have also suggested more empathic choices by students who indicated experience with companion animals and horses. Accepting attitudes toward harmful procedures by a majority of students and faculty in animal production courses were also reflected in this study, as third and fifth year veterinary students with predominantly science or animal science degrees were less likely to choose the action choices which value life and bodily integrity of animals than students without previous degrees.

Program of study had little effect. The finding that first year veterinary students were more likely to choose to euthanize a healthy dog than expected (based on equal numbers of students across the
three action choices), suggests a cohort effect, since third and fifth year veterinary students were similar to first year veterinary technology, production animal science and first year medical students. First year Arts students were less likely than expected to choose to euthanize a healthy dog, reflecting previous research which identified humanities students as less accepting of killing animals, unnatural practices and animal experimentation than agriculture and veterinary students. However, because these first year arts students had similar UP reasoning, higher PI and lower MN reasoning than some of the other groups, and there was no correlation between a specific reasoning type and this action choice, this program effect is likely to be the result of a combination of reasoning levels.

The lack of gender effect on action choices on animal and human issues suggests that males and females make similar intuitive moral action choices on both animal and human ethics issues. This is despite female veterinary students showing more concern for animal welfare than male veterinary students, female animal science students placing greater importance on principled reasoning in relation to animal ethics issues, and females generally showing slightly higher moral reasoning on human ethics issues than males.

Identifying changes in action choices after teaching was limited as only three of the seven groups in this study were able to undertake ethics teaching followed by retesting. Also, production animal science and third year veterinary students had minimal exposure to ethics teaching. Although first year veterinary students showed greater use of principled reasoning on the VetDIT following a three hour ethical decision-making workshop, there was little change in action choices, possibly due to different schemas being able to lead to the same action choice. As these groups of students were all from the one university, further research is needed to explore these relationships with different demographics.

Understanding the moral reasoning and action choices relationship is just one part of developing moral action. A review of the early literature showed considerable but varied support for the hypothesis that moral reasoning and moral action on human ethics issues are related. It showed strong support for the hypotheses that at higher stages of moral reasoning, there is greater resistance to the pressure of conforming one’s judgement to others’ views, but little support for the expectation that individuals who used universal principles reasoning were any more likely to resist the social pressure to conform in their moral action. While moral reasoning is important as a motivational force, Blasi recommended identifying other aspects such as different ego
involvement and integrity with its related constructs of self-definition, self-organisation, self-awareness and sensitivity to internal consistency as needing to be also seriously studied. Similarly, a review of links between DIT UP scores and various behaviour reported 32 statistically significant analyses out of 47, and professional decision making UP scores significantly linked to nurses’ clinical performance ratings, schoolteachers’ perceptions of classroom discipline, and auditors’ detection of fraudulent reports. Rest also identified that, while important, moral judgment has been shown to account for less than 20% of the variance of behavioural measures, with other components – moral sensitivity, moral motivation, and moral character – co-determining behaviour and should be incorporated as researchable variables in education programs. It is important therefore that further research occurs in these areas in relation to developing moral action on animal ethics issues.

6.5.1 Animal Welfare Implications

Although animal welfare science informs moral reasoning, it does not develop the capacity to identify if and how one’s action choices relate to moral development. Developing this understanding provides students and practitioners in animal related professions the opportunity to reflect on and develop their own moral reasoning. It thus enables more ethically justifiable decisions and recommendations in their role as advisors in animal welfare.

The significant relationships between intuitive action choices and ratings of considerations representing different levels of moral reasoning in this study show there is a logic to moral judgment, though a complex one, as different levels of moral reasoning sometimes relate to the same action choice, and the same schema sometimes support different action choices. The similar relationship between action choices and PI, MN and UP reasoning in both animal and human scenarios and across program groups suggests that the use of moral development theory and universal frameworks and principles in both animal and human ethics teaching would provide a common approach across all professions and industry. This would complement the One Welfare approach which aims to combine human, social and animal welfare for expanded capacity to enhance human and animal well-being. As action choices were also affected by demographics, principally students’ cultural background, their reported experience with animals, previous education, though not sex, such knowledge can be used to tailor animal ethics education programs to the different types of students being taught.
6.6 CONCLUSION

Well-educated intuitions and good reasoning are vital for ethical expertise. Blasi believes that most of the time our moral intuitions are internalised norms, and social expectations are never seriously reflected upon. The VetDIT provides an efficient research and educational tool both for understanding moral judgment development in relation to animal welfare issues, and as a self-reflective tool. Making explicit the tacit and often unconscious knowledge of the three schema being used, enables these to be consciously analysed to enhance one’s ethical decision-making. Future studies could ask students to decide on an action before and after working through the VetDIT and analysing their rating and ranking of different moral considerations in the light of moral development theory. We hypothesize that in the latter case, particularly with practice, there would develop a closer relationship between the use of the three moral reasoning schema and the action choice decision than we observed when attempting to relate the action choice made before the moral schema were considered. This could be incorporated into veterinary and animal science teaching programs internationally to provide a more consistent approach to moral development, along with strategies to develop the other components – moral sensitivity, moral motivation and moral character - that have been identified as important for moral behaviour.

Further, moral judgment is not just a single act that occurs in one person’s mind, but once expressed in words or actions, circulates and affects others’ intuitions, even if individuals rarely engage in conscious moral reasoning for themselves. Providing students in animal-related professions with this capacity to identify and explain actions based on levels of moral reasoning, and choose actions that represent higher levels should impact on the intuitive responses of those with whom they interact in their daily work with animals.

6.7 REFERENCES


Verrinder JM, Ostini R, Phillips C. Differences in moral judgment on animal and human ethics Issues between university students in animal-related, human medical and ethics programs PLOS ONE. Accepted 2016.


CHAPTER 7 IDENTIFYING VETERINARY STUDENTS' CAPACITY FOR MORAL BEHAVIOUR ON ANIMAL ETHICS ISSUES

7.1 ABSTRACT
Veterinarians face unique animal ethics challenges as practitioners and as policy advisors to government and industry. Changing societal attitudes, cultural diversity and often conflicting needs and interests of patients and clients contribute to moral distress. Yet little has been done to identify veterinarians’ capacity to address these animal ethics issues. In this study, first-year and final-year veterinary students in an Australian university were surveyed to explore three components of moral behaviour regarding animal ethics issues, i.e. moral sensitivity, moral motivation and moral character and their relationship to moral reasoning. The majority of students were concerned about animal ethics issues and had experienced moral distress in relation to the treatment of animals. Most believed that veterinarians should address the wider social issues of animal protection and that veterinary medicine should require a commitment to animals' interests over the interests of their owners or caregivers. There was less agreement that the veterinary profession was sufficiently involved in addressing animal ethics issues. Principal motivators for studying veterinary medicine were, in declining importance, the enjoyment in working with animals, helping sick and injured animals, and improving the way animals are treated. However, most students had taken little or no action to address animal ethics issues. These results suggest that both first- and fifth-year veterinary students are sensitive to animal ethics issues and are motivated to prioritize the interests of animals, but have little experience in taking action to address these issues. Further research is needed to determine ways to identify and assess these moral behaviour components in veterinary education to develop veterinarians’ capacity to address animal ethics issues.

Key words: animal ethics, veterinary education, ethical sensitivity, moral reasoning, moral motivation, moral behaviour.
7.2 INTRODUCTION

A fundamental ethical problem in veterinary medicine is whether veterinarians should give primary consideration to the animal or to the client.\(^1\) Morton suggests that veterinarians have a special role as animals' advocates because “they have the knowledge base and required skills and commitment to fulfil this role; they have earned the confidence and respect of the constituents they serve; and they are the professionals to whom policy makers logically turn for guidance on animal health and welfare issues.”\(^2\) Having the capacity to provide this ethical leadership is becoming increasingly important as animal ethics\(^3\) is a growing concern of communities and policy makers internationally.

However, such ethical leadership is arguably often more difficult for veterinarians than for their human medical counterparts. Cultural and legal frameworks and economic imperatives may support the management of animals in a manner that is not conducive to animals' welfare or interests (e.g., battery cages for chickens). Animal care is often inconsistent, both within and across species (e.g., different standards for treatment of rabbits depending on their use by humans). This can create moral distress which occurs "when one knows the right thing to do, but institutional or other constraints make it difficult to pursue the desired course of action."\(^3\) Batchelor and McKeegan found that veterinary practitioners in the United Kingdom experience stressful ethical dilemmas regularly, with most reporting one or two ethical dilemmas weekly and one third of practitioners reporting three to five per week.\(^4\) They also suggest that ethical sensitivity may determine the extent to which dilemmas are reported.

Ethics teaching in veterinary programs is relatively new but is growing internationally, albeit with considerable variation in what is taught and how.\(^2,5,6\) A 2010 survey found no clear description of ethics competencies within the regulations for veterinary training in Europe.\(^5\) In many professions, including veterinary science, ethics teaching aims to develop ethical behaviour toward people. However, the extent to which veterinary programs develop ethical behaviour toward animals is unknown, despite the treatment of animals being central to the veterinary role.

Based on morality literature, cognitive psychologist James Rest identified a Four Component Model (FCM) of moral behaviour:

1. Moral sensitivity - interpreting the situation through awareness of how our actions affect others
2. Moral judgment - determining which action is more morally justifiable
3. Moral motivation - prioritising moral values relative to other values
4. Moral character - having courage and persistence, overcoming distractions and implementing skills.\(^7\)

According to Rest, these four components "comprise a logical analysis of what it takes to behave morally", as "moral failure can occur because of deficiencies in any component".\(^7(p.24)\) As yet little has been done to develop ethics programs that follow such logic through to assessing the ethical behaviour that should ensue. Ethics programs often emphasize the development of the moral judgment component to address ethical dilemmas. However, the strength of association between moral judgment and action is low.\(^8\) Thus, although moral judgment is a critical component "because it produces the moral meaning that an intended action has for the individual,"\(^9(p.175)\) development of the other three components is also essential.

Although considerable research has been conducted in other professions to identify, develop and assess these three moral components in relation to human ethics issues, particularly in dentistry,\(^10\) little has been done in the veterinary profession. Some aspects of ethical sensitivity of veterinary students in relation to animal ethics have been investigated, such as students’ knowledge of animal sentience and empathy toward animals\(^11\) and attitudes toward specific treatments of animals.\(^12-14\) Similarly, students’ motivation to study veterinary medicine has been found to derive primarily from their attitudes toward animals.\(^15\) No research has been done on the moral action of veterinary students.

This study investigates first- and final-year veterinary students’ perceptions of their moral sensitivity, moral motivation and moral action, and their confidence in moral decision-making skills. It also explores the relationship between these three components and their results on a new measure of moral judgment, the Veterinary Defining Issues Test (VetDIT).\(^16\) Increased understanding of these four components of moral behaviour in veterinary students will inform development of common animal ethics competencies, course content and assessment tools for effective animal ethics education.

7.3 MATERIALS AND METHODS

Ethics approval was obtained from the University of Queensland Behavioural and Social Sciences Ethical Review Committee to survey first-year and fifth-year veterinary students using a
questionnaire developed by the researchers. The survey (Appendix D) contained 25 items on animal ethics issues:

1. Eight items related to moral sensitivity, specifically whether students:
   - are concerned about how animals are treated in the general Australian community;
   - can identify specific animal ethics issues of concern;
   - experience moral distress;
   - have knowledge and understanding of
     - animals' physical characteristics,
     - animals’ emotional characteristics, and
     - ethical frameworks and principles;
   - agree that veterinarians face difficulties in protecting animals' interests; and
   - can identify specific difficulties veterinarians face in acting to protect animals’ interests.

2. Twelve items related to moral motivation, specifically whether
   - the primary focus as a veterinarian should be the interests of the animals in his/her care;
   - veterinarians should be involved in the wider social issues of animal protection;
   - veterinary medicine should require a commitment to animals’ interests over the interests of their owners/caregivers;
   - the veterinary profession should be involved in addressing animal ethics issues in the wider community;
   - the veterinary profession is sufficiently involved in addressing animal ethics issues;
   - knowledge and skills to address animal ethics issues should be taught in the veterinary program;
   - their university provides an environment which supports students to discuss and resolve animal ethics issues/conflicts/dilemmas;
   - their university culture shows an interest in improving
     - animal health,
     - animal production, and
     - how animals are treated in the Australian community;
   - students can identify ways that their university has shown an interest/involvement in improving the way animals are treated in the Australian community; and
   - students were motivated to study veterinary science to improve the way animals are treated.

3. One item related to moral judgment, specifically whether:
students believed they were competent in ethical decision making skills to guide moral judgment on animal ethics issues.

4. Four items related to moral character, specifically whether
   - students had acted to resolve animal ethics issues, conflicts and dilemmas;
   - these issues, conflicts and dilemmas had been resolved;
   - students had acted to improve how animals are treated in the wider Australian community.
   - In addition, students listed specific actions they had taken to improve how animals are treated in the wider community.

Respondents were asked to rate their level of agreement on a 5-point scale, from 1=*strongly agree* to 5=*strongly disagree*. In addition, extent of actions were rated on scales from 1=*very great extent* to 5=*never*, or 1=*a great deal* to 5=*nothing*; and a scale of 1=yes, 2=partly, 3=no was used to measure whether ethical issues had been resolved. To determine if ethical motivators for choosing to study veterinary science were important, students selected and ranked their top three motivators from a list of 13 and were able to provide other motivators that were not listed. Open-ended questions were used to identify specific ethical issues students were concerned about, actions taken by students to improve how animals are treated, difficulties faced by veterinarians in protecting animals’ interests, and ways that their university shows an interest or involvement in improving how animals are treated in the Australian community. Basic demographic information was also gathered: gender, age, previous university degrees, whether English was their primary language, and self-evaluated experience (from 1=*very great extent* to 5=*never*) with three animal types: companion animals, farm animals and horses.

The survey was completed by 148 veterinary students from three cohorts: 60 first-year students (49% of the cohort) in 2012, 53 fifth year students (47% of the cohort) in 2013, and 35 fifth year students (35% of the cohort) in 2014. All groups were convenience samples of students attending a scheduled teaching session in one of their veterinary courses at the University of Queensland. In relation to formal animal ethics study, the first-year students completed the VetDIT, then had a lecture on ethical theory in relation to animal use, and then one week later completed this survey, all in their second semester Animal Handling, Behaviour and Welfare course. The 2013 fifth year students had received two 1-hour lectures on ethical theory applied to animals and the application of ethics to a current ethical issue, in first and third years, respectively. This questionnaire was completed at the beginning of their fifth and final year, after some had completed the VetDIT, and a
lecture on animal ethics within a professional practice subject. The 2014 fifth-year students were attending one week of professional practice workshops in the middle of their final year of work placements, and had a similar background in ethics teaching as the 2013 fifth-year students. Students completed the questionnaire in 20 minutes, either on paper or on-line using the University's Blackboard software. Participation was voluntary and anonymous. To enable comparisons with other questionnaires on moral judgment and with responses in future years, students were given a formula to record a unique identifying code.

Of those who had completed the survey, 48 first year students (39% of the cohort) and 36 fifth year students from 2013 (33%) also completed the VetDIT Version 1. This test, based on Rest's adaptation of Kohlberg's stages of moral reasoning development, assesses their levels of moral judgment on three new animal ethics issues and three previously validated and well-used human ethics issues. The levels of moral judgment include:

- Personal Interest (PI) - recognition of authority and reciprocal relationships that result in reward or punishment
- Maintaining Norms (MN) - maintaining social laws and norms and abiding by existing expectations in rules and regulations set by governments or groups
- Post-conventional, here identified as Universal Principles (UP) - emphasizing the primacy of moral ideals that are constructive, sharable, and not self-serving at the expense of others

Student scores for the different levels of reasoning in the VetDIT study are used here to explore relationships between moral judgment development and the other moral components in the FCM.

### 7.3.1 Statistical Analysis

The statistical program Minitab was used for data analysis. Spearman rank correlations were used to identify relationships in the animal ethics issues questionnaire as the responses were not normally distributed according to the Anderson-Darling test. Spearman rank correlations were also used to identify relationships between the animal ethics issues' responses and the VetDIT variables. The effect of demographic variables on animal ethics issues' categorical variables was tested by ordinal logistic regression with the logit function.
7.4 RESULTS

7.4.1 Student Demographics

Of the 148 students, ages ranged from 17 to 44, with the majority between 17 and 24 (n=114; 77%) and female (n=123; 84%). A total of 30 students (20%) had a previous degree, but this had no significant (P > .050) influence on responses. A total of 121 (83%) indicated English was their primary language. The majority of students claimed a very great extent (n=84; 57%) or a great extent (n=41; 28%) of experience with companion animals, but experience with farm animals was perceived as much less, with the majority indicating some (n=56; 38%) or little (n=49; 33%) experience. In relation to horses, 34 (23%) students indicated a very great or great extent of experience, while 47 (32%) indicated some experience and 56 (38%) little experience.

7.4.2 Moral Sensitivity

Most respondents (137, 93%) agreed that they were concerned about animal ethics issues in relation to how animals are treated in the general Australian community (Table 7-1). Specific issues of concern were identified by 28 first-year students (47% of the cohort) and 61 fifth-year students (70% of the cohort). The issues identified most often by first-year students related to animal farming (36, 69%), followed by companion animal issues (13, 25%); with the reverse true for fifth year students (46, 31% and 73, 50%, respectively). Most students (102, 69%) also indicated that they had experienced moral distress (Table 7-1). There was a positive correlation between concern about animal ethics issues and moral distress (correlation coefficient [CC] 0.29; p < .001). Students for whom English was not their primary language were less strongly concerned about how animals are treated in the wider Australian community and were more uncertain that they had experienced moral distress (Table 7-2).
Table 7-1: Responses of first- and fifth-year students to questions about their ethical sensitivity, on a scale of 1 (strongly agree) to 5 (strongly disagree)

<table>
<thead>
<tr>
<th>Question number and statements</th>
<th>Ethical sensitivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Ethical issues, conflicts, and dilemmas in relation to how animals are treated in the general Australian community are a concern for me.</td>
<td>78(53) 59(40) 5(3) 4(3) 1(1)</td>
</tr>
<tr>
<td>2. I have experienced moral distress in relation to the treatment of animals.</td>
<td>27(18) 75(51) 28(19) 16(11) 2(1)</td>
</tr>
<tr>
<td>3. I have knowledge and understanding of the range of ethical frameworks and principles on which animal ethics is based.</td>
<td>13(9) 87(59) 35(24) 10(7) 3(2)</td>
</tr>
<tr>
<td>4. I have knowledge and understanding of different species’ physical characteristics.</td>
<td>35(24) 90(61) 17(11) 6(4) 0(0)</td>
</tr>
<tr>
<td>5. I have knowledge and understanding of different species’ mental and emotional characteristics.</td>
<td>11(7) 77(52) 48(32) 10(7) 2(1)</td>
</tr>
<tr>
<td>6. Veterinarians face difficulties in protecting animals’ interests.</td>
<td>63(43) 70(48) 12(8) 2(1) 0(0)</td>
</tr>
</tbody>
</table>

Table 7-2 Significant (p ≤ .050) demographic effects on mean level of agreement, on a scale of 1 (strongly agree) to 5 (strongly disagree), for questions about ethical sensitivity (see Table 1 for questions)

<table>
<thead>
<tr>
<th>Question number</th>
<th>Demographic effect</th>
<th>Mean 1</th>
<th>Mean 2</th>
<th>OR</th>
<th>Lower CI</th>
<th>Upper CI</th>
<th>p value</th>
</tr>
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<tr>
<td>1</td>
<td>Language*</td>
<td>1.50</td>
<td>1.88</td>
<td>0.36</td>
<td>0.15</td>
<td>0.88</td>
<td>.026</td>
</tr>
<tr>
<td>2</td>
<td>Language*</td>
<td>2.15</td>
<td>2.64</td>
<td>0.36</td>
<td>0.16</td>
<td>0.85</td>
<td>.019</td>
</tr>
<tr>
<td>4</td>
<td>Language*</td>
<td>1.87</td>
<td>2.32</td>
<td>0.28</td>
<td>0.11</td>
<td>0.73</td>
<td>.009</td>
</tr>
<tr>
<td>4</td>
<td>Yr Level*</td>
<td>2.25</td>
<td>1.76</td>
<td>3.85</td>
<td>1.73</td>
<td>8.54</td>
<td>.001</td>
</tr>
<tr>
<td>5</td>
<td>Yr Level*</td>
<td>2.77</td>
<td>2.19</td>
<td>4.17</td>
<td>2.00</td>
<td>8.70</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>5</td>
<td>Language*</td>
<td>2.38</td>
<td>2.64</td>
<td>0.41</td>
<td>0.17</td>
<td>0.99</td>
<td>.048</td>
</tr>
<tr>
<td>5</td>
<td>Experience with horses¥</td>
<td>1&lt;=2.33</td>
<td>2&lt;=2.19</td>
<td>3&lt;=2.15</td>
<td>4&lt;=2.64</td>
<td>5&lt;=3.10</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Language*</td>
<td>1.6</td>
<td>2.0</td>
<td>0.25</td>
<td>0.10</td>
<td>0.62</td>
<td>.003</td>
</tr>
<tr>
<td>6</td>
<td>Experience with farm animals§</td>
<td>2=1.76</td>
<td>3=1.61</td>
<td>4=1.61</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*1 = English is primary language; 2 = English is not primary language  
*1 = first year; 2 = fifth year  
¥1 = very great extent; 5 = never  
§1 = great extent; 4 = minimal extent (values for 1 and 5 have been ignored as < 10 students responded in these categories)

In terms of having the knowledge to identify ethical issues, most (100, 68%) agreed that they had knowledge and understanding of a range of the ethical frameworks and principles on which animal ethics is based (Table 7-1), with 24% unsure. More students (125, 85%) agreed that they had knowledge and understanding of different species’ physical characteristics than mental and emotional characteristics (88, 59%). Fifth year students were more confident than first year students regarding their knowledge of both physical and mental/ emotional characteristics (Table 7-2). Students for whom English was not their primary language agreed less that they had knowledge of animals’ physical and mental/emotional characteristics. Students who indicated no experience with horses agreed less that they had knowledge of mental/emotional characteristics than those with
experience. There was a positive correlation between perceived knowledge of physical characteristics and both concern for ethics issues (CC 0.18; p = .026) and moral distress (CC 0.23; p = .005)

Nearly all respondents (133, 91%) agreed that veterinarians face difficulties in protecting animals' interests, a belief that was correlated with moral distress (CC 0.25; p = .003). Students for whom English was not their primary language had less strong agreement. Those who had more experience with farm animals had less strong agreement that veterinarians face difficulties in protecting animals’ interests. When asked to specify the main difficulties, first-year students more often than fifth-year students mentioned conflict between animals’ and clients’ interests, with the law supporting the client’s interests, (26 [39%] first year students, compared with 27 [20%] fifth-year students). The fifth-year students more often raised financial constraints as a main difficulty than did first-year students (39 [30%] fifth-year students, compared with 15[23%] first-year students). A significant proportion (21, 16%) of fifth-year students (but almost no first-year students [3, 5%]) also listed clients’ lack of co-operation with veterinarians’ instructions as a difficulty.

7.4.3 Moral Motivation

The majority of students strongly agreed that the primary focus of a veterinarian should be the interests of the animals in their care (Table 7-3). Male students were less strongly in agreement than female students (Table 7-4). The majority of students also agreed, though less strongly, that veterinarians should be involved in the wider social issues of animal protection, and that veterinary medicine should require a commitment to animals' interests, over the interests of their owners or caregivers (Table 7-3). First-year students agreed with this statement more than fifth-year students (Table 7-4). Students reporting greater experience with companion animals also more strongly agreed that veterinary medicine should require a commitment to animals’ interests, over the interests of their owners or caregivers, and students reporting greater experience with farm animals indicated less agreement. While the majority (n=139; 93%) agreed that the veterinary profession should be involved in addressing animal ethics issues in the wider community, almost half of the students were unsure and 17% disagreed that the veterinary profession was sufficiently involved. Agreement that the veterinary profession should be involved in addressing animal ethics issues in the community (Question 10) was the only one of these professional motivation questions that was correlated with students’ perceived knowledge and understanding of: ethical frameworks and
principles (CC 0.16; p = .047), different species’ physical characteristics (CC 0.21; p = .010) and different species’ mental and emotional characteristics (CC 0.22; p = .007).

Table 7-3 Responses of 148 first- and fifth-year students to questions about their ethical motivation and moral judgment capacity, on a scale of 1 (strongly agree) to 5 (strongly disagree)

<table>
<thead>
<tr>
<th>Question number and statements</th>
<th>Agreement level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 No. (%)</td>
</tr>
<tr>
<td>7. My primary focus as a veterinarian should be the interests of all animals in my care.</td>
<td>104(70)</td>
</tr>
<tr>
<td>8. As a veterinarian I should be involved in the wider social issues of animal protection.</td>
<td>69(47)</td>
</tr>
<tr>
<td>9. Veterinary medicine should require a commitment to animals' interests, over the interests of their owners/caregivers.</td>
<td>48(32)</td>
</tr>
<tr>
<td>10. The veterinary profession should be involved in addressing animal ethics issues in the wider community.</td>
<td>63(43)</td>
</tr>
<tr>
<td>11. The veterinary profession is sufficiently involved in addressing animal ethics issues in the wider community.</td>
<td>11(7)</td>
</tr>
<tr>
<td>12. Knowledge and skills to address animal ethics issues should be taught in the veterinary program.</td>
<td>72(49)</td>
</tr>
<tr>
<td>13. My university provides an environment that supports students to discuss and resolve animal ethics issues, conflicts and/or dilemmas related to how animals are treated.</td>
<td>34(23)</td>
</tr>
<tr>
<td>14. My university culture shows an interest in improving animal health.</td>
<td>61(42)</td>
</tr>
<tr>
<td>15. My university culture shows an interest in improving animal production.</td>
<td>49(33)</td>
</tr>
<tr>
<td>16. My university culture shows an interest in improving how animals are treated in the Australian community (i.e., to improve their well-being, capacities for pleasure and fulfillment, and avoidance of pain, distress and death).</td>
<td>47(32)</td>
</tr>
<tr>
<td>17. I am competent in ethical decision-making skills to guide moral judgment on animal ethics issues.</td>
<td>11(7)</td>
</tr>
</tbody>
</table>

Table 7-4 Significant (p ≤ .050) demographic effects on mean level of agreement, on a scale of 1 (strongly agree) to 5 (strongly disagree), for questions about ethical motivation and moral judgment capacity (see Table 3 for questions)

<table>
<thead>
<tr>
<th>Question number</th>
<th>Demographic Effects</th>
<th>Mean 1</th>
<th>Mean 2</th>
<th>Odds Ratio</th>
<th>Lower CI</th>
<th>Upper CI</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.</td>
<td>Sex*</td>
<td>1.54</td>
<td>1.31</td>
<td>2.76</td>
<td>1.09</td>
<td>6.98</td>
<td>.022</td>
</tr>
<tr>
<td>9.</td>
<td>Year level*</td>
<td>1.82</td>
<td>1.60</td>
<td>1.86</td>
<td>1.10</td>
<td>3.14</td>
<td>.025</td>
</tr>
<tr>
<td>9.</td>
<td>Experience with companion animals¥</td>
<td>5.00</td>
<td>2.05</td>
<td>2.50</td>
<td>1.09</td>
<td>6.98</td>
<td>.022</td>
</tr>
<tr>
<td>9.</td>
<td>Experience with farm animals¥</td>
<td>1.55</td>
<td>1.78</td>
<td>2.73</td>
<td>1.16</td>
<td>2.73</td>
<td>.008</td>
</tr>
<tr>
<td>14.</td>
<td>Year level*</td>
<td>1.84</td>
<td>1.55</td>
<td>2.17</td>
<td>1.05</td>
<td>4.46</td>
<td>.036</td>
</tr>
<tr>
<td>16.</td>
<td>Year level*</td>
<td>2.05</td>
<td>1.70</td>
<td>2.39</td>
<td>1.17</td>
<td>4.88</td>
<td>.016</td>
</tr>
<tr>
<td>17.</td>
<td>Sex*</td>
<td>2.25</td>
<td>2.65</td>
<td>2.80</td>
<td>1.20</td>
<td>6.80</td>
<td>.005</td>
</tr>
</tbody>
</table>

*1 = male; 2 = female
*1 = first year; 2 = fifth year
¥1 = very great extent; 5 = never
There was a positive correlation between students’ agreement that the treatment of animals in the general Australian community is a concern and agreement that (a) as veterinarians, they should be involved in wider social issues of animal protection (CC 0.19; p = .020), (b) veterinary medicine should require commitment to animals’ interests over the interests of their owners or caregivers (CC 0.19; p = .020), and (c) the profession should be involved in addressing animal ethics issues in the wider community (CC 0.26; p = .001). These three beliefs were also positively correlated with moral distress (respectively, CC 0.16, p = .045; CC 0.15, p = .070; and CC 0.21, p = .011).

Nearly all students agreed that knowledge and skills to address animal ethics issues should be taught in the veterinary program (Table 7-3). This belief was correlated with students concern about animal ethics issues (CC 0.17; p = .039); and their belief that (a) the primary focus as a veterinarian should be the interests of all animals in their care (CC 0.40; p < .001), (b) veterinarians should be involved in the wider social issues of animal protection (CC 0.43; p < .001), (c) veterinary medicine should require a commitment to animals' interests, over the interests of their owners or caregivers (CC 0.30; p < .001), (d) the veterinary profession should be involved in addressing animal ethics issues in the wider community (0.42; p < .001), and (e) veterinarians face difficulties in protecting animals' interests (CC 0.21; p = .010).

7.4.3.1 Motivation for Choosing to Study Veterinary Science
The main motivators for studying veterinary science were enjoyment in working with animals and to help sick or injured animals (Table 7-5). The third most important motivator, though considerably less so, was to improve the way animals are treated. No students were primarily motivated by financial reward or because family or friends worked with animals. When each student's three highest motivators were combined, over 80% included enjoyment in working with animals, 70% to help sick or injured animals and 38% to improve the way animals are treated. Of similar importance to the latter were an interest in science (34%) and enjoyment in using practical hands-on skills (27%; Table 7-5).
Table 7-5 Number and percentage of 144 respondents who rated each motivator as their primary reason for studying veterinary science (in order of declining importance) and as one of their top three motivators

<table>
<thead>
<tr>
<th>Motivator</th>
<th>Primary motivator No. (%)</th>
<th>Motivators in the top three No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enjoyment in working with animals</td>
<td>57 (39.6)</td>
<td>117 (81.15)</td>
</tr>
<tr>
<td>Helping sick and injured animals</td>
<td>50 (34.7)</td>
<td>101 (70.27)</td>
</tr>
<tr>
<td>Improving the way animals are treated</td>
<td>10 (6.9)</td>
<td>55 (38.46)</td>
</tr>
<tr>
<td>Interest in science</td>
<td>7 (4.9)</td>
<td>49 (34.27)</td>
</tr>
<tr>
<td>Using practical hands on skills</td>
<td>5 (3.5)</td>
<td>48 (26.69)</td>
</tr>
<tr>
<td>Becoming part of a valued profession</td>
<td>3 (2.1)</td>
<td>21 (14.79)</td>
</tr>
<tr>
<td>Wanting a physical outdoor job</td>
<td>3 (2.1)</td>
<td>18 (12.7)</td>
</tr>
<tr>
<td>Farming background</td>
<td>2 (1.4)</td>
<td>9 (6.3)</td>
</tr>
<tr>
<td>Developing a profitable animal industry</td>
<td>2 (1.4)</td>
<td>3 (2.07)</td>
</tr>
<tr>
<td>Good job security</td>
<td>2 (1.4)</td>
<td>5 (3.5)</td>
</tr>
<tr>
<td>One of the hardest programs to get into</td>
<td>1 (0.7)</td>
<td>4 (2.83)</td>
</tr>
<tr>
<td>Other</td>
<td>2 (1.4)</td>
<td>7 (5)</td>
</tr>
<tr>
<td>Family or friends work with animals</td>
<td>0 (0)</td>
<td>5 (3.45)</td>
</tr>
<tr>
<td>Financially rewarding job</td>
<td>0 (0)</td>
<td>3 (2.08)</td>
</tr>
</tbody>
</table>

7.4.3.2 University Culture

The majority of students agreed that their university provided an environment that supports students to discuss and resolve animal ethics issues, conflicts and/or dilemmas related to how animals are treated (Table 7-3). Students most agreed that their university culture showed an interest in improving animal health and animal production (93%) followed by an interest in improving how animals are treated in the Australian community (85%). First-year students showed less agreement than fifth-year students (Table 7-4). There was a correlation between levels of agreement that the veterinary profession was sufficiently involved in addressing animal ethics issues in the wider community and that the university culture showed an interest in improving animal health (CC 0.20; p = .017), animal production (CC 0.25; p = .002) and how animals are treated in the Australian community (CC 0.19; p = .019). Over half of first-year students (57%) and two thirds of fifth-year students (68%) listed ways that they believed the university showed interest or involvement in improving animals' interests in the Australian community (Table 7-6).
Table 7-6 Number of specific observations on how their university shows interest/involvement in improving how animals are treated in the Australian community (in order of frequency) by first-year (n=34; 57%) and fifth-year (n=60; 68%) survey respondents

<table>
<thead>
<tr>
<th>University interest/involvement</th>
<th>First year No.</th>
<th>Fifth year No.</th>
<th>Total No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal welfare teaching</td>
<td>7</td>
<td>14</td>
<td>21</td>
</tr>
<tr>
<td>Small Animal Centre/ adoption program/Pets for Life program</td>
<td>4</td>
<td>14</td>
<td>18</td>
</tr>
<tr>
<td>Animal ethics teaching</td>
<td>8</td>
<td>6</td>
<td>14</td>
</tr>
<tr>
<td>Research - staff publications</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Lunch time guest speaker presentations</td>
<td>2</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Funding for school centres (Animal Welfare and Ethics and Companion Animal Health)</td>
<td>-</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Involvement in fundraising and awareness campaigns</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Animal handling courses</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Lecturers encouraging discussion</td>
<td>-</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>University clinic</td>
<td>-</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Clinical Studies Centre</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Other (single comments)</td>
<td>7</td>
<td>14</td>
<td>21</td>
</tr>
<tr>
<td>No response</td>
<td>26</td>
<td>28</td>
<td>54</td>
</tr>
</tbody>
</table>

7.4.4 Moral Action

Of the students who were concerned about ethical issues (Question 1), most (n = 70, 54%) perceived that they had done little or nothing to resolve them and only 8 (6%) perceived that they had done a lot or a great deal (Table 7-7). Of the 83 students who indicated that they had taken action to resolve these concerns (60% of those with ethical concerns), more than half (n=48; 58%) indicated that these issues had not been resolved, and one third indicated that their issues had been partly resolved.

Apart from acting to resolve their own ethical concerns, conflicts or dilemmas, students also indicated the extent to which they had personally acted to improve the treatment of animals in the wider community. Most students had acted to a minimal extent or no extent (Table 7-7). A total of 97 students (66%) listed specific actions that they had undertaken (Table 7-8). Most actions (55%) were related to companion animal issues, 9% to farm animal issues, 3% to wildlife issues, and 33% were general actions including signing petitions, fundraising, studying and researching.
Table 7-7 Ethical Actions by 130 respondents who agreed they were concerned about ethical issues (Question 1), and 83 respondents who had taken action to resolve these concerns (Question 18)

<table>
<thead>
<tr>
<th>Question number and statements</th>
<th>Ethical Action taken No. (%)</th>
<th>A great deal</th>
<th>A lot</th>
<th>Some</th>
<th>Little</th>
<th>Nothing</th>
<th>NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>22. How much have you done to resolve these animal ethics issues, conflicts or dilemmas?</td>
<td></td>
<td>3(2)</td>
<td>5(4)</td>
<td>37(28)</td>
<td>38(29)</td>
<td>32(25)</td>
<td>15(12)</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23. Have these issues, conflicts or dilemmas been resolved? (to Question 18 affirmative respondents)</td>
<td></td>
<td>3(4)</td>
<td>27(33)</td>
<td>48(58)</td>
<td>-</td>
<td>-</td>
<td>5(6)</td>
</tr>
<tr>
<td></td>
<td>Very great extent</td>
<td>Great extent</td>
<td>Some extent</td>
<td>Minimal extent</td>
<td>Never</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>24. To what extent have you personally acted to improve how animals are treated in the wider community?</td>
<td></td>
<td>2(1)</td>
<td>5(3)</td>
<td>65(45)</td>
<td>52(36)</td>
<td>22(15)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

There were positive correlations between levels of moral distress and (a) actions by students to resolve animal ethics issues they were concerned about (CC 0.27; p = .001); and b) personal action to improve how animals are treated in the wider community (CC 0.24; p = .003). There was a negative correlation (-0.19, p = .028) between action to resolve animal ethics issues and agreement that the university environment supported students to resolve animal ethics issues. Thus students who had done more to resolve animal ethics issues were less likely to agree that the university provided an environment that supports students to discuss and resolve animal ethics issues, conflicts and/or dilemmas. There were also positive correlations between action to improve the way animals are treated in the wider community, and perceived knowledge and understanding of ethical frameworks and principles (CC 0.20, p = .014), ethical decision making skills (CC 0.19, p = .020) and animals’ mental and emotional characteristics (CC 0.24, p = .004), though not physical characteristics (p > .050).
Table 7-8 Actions taken by first-year (n = 35; 58%) and fifth-year (n = 62; 70%) students (total = 97; 66%) to improve how animals are treated in the wider community, and number of times mentioned

<table>
<thead>
<tr>
<th>Actions by animal use type</th>
<th>First year No.</th>
<th>Fifth year No.</th>
<th>Total No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helping abandoned companion animals:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volunteer at an animal shelter</td>
<td>11</td>
<td>10</td>
<td>21</td>
</tr>
<tr>
<td>Donate to an animal shelter</td>
<td>3</td>
<td>9</td>
<td>12</td>
</tr>
<tr>
<td>Advocate spaying</td>
<td>-</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Rehome an abandoned animal</td>
<td>-</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Help clinics rehome animals</td>
<td>-</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Other single actions</td>
<td>5</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Sub-total</td>
<td>19</td>
<td>30</td>
<td>49</td>
</tr>
<tr>
<td>Helping owned companion animals:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advise family and friends</td>
<td>5</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>Help clients within work experience</td>
<td>2</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>Work as a veterinary nurse</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Sub-total</td>
<td>11</td>
<td>19</td>
<td>30</td>
</tr>
<tr>
<td>Total companion animals</td>
<td>30</td>
<td>49</td>
<td>79</td>
</tr>
<tr>
<td>Helping farmed animals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buy products for better welfare</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Educate fellow workers</td>
<td>-</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Total farmed animals</td>
<td>6</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>Helping wildlife</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Join wildlife caregivers</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Educate the public about snakes, avian and exotic species, petitioned to protect sharks</td>
<td>-</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Sign petition about sharks</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total wildlife</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>General</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educate family, friends etc. about animal issues</td>
<td>2</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>Sign petitions</td>
<td>6</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>Fundraise</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Write letters, emails, etc.</td>
<td>-</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Support animal welfare organizations</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Total general Actions</td>
<td>17</td>
<td>30</td>
<td>47</td>
</tr>
<tr>
<td>TOTAL ACTIONS</td>
<td>54</td>
<td>89</td>
<td>143</td>
</tr>
<tr>
<td>Not sure</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Nil/NA/ Unanswered</td>
<td>24</td>
<td>26</td>
<td>50</td>
</tr>
</tbody>
</table>

7.4.5 Moral Judgment

Almost half of the students (n=67, 45%) agreed they were competent in ethical decision-making skills to guide judgment on what action should be taken on animal ethics issues; 68 students (46%) were unsure (Table 7-3). More males than females believed they were competent (mean male 2.25; mean female 2.65; OR 0.28; CI 0.12 – 0.68; p = .005).

7.4.6 Correlations between Animal Ethics Issues Variables and Moral Judgment Scores

There were significant correlations between responses to animal ethics issues and students' scores on the VetDIT. Veterinary students who had higher levels of Personal Interest (PI) reasoning on human ethics issues were more likely to:

- experience moral distress (CC -0.31; p = .004)
• have acted to resolve their concerns regarding the way animals are treated (CC – 0.27; p = 0.019).

Students with higher levels of PI reasoning on animal ethics issues were less likely to agree that:
• the veterinary profession should be involved in addressing animal ethics issues in the wider community (CC .32; p = .003)
• they had knowledge and understanding of different species’ physical characteristics (CC 0.28; p = .011), and
• their university provides an environment that supports students to discuss and resolve animal ethics issues (CC 0.24; p = .029).

Students with higher levels of Maintaining Norms (MN) reasoning on human ethics issues were less likely to:
• have experienced moral distress (CC 0.24; p = .028)
• have the interests of the animals in their care as their primary focus (CC 0.44; p < .001)
• agree that veterinarians should be involved in the wider social issues of animal protection (CC 0.41; p < .001)
• put animal interests above those of their owners or caregivers (CC 0.27; p = .013), and
• agree that the veterinary profession should be involved in addressing animal ethics issues in the wider community (CC 0.32; p = .003).

Students with higher levels of MN reasoning on animal ethics issues were more likely to agree that:
• the veterinary profession is sufficiently involved in addressing animal ethics issues in the wider community (CC 0.30; p = .005); and
• their university provides an environment that supports students to discuss and resolve animal ethics issues, conflicts, or dilemmas in relation to how animals are treated (CC -0.25; p = .022).

Students with higher levels of Universal Principles (UP) reasoning on human ethics issues were more likely to:
• agree that animals’ interests are their primary focus as a veterinarian (CC -0.35; p = .001)
commit to animals’ interests over those of their owners or caregivers (CC -0.24; p = 0.028)
agree that they and the veterinary profession should be involved in addressing animal ethics issues in the community (respectively, CC -0.24; p = 0.028 and CC -0.27; p=0.01)
perceive that they had done less to resolve animal ethics issues (CC 0.27; p = .018).

Students with higher levels of UP reasoning on animal ethics issues were more likely to:
be strongly concerned about how animals are treated in the general Australian community (CC – 0.22; p = .047),
perceive they had knowledge of different species’ mental and emotional characteristics (CC -0.23; p = .038), and
strongly agree that the veterinary profession should be involved in addressing animal ethics issues in the wider community (CC -0.31; p = .004).

7.5 DISCUSSION
This study suggests that veterinarians have substantial ethical capacities to address animal ethics issues, conflicts and dilemmas, as well as some significant capacities for development.

7.5.1 Moral Sensitivity
The finding that half of both first- and final-year cohorts expressed strong concern for animal ethics issues suggests that moral sensitivity is being maintained throughout veterinary training. Most had experienced moral distress about the way animals are treated in the Australian community. That more fifth-year students were able to identify a greater range of issues than first year students was expected. The greater concern for companion animal issues by fifth-year students, compared to the predominant concern for farm animal issues among first-year students, suggests that universities have the capacity to direct students’ ethical concerns by, in this case, possibly placing greater emphasis during the veterinary program on addressing companion animal, rather than farm animal, issues. This premise is supported by the fifth-year students’ frequent listing of the Small Animal Centre’s adoption and Pets for Life programs as evidence of the university showing an interest in improving how companion animals are treated.

Research in dentistry suggests that ethical sensitivity is distinct from moral reasoning abilities and that students and practitioners vary greatly in their ability to recognise the ethical problems of their
profession. However, ethical sensitivity can be enhanced through instruction and reliably assessed. This study focused on students' ability to identify their own animal ethics concerns rather than being prompted by given scenarios or specific issues. However, development of an ethical sensitivity measure, such as Bebeau’s Dental Ethical Sensitivity Test, and Brabeck et al.’s Racial Ethical Sensitivity Test in which students interpret a situation involving an animal ethics issue, could follow from our research. A variety of ethical sensitivity elements, including interpreting others’ reactions and feelings, showing empathy and role taking ability, making inferences from others’ behaviour and responding appropriately to their reactions, and understanding how one's actions can affect the welfare and expectations of both oneself and others, could be assessed in relation to animal ethics issues.

7.5.1.1 Knowledge and Skills in Animal Ethics

More veterinary students perceived that they had knowledge and understanding of different species' physical, rather than mental and emotional, characteristics both in first and final years of the veterinary program. Knowledge of animals’ mental and emotional characteristics may be significant in affecting moral sensitivity towards animals and inconsistencies in their treatment. Adelma Hills identified a relationship between belief in animal mind and empathy toward animals, although the relationship may be mediated by conflicting instrumental motivations, given that for farmers empathy was more reliably predicted by instrumentality than by belief in animal mind. Opotow found that a person's scope of justice is modified by the perceived utility of the animal and by how severe the conflict of interest is between animals and humans in particular situations, and not by recognising similar qualities to oneself. It would therefore seem vital to give students the opportunity to "learn to think more reflectively and systematically about the ethical impact of decisions" based on what is known or yet to be determined about animals’ minds. Students who showed greater agreement that they had knowledge of ethical frameworks and principles, and of animals’ mental/emotional capabilities in this study were more likely to have acted to address animal ethics issues, suggesting the importance of this knowledge.

Other studies have suggested that knowledge of animals' mental and emotional capabilities is not being addressed sufficiently in veterinary education. A 2005 study at one US university involving veterinary students across all four year levels, found that students were more likely to believe that dogs and cats had thought processes and emotional abilities than farm animals, particularly poultry, with less than half the students believing poultry were capable of thought processes. Veterinary students were also more likely to consider hot branding inhumane for dogs and cats than for cows
and pigs. Students aspiring to work with small animals were more likely to consider procedures as inhumane for all species, except for cats, than students aspiring to work with food animals.25

7.5.2 Moral Motivation

This study suggests that the majority of veterinary students not only believed that their primary focus should be the interests of the animals in their care, but that their role extended to addressing the wider social issues of animal protection. The relationship between moral distress and belief that animals' interests should be given priority is supported by previous research that showed British veterinarians regularly experience stress when animals' interests are not respected (e.g., healthy animal euthanasia, financial limitations on treatment, and clients wanting to continue unwarranted treatment). Most (78%) of these veterinary practitioners felt they had inadequate ethics training during their veterinary degree.4

Such education deficiencies may contribute to the veterinary profession being less proactive in addressing animal ethics issues than current veterinary students would like. While over 90% of students believed that the veterinary profession should be involved in addressing animal ethics issues in the wider community, only one third agreed that it was sufficiently involved. If the veterinary profession had a high public profile in addressing animal ethics issues, this would most likely have been recognised. Developing the capacity for the veterinarian profession to be more involved in addressing animal ethics issues in the wider community is therefore an important priority for ethics education to prevent practitioners' moral distress.

Students were mainly motivated to study veterinary science because they enjoyed working with animals, and wanted to help sick and injured animals, indicating that physical contact with animals is a primary motivator. While helping sick and injured animals is an ethical motivation, it is a largely reactive one. However the third highest motivator was to improve the way animals are treated, an ethical motivation that has the potential to be more proactive by preventing suffering and loss of life. Although only 7% indicated this was their primary motivator, 38% included it in their top three motivators, suggesting that a significant proportion of students may be interested in postgraduate programs to develop more advanced ethical knowledge and skills for holding advisory roles on animal ethics committees and for providing ethical leadership in government and industry to both address and prevent animal ethics conflicts.
7.5.2.1 University Culture

Organizational culture is important in ethical development.\textsuperscript{26} For example, liberal arts college environments are more conducive to fostering the development of moral reasoning than other types of colleges and universities.\textsuperscript{27} Students in this study who had acted to resolve ethical issues were in the minority. These students felt less supported by their university culture to discuss and resolve animal ethics concerns, than students who had taken no action. This suggests that veterinary science schools may need to consider how they support concerned students and ethical behaviour.

7.5.3 Moral Action

While concern for animal ethics issues and professional motivation were both strong, very few students had taken action to address their concerns or to improve the treatment of animals in the wider community. Other studies have shown that intentions do not necessarily translate into action. A study of 258 students in 59 clinical psychology programs found that only 37\% of students who identified the appropriate response (according to the American Psychological Association’s Ethics Code) to an ethical dilemma said that they would actually do what they believed they should do.\textsuperscript{28} The theory of planned behaviour attempts to account for the formation of intentions and the achievement of behavioural goals: "People intend to perform a behaviour when they evaluate it positively, when they experience social pressure to perform it, and when they believe that they have the means and opportunities to do so."\textsuperscript{29(p.118)} As well, "psychological toughness and strong character do not guarantee adequacy in any of the other components [of moral behaviour] but a certain amount of each is necessary to carry out a line of action."\textsuperscript{7(p.24)} This suggests that universities have an important role to play in teaching and facilitating conversion of intentions into actions, by giving students the encouragement, means and opportunities during their program to take action to address animal ethics issues, and to build the psychological toughness needed to persist in pursuing an ethical outcome.

The positive correlation between moral distress and action to resolve concerns suggests that moral distress could be a motivator for action, or that taking action increases moral distress due to legal and organizational difficulties that the majority of students agreed veterinarians face in protecting animals’ interests. Regardless, it would seem important for veterinary students, and the profession as a whole, to develop skills in ethical action to be able to address these difficulties and reduce moral distress.
7.5.4 Demographic Differences in Moral Sensitivity, Motivation, and Action

The similarity in first and fifth year student groups’ strong concern and moral distress related to animal ethics issues complements previous research in which the year of study was not significantly related to British veterinary students’ self-reported empathy with animals. However, in relation to ethical motivation, although both cohorts were similarly in agreement that veterinarians, and the profession as a whole, should be involved in addressing animal ethics issues in the wider community, fifth-year students indicated less motivation to prioritize animals’ interests over the interests of their owners or caregivers. This may be due to their impending recruitment into the workforce, or it could be a cohort effect. Fifth-year students were no different from first-year students in the extent of action they had taken to address animal ethics issues, which means that they are likely to enter the workforce with few skills and little experience to address the ethical concerns that are common in veterinary practice. Similarly, while fifth-year students indicated more knowledge of physical, mental and emotional characteristics of animals than first-year students, there was no difference in perceived knowledge and understanding of ethical frameworks and principles, or competence in ethical decision-making skills, suggesting room for growth in these areas in the curriculum.

Veterinary students from non-English speaking backgrounds reported less concern about how animals are treated in the general Australian community and more uncertainty as to whether they had experienced moral distress. This may be because of their reported lesser knowledge and understanding of animals’ physical and mental/emotional characteristics, or it could suggest a lack of experience in the Australian community, cultural differences in openly claiming knowledge or differences in actual levels of concern. Cultural differences regarding levels of concern for animal welfare have been previously identified in veterinarians.

The absence of gender differences in our study appears to conflict with research that shows that female veterinary students express more concern for animal welfare than male veterinary students in Australia and in the UK, and that female first-year students in the US agree more than male students that a veterinarian’s first responsibility is to the animal when the animal’s interests and the owner’s wishes conflict. However, our study had a broader scope and was not focused on specified animal welfare and rights issues. Research in human ethics issues has shown female students to be only marginally more ethically sensitive than male students, and only on some issues. Our male students did show less strong agreement than female students that their primary
focus was the interests of animals in their care, but more confidence that they were competent in ethical decision making skills.

Perceived companion animal experience appears to engender commitment to animals’ interests over those of their owners or caregivers, whereas farm animal experience has the opposite effect, which possibly explains why those indicating more farm animal experience believed less that veterinarians face difficulties protecting animals’ interests. Perceived experience with horses seems to engender greater knowledge of animals’ physical and mental/emotional characteristics, which may be because of the strong horse-owner bond.

7.5.5 Relationships between Moral Judgment and Moral Sensitivity, Motivation and Action

Evidence from studies on the independence of moral judgment, sensitivity, motivation and action show low to very low correlations between ethical sensitivity and moral judgment, and very low to an occasional moderate correlation among the other components.10 This study shows some relationships between moral judgment levels as identified in the VetDIT and students’ perceptions of the other three components. For example, students with higher levels of PI reasoning were more likely to experience moral distress. Providing opportunities to reflect on moral judgment development theory to build capacity for moral judgment may reduce moral distress. Students with high levels of MN reasoning were less likely to experience moral distress, but were less interested in being involved in animal issues. Development of ethical sensitivity and awareness of UP reasoning may help motivate these students to address the animal ethics issues that veterinarians inevitably face as a result of accepting norms. Students with higher levels of UP reasoning showed more sensitivity and motivation to address animal ethics issues and to give priority to animals' interests in their professional role. That these students perceived they had done less to address animal ethics issues may be due to their greater awareness of the number and size of the issues, and because opportunities for moral action and building of moral character need further development, both in the veterinary program and the organisational culture.

A limitation of this study was that under 50% of each of the three cohorts participated, and from only one university. It is possible that students who attended the teaching sessions were more interested in ethics issues or were more committed to their learning. Students absent from the teaching session were encouraged to complete the questionnaire on-line; however none did. Further research involving whole cohorts and in other universities would be helpful. In addition, it is
important to consider in any survey the possibility that self-reported claims are inaccurate, considering what reasons students might have to report inaccurately, or whether their knowledge might be insufficient for accurate reporting. It is possible that veterinary students may have claimed more concern, more motivation, more action to address animal ethics issues, or more experience with animals than they actually had, because they think they are supposed to have high levels of these. However the contrast of expressed high concern, high motivation yet low levels of action and varied levels of experience with different animal types would suggest this is not the case.

By nurturing all four components of moral behaviour in veterinary programs, veterinarians should be more fulfilled and less stressed, and the veterinary profession should be more able to play a significant role in addressing community concerns regarding animal ethics issues.

NOTES
a. *Animal ethics* is defined here as "how humans should behave toward animals".

7.6 REFERENCES
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CHAPTER 8 ASSESSING ETHICAL SENSITIVITY TO ANIMAL WELFARE ISSUES

8.1 ABSTRACT
Ethical sensitivity has been identified as one of the four necessary components of moral action, tests for which have been developed in various professions. Little is known about ethical sensitivity in relation to animal welfare issues. The aim of this study was to develop an assessment tool to measure ethical sensitivity to animal issues, and determine the relationship of ethical sensitivity scores with moral reasoning. Third year veterinary students (n = 115) from the University of Queensland, Australia, responded to written ethical sensitivity and moral judgment tests before and after ethics teaching, as well as analysing and developing videos based on current animal ethics issues in animal farming. An expert panel rated written and video responses. Inter-rater reliability was moderate to substantial for the written assessment, but only slight to moderate for the video response. In the written test, students mean scores for recognition of animals’ emotions, expression of empathy and recognition of alternative actions and their impacts improved after teaching. Scores did not increase for identification of their own emotions, moral conflicts between stakeholders and conflicts between legal, organisational and ethical responsibilities as a professional. There was no overall relationship between the ethical sensitivity and moral reasoning scores. However, scores for universal principles reasoning were correlated with scores for recognition of moral conflicts between stakeholders and between legal, organisational and ethical responsibilities as a professional. The ethical sensitivity assessment tool has potential to be used to develop and assess skills for addressing animal welfare issues.

Key words: animal welfare, animal science, education, ethical sensitivity development, moral judgment, veterinary science

8.2 INTRODUCTION
The evolution of animal husbandry was based on the need to maximise usefulness of animals to humans, which included a consideration of their physical welfare. 1 This approach has become increasingly questioned, in part because we now know that animals have a wide range of similar emotions to humans. 2 These include moral emotions such as empathy, with emotions and moral behaviour being identified as having a common evolutionary origin across several animal species. 3 In addition, animals have capacities that humans don’t 4 and our understanding of these is
expanding. Arguments concerning whether animals deserve moral concern based on a lack of language and rationality have been largely dispensed with and consideration of their welfare and how they should be treated (animal ethics) has been increasing.

Veterinarians and other animal professionals at the forefront of animal care and management are regularly confronted with animal ethics issues. While there have been few quantitative studies, veterinarians in companion animal practices experience moral distress as a result of the ethical conflicts that are regularly faced, such as convenience euthanasia of healthy animals and financial constraints on treating animals. In the UK, 78% of veterinarians reported inadequate training on ethics during their veterinary degree, and experience did not diminish the stress. In an Australian study, 69% of first and fifth year veterinary student respondents agreed that they had experienced moral distress in relation to how animals are treated in the general community.

For moral action to address welfare issues, four key elements have been identified i.e. moral sensitivity, moral judgment, moral motivation and moral character, all of which can be developed through education. Ethical sensitivity includes the ability to interpret others’ reactions and feelings, have empathy and role-taking skills, understand how one’s actions affect the welfare and expectations of others and make inferences from others’ behaviour.

Ethical sensitivity tests have been developed in various professions in relation to humans. For example, the Dental Ethical Sensitivity Test (DEST) involved students role-playing a dentist and producing an audiotaped response to a patient in four real-life scenarios. Responses were assessed on sensitivity to the special characteristics of the patient, and awareness of what actions serve the rights and welfare of others. The Racial Ethical Sensitivity Test (REST) involved five videotaped scenarios based on instances of racial and gender intolerance in schools, a semi-structured interview adapted from the DEST questions, and a measure using common ethical principles in professional codes, i.e. professional competence, integrity, professional and scientific responsibility, respect for others’ rights and dignity, concern for others’ welfare, and social responsibility. The Quick-REST was later developed using two scenarios and Likert-type scaled items to eliminate the need for trained interviewers and raters. A test that uses an animal ethics issue, the Test of Ethical Sensitivity in Science (TESS) was developed for life science students to test recognition of ethical issues, in which students raise no more than five issues/questions they believe should be considered before making a research decision on whether to produce

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1 Moral and ethical are used interchangeably
pharmaceutical milk using genetically modified cows. This study found that their course had no effect on ethical sensitivity between first and third year. The ethical sensitivity of students involved in a small group discussion intervention progressed more than those in a control group.16 A review of 37 profession- or discipline-specific studies in dentistry, medicine, nursing, counselling, business, science and school settings concluded that ethical sensitivity can be improved through instruction17 and has a correlation with moral judgment. This supports the notion that these components of moral behaviour are linked, but nevertheless two distinct constructs. There was some evidence of a positive relationship with age. Naming moral issues was much less demanding than having to identify what is happening, interpret the special characteristics of those involved and determine possible actions to meet their needs and interests.

While some recent work has been done on developing and measuring veterinarians’ moral reasoning on animal welfare issues,18, 19 there has been little such research on ethical sensitivity. A survey of first and fifth year Australian veterinary students showed that 93% of students were concerned about animal ethics issues, with first year students identifying mainly farm animal issues, followed by companion animal issues, and fifth year students identifying the same issues but in reverse order.9 More students agreed that they had knowledge and understanding of different species’ physical, rather than mental and emotional, characteristics. Nearly all agreed that veterinarians face difficulties in protecting animals’ interests, a belief that was correlated with moral distress. One element of ethical sensitivity, empathy, has been found to decrease toward animals over the veterinary course,20 particularly in males.21 An ethnographic US study found veterinarians use organisational support for moral distancing, including rationalization or redirecting blame to enable them to continue to define themselves as working for the best interests of feline health while supporting a practice of declawing cats, which they acknowledged to be morally ambiguous or painful.22

It has been suggested that as well as responding with ethical sensitivity to existing moral issues, students should be trained to be constantly aware of changes in their work to anticipate future problems.23 However it is not known to what extent veterinarians and other animal-related professionals have the capacity to interpret situations and express their ethical concerns. This study therefore aimed to develop an assessment tool for ethical sensitivity and to identify relationships between ethical sensitivity and moral reasoning.
8.3 METHOD

8.3.1 Instruments

8.3.1.1 Animal Ethical Sensitivity Teaching and Assessment Test (AEST)
A review of the literature on ethical sensitivity revealed a range of interpretations. From these, we defined ethical sensitivity as the ability to interpret, through thoughts and feelings, the moral aspect of situations, including the impact of situations and actions and their possible consequences on the lives and well-being of sentient creatures. From these we also isolated ten common elements and adapted them to include animals:

1. Identification of physical responses of animals and people to a particular situation or action
2. Identification of emotional responses of animals and people
3. Recognition of own thoughts (perceptions, appraisal, interpretation) of the situation
4. Recognition of own feelings in relation to the observed responses of animals and people
5. Identification of why this is an ethical issue
6. Recognition of all stakeholders’ perspectives including animals
7. Ability to express empathy for others’ perspectives
8. Recognition of moral conflicts
9. Recognition of professional conflicts between legal, organisational and ethical responsibilities
10. Recognition of alternatives and their possible impacts on stakeholders

These were converted into questions to be used as a teaching and assessment measure (Appendix E). While other ethical sensitivity tests such as the DEST and REST have been based on recognition of ethical issues within an audio- or video-recorded dialogue, this is clearly not possible between an animal manager and an animal. Due to the difficulty of embedding animal ethics issues for recognition within a longer sequence of events, we used short videos of animals showing common animal welfare issues, i.e. a lame dairy cow, use of an electric goad on cattle and a fly-struck sheep. We avoided extreme cases of cruel treatment so that students could identify ethical sensitivity in normal animal management/veterinary experiences that, with frequent exposure, may inure those involved to animal welfare issues. The AEST aims to develop awareness, understanding and
articulation of the elements of ethical sensitivity, so that students can apply these to raising an ethical issue in a real situation.

8.3.1.2 Ethical sensitivity teaching video

Two videos were developed to highlight ethically sensitive and insensitive responses, when a veterinarian is confronted with a broader unaddressed animal ethics issue, i.e. severely drought-affected cattle, after being called to a farm to provide veterinary care to a particular animal. The scripts for these two scenarios were developed by the researchers in conjunction with a veterinarian who was also a cattle farmer. The video versions were then produced with the same two actors. A checklist of the ethical sensitivity elements was developed so that students could analyse both videos during a lecture.

8.3.2 Ethical Sensitivity Scoring Development

An expert panel with interests in animal ethics from a range of backgrounds, i.e. veterinary science (Dr M. Paterson, RSPCA Queensland Chief Scientist), animal welfare science (C.J.C. Phillips, Professor of Animal Welfare, University of Queensland), animal law (Dr S. White, animal law lecturer, Griffiths University), philosophy (Dr A. Fawcett, practicing veterinarian and lecturer, University of Sydney), psychometrics (Dr R. Ostini, Research Fellow, University of Queensland) and professional ethics and governance (J.M. Verrinder, University of Queensland) developed the scoring system, as follows:

- At a half-day workshop, each panel member was provided with a preliminary scoring sheet with criteria for three scoring levels: 1=No or minimal recognition of the element; 2= Basic recognition and understanding of the element; 3= Advanced description showing greater depth and insight.
- Each scored 3 students’ written and video responses. They also recorded important features that distinguished scores, to help with refinement of the questions and criteria.
- Each panel member’s total scores for each written and each video response were ranked and checked for consistency.
- The working group discussed their ratings to reach consensus on changes to the questions and criteria, and decide on the weighting of each element for an overall ethical sensitivity score. The following weightings were agreed for the 20 point scale, which was subsequently scaled up to a percentage:
  - Element 1: Describe physical (1a) and emotional (1b) responses of animals and people, their own thoughts (1c) and emotions (1d) and whether there is an ethical issue (1e) (weighting x6)
Element 2: Recognition of stakeholder perspectives (weighting x3)
Element 3: Expressing empathy for various perspectives (weighting x3)
Element 4: Recognition of ethical conflicts (weighting x4)
Element 5: Recognition of legal, organisational and ethical responsibilities (weighting x2)
Element 6: Identifying alternative actions and their consequences (weighting x2)

- Using the revised score sheet (Appendix F), the panel independently scored three student’s written and video responses for inter-rater reliability. Order of presentation was randomised between panel members.
- For intra-rater reliability, each panel member scored a written and one video response twice, at the beginning and end of their own assessment.
- Scores were compared for inter- and intra-rater reliability.
- AES Sample Responses were compiled for levels 1 to 3 for each question (available upon request from the authors), based initially on those responses with inter-rater scoring agreement of 66% - 100% in the sample set assessed by the expert group, and then selected by the researchers for all remaining questions as a guide.

8.3.3 Participants and Procedure

Approval was obtained from the University of Queensland Ethical Review Committee. A pilot of the ES questions was run with first year production animal science students to refine questions. All third year veterinary science students (n=115) participated in the ethical sensitivity teaching and assessment within an Animal Production Systems and Welfare course. A total of 104 students (90% of the cohort) indicated their willingness for written materials to be used for research by recording a unique ID on their responses. An extra permission form was completed by 51 students who agreed to their videos being used for educational purposes.

Prior to any discussion of ethical sensitivity, students initially completed a written response to the AEST questions using a 40 minute PowerPoint presentation on sea transport of live export cattle and sheep as the stimulus material. This was followed by a short 20 minute presentation on the four component model of moral behaviour, with an emphasis on ethical sensitivity and its relevance to animal ethics issues. Students’ responses to the AEST questions were analysed and areas needing development identified.
In a follow up session, students were provided with information on each of the ES elements (described earlier) and feedback on their responses, along with research on animal emotions. They analysed the teaching videos showing ethically sensitive and insensitive responses to the elements. Using one of three video extracts portraying animal welfare issues, from educational videos by industry experts and government i.e. lame dairy cows, fly-blown sheep, and use of an electric goad prod to move cattle, students again responded to the ethical sensitivity questions in class time as a post-teaching test. They then worked in their own time to write scripts based on their written responses, and in groups of three (rotating in roles as veterinarian, farm manager, and camera operator) each student produced a brief 3 minute role play video using their mobile phones. Students were assessed on the post-teaching test written response and video, with one researcher (JMV) scoring all the students’ responses to maximise consistency of marking.

To compare ethical sensitivity with moral judgment, students also completed a moral judgement test, the Veterinary Defining Issues Test Version 3 (VetDIT-V3), which uses three animal scenarios, i.e. euthanasia of a healthy cat, removal of sheep from a research study, and breeding modification of pigs, all based on moral dilemma cases commonly experienced by veterinarians.

8.3.4 Demographics

The following demographic information was sought from the students: age, sex, previous university degrees and which specific degrees were completed, whether English was the primary language, and perceived experience with companion animals, farm animals and horses, where 1=very great extent and 5=no experience.

8.3.5 Statistical Analysis

Pearson’s correlations were used to determine inter-rater reliability of ratings by six panel members and Fleiss’ kappa was used to assess the level of agreement, with interpretation according to Landis and Koch. Intra-rater reliability was identified using intraclass correlation coefficients. The effects of teaching, scenario and demographic variables on ethical sensitivity scores (ES) were tested by ordinal logistic regression with the logit function. To identify significant differences between scores on the various elements of ES, the means were initially compared using a one way analysis of variance, with pairwise comparisons by Fisher’s Multiple Comparison Test. Residuals were not normally distributed, and a Moods median test with pairwise comparisons by Mann Whitney was
used, which confirmed that the significance of the differences was the same as found in the one way ANOVA. Because the median tests were unable to represent numerical differences in the three point scales used for ES assessment, the ANOVA results are presented. Correlations between individual post-test ES element and total ES scores and PI, MN and UP scores from the VetDIT-V3 were obtained using Spearman ranked data because the residuals were not normally distributed by the Anderson-Darling test. The internal consistency of items in the ES test was explored using Cronbach’s Alpha.

8.4 RESULTS

8.4.1 Demographics

The 104 third year veterinary students had a mean age of 21 (range 18 – 51). The majority were female (n=77, 74%), had no previous degree (n=78, 80%), with English as their primary language (n=81, 84%). The majority (n=79, 81%) indicated great or very great experience with companion animals, with a much smaller proportion reporting great or very great experience with farm animals (n=26, 27%) and horses (n=31, 32%). Fewer students (n=4, 4%) indicated limited or no experience with companion animals when compared with farm animals (n=26, 27%) or horses (n=35, 36%).

8.4.2 Inter and intra-rater reliability of ES Scoring

On the written assessment, using Pearson’s correlation, inter-rater reliability was moderate to substantial (Correlation coefficients, CC, of 0.46 - 0.65), with all raters significantly correlated (p<0.001). Fleiss’ kappa for the six raters was fair 24 (κ=0.280; SE = 0.0239; 95% CI = 0.2392 to 0.3331).

On the video assessment, using Pearson’s correlation, one rater was not correlated with any other raters, one rater correlated with 2 others, 2 raters correlated with three others, and 2 raters with four others, out of a potential five other raters (p<0.05). For those who were significantly correlated there was moderate inter-rater agreement (CC 0.23 to 0.47). Within the video ratings, there were higher correlations on the ratings for physical representations of ES, i.e. voice, facial expression and body language (CC 0.46 to CC 0.78), than on the ratings for the identification of ES elements (CC 0.23 to 0.46). Using Fleiss’ kappa, the video ratings for voice, face and body language showed
slight to fair agreement; $\kappa=0.18$; SE = 0.0519; 95% CI = 0.07 to 0.28) and for ES elements only slight agreement ($\kappa=0.15$; SE = 0.026; 95%, CI = 0.10 to 0.20).

Intra-rater reliability was calculated for 4 out of 5 raters as one rater did not provide repeat scores. Of these four, one rater’s scores were not correlated ($p=0.186$), three were moderately correlated (correlation coefficient 0.56 ($p=0.030$) and 0.58 ($p=0.026$) and one had a high correlation of 0.81 ($p=0.001$).

8.4.3 Internal Consistency

Items assessing ES elements showed moderate to substantial internal consistency, with the post-test showing improved consistency (Cronbach’s Alpha: $\alpha=0.695$) compared with the pre-test ($\alpha=0.609$).

8.4.4 Students’ ethical sensitivity scores pre-teaching

Mean scores ranged from 1.16 for students’ recognition of own emotions in relation to an ethical issue, to 2.33 for identification of stakeholder perspectives (Table 8-1). Mean scores were significantly ($p<0.05$) higher for identification of stakeholder perspectives, aspects of an ethical issue, physical responses of animals and people and own appraisal/interpretation of the situation, than identification of moral conflicts between the interests of different stakeholders, and legal, organisational and ethical conflicts as a professional, identification of alternative actions and their impacts, recognition of the emotional responses of animals and people, and expression of empathy. The mean score for recognition of their own emotions was significantly lower than for all of the other elements ($p<0.05$).

<table>
<thead>
<tr>
<th>Table 8-1 Differences in mean ethical sensitivity scores* between elements both before &amp; after teaching of 3rd year veterinary students (n=104)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ES Elements</strong></td>
</tr>
<tr>
<td>1a: Physical response of animals &amp; people</td>
</tr>
<tr>
<td>1b: Emotional response of animals &amp; people</td>
</tr>
<tr>
<td>1c: Own thoughts</td>
</tr>
<tr>
<td>1d: Own Appraisal</td>
</tr>
<tr>
<td>1e: Ethical issue</td>
</tr>
<tr>
<td>2: Stakeholders</td>
</tr>
<tr>
<td>3: Empathy</td>
</tr>
<tr>
<td>4: Ethical conflicts</td>
</tr>
<tr>
<td>5: Conflict in legal, organisational &amp; ethical responsibility</td>
</tr>
<tr>
<td>6: Alternatives actions &amp; their impacts</td>
</tr>
</tbody>
</table>

*1=No or minimal recognition of the element; 2= Basic recognition and understanding of the element; 3= Advanced description showing greater depth and insight
† Means within columns that do not share a common superscript are significantly different by Fisher’s test ($P < 0.05$)
Scores for identification of animals’ and peoples’ physical responses were positively correlated with those for emotional responses of animals and people (CC 0.42, p<0.001), own appraisal and interpretation (CC 0.39, p<0.001), own emotions (CC 0.25, p=0.009) and identification of why the situation was an ethical issue (CC 0.25, p=0.009), but were not correlated (p>0.05) with scores for stakeholders’ perspectives, expression of empathy, moral conflicts, or alternative actions. Scores for recognition of emotional responses of animals and people were also correlated with recognition of students’ own thoughts (CC 0.31, p=0.001), emotions (CC 0.37, p<0.001), why the situation was an ethical issue (CC 0.20, p= 0.002), as well as expression of empathy (CC 0.21, p=0.029) but not identification of moral conflicts. Identification of students’ own appraisal and interpretation was correlated with identification of their own emotions (CC 0.30, p=0.002) and recognition of why the situation was an ethical issue (CC 0.27, p=0.005), and also recognition of conflicts of legal, organisational and ethical responsibilities as a professional (CC 0.26, p=0.007). Identification of students’ own emotions was correlated with expression of empathy (CC 0.29, p=0.003). Ability to identify why the situation was an ethical issue was positively correlated with recognition of moral conflicts (CC 0.24, p=0.014) and conflicts between legal, organisational and ethical responsibilities as a professional (CC 0.21, p=0.031). Recognition of stakeholders’ perspectives was correlated with recognition of moral conflicts between and within stakeholders’ perspectives (CC 0.33, p=0.001). Expression of empathy was correlated with moral conflict recognition between stakeholders (CC 0.30, p=0.002) and between legal, organisational and ethical responsibilities as a professional (CC 0.37, p<0.001). Moral conflict between the legal, organisational and ethical responsibilities of a professional was also correlated with that of moral conflict between stakeholders (CC 0.40, p<0.001), as well as with recognising alternatives and their impacts (CC 0.37, p<0.001).

8.4.5 Effects of teaching on ethical sensitivity scores

After teaching, the mean overall weighted ethical sensitivity score increased by more than 8 points (Table 8-2). In the post test, mean scores for each ES element ranged from 1.97 for recognition of professional conflicts between legal, organisational and ethical responsibilities to 2.42 for recognition of alternative actions and their impacts (Table 8-1). Within the post test, there were fewer differences between mean scores for each element, due to higher scores for identification of emotions of animals and people, expression of empathy, and alternative actions and their impacts on stakeholders (Table 8-2). Despite increases from the pre-test, mean scores for identification of own emotions and moral conflicts between stakeholders as well as between legal, organisational and
ethical responsibilities of professionals were significantly lower than all other element scores (Table 8-1). Recognition of stakeholder perspectives (Item 2) decreased.

Table 8-2 Significant effects (p<0.05) of teaching and demographics on ethical sensitivity scores of 3rd year veterinary students (n=104)

<table>
<thead>
<tr>
<th>Question</th>
<th>Effect</th>
<th>Means</th>
<th>Coefficient</th>
<th>P value</th>
<th>Odds Ratio</th>
<th>Lower CI</th>
<th>Upper CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1b Emotions of animals and people</td>
<td>Before /after teaching</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Horse (Trend)</td>
<td>1.721*</td>
<td>-0.0139844</td>
<td>&lt;0.001</td>
<td>0.13</td>
<td>0.07</td>
<td>0.26</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.375</td>
<td>-0.284923</td>
<td>0.066</td>
<td>0.75</td>
<td>0.56</td>
<td>1.02</td>
</tr>
<tr>
<td>1c Own Appraisal/interpretation</td>
<td>Language</td>
<td>1.233***</td>
<td>1.45652</td>
<td>0.013</td>
<td>4.29</td>
<td>1.36</td>
<td>13.57</td>
</tr>
<tr>
<td>1d Own emotions</td>
<td>Before /after teaching</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Horse (Trend)</td>
<td>1.163*</td>
<td>-3.24070</td>
<td>&lt;0.001</td>
<td>0.04</td>
<td>0.02</td>
<td>0.09</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.029</td>
<td>-0.352341</td>
<td>0.055</td>
<td>0.070</td>
<td>0.49</td>
<td>1.01</td>
</tr>
<tr>
<td>2 Stakeholder Perspectives</td>
<td>Before /after teaching</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Age (Trend)</td>
<td>1.2327</td>
<td>0.646684</td>
<td>0.045</td>
<td>1.91</td>
<td>1.01</td>
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<td></td>
<td></td>
<td>2.231</td>
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<td>0.061</td>
<td>1.10</td>
<td>1.00</td>
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<td></td>
<td></td>
<td>18.300</td>
<td>20.863</td>
<td>0.054</td>
<td>2.92</td>
<td>0.98</td>
<td>8.70</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20.245</td>
<td>1.07226</td>
<td>0.054</td>
<td>2.92</td>
<td>0.98</td>
<td>8.70</td>
</tr>
<tr>
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<td>Language</td>
<td>1.07226</td>
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<td>0.98</td>
<td>8.70</td>
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<td></td>
<td></td>
<td>2.256***</td>
<td>0.054</td>
<td>2.92</td>
<td>0.98</td>
<td>8.70</td>
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<tr>
<td></td>
<td></td>
<td>2.036</td>
<td>0.054</td>
<td>2.92</td>
<td>0.98</td>
<td>8.70</td>
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<tr>
<td></td>
<td>Comp An</td>
<td>-0.432717</td>
<td>0.020</td>
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<td>0.45</td>
<td>0.94</td>
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<td></td>
<td></td>
<td>0.909501</td>
<td>0.020</td>
<td>0.65</td>
<td>0.45</td>
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<tr>
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<td>0.909501</td>
<td>0.020</td>
<td>0.65</td>
<td>0.45</td>
<td>0.94</td>
<td></td>
</tr>
<tr>
<td>3 Express Empathy</td>
<td>Before/after teaching</td>
<td>1.721*</td>
<td>-1.141376</td>
<td>&lt;0.001</td>
<td>0.24</td>
<td>0.13</td>
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<td></td>
<td>Age</td>
<td>2.240</td>
<td>0.133361</td>
<td>0.022</td>
<td>1.14</td>
<td>1.02</td>
<td>1.28</td>
</tr>
<tr>
<td></td>
<td></td>
<td>18.300</td>
<td>20.863</td>
<td>0.054</td>
<td>2.92</td>
<td>0.98</td>
<td>8.70</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20.245</td>
<td>1.07226</td>
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<td>2.92</td>
<td>0.98</td>
<td>8.70</td>
</tr>
<tr>
<td></td>
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<td>28.1667</td>
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<td>8.70</td>
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<td>30.2250</td>
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<td>8.70</td>
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</tr>
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<td></td>
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<td>31.1500</td>
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<td>8.70</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>32.1200</td>
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<td>2.92</td>
<td>0.98</td>
<td>8.70</td>
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<tr>
<td></td>
<td></td>
<td>39.2000</td>
<td>0.054</td>
<td>2.92</td>
<td>0.98</td>
<td>8.70</td>
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</tr>
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<td></td>
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<td>40.1500</td>
<td>0.054</td>
<td>2.92</td>
<td>0.98</td>
<td>8.70</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>43.2000</td>
<td>0.054</td>
<td>2.92</td>
<td>0.98</td>
<td>8.70</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>51.1000</td>
<td>0.054</td>
<td>2.92</td>
<td>0.98</td>
<td>8.70</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sex (Trend)</td>
<td>1.835*</td>
<td>-0.671688</td>
<td>0.070</td>
<td>0.51</td>
<td>0.25</td>
<td>1.06</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.2032</td>
<td>-0.671688</td>
<td>0.070</td>
<td>0.51</td>
<td>0.25</td>
<td>1.06</td>
</tr>
<tr>
<td></td>
<td>Previous Degree (trend)</td>
<td>1.2000 (34 stud)***</td>
<td>0.930719</td>
<td>0.057</td>
<td>2.54</td>
<td>0.97</td>
<td>6.61</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.1993 (138 stud)***</td>
<td>0.930719</td>
<td>0.057</td>
<td>2.54</td>
<td>0.97</td>
<td>6.61</td>
</tr>
<tr>
<td>4 Moral conflict</td>
<td>Language</td>
<td>1.2028*** (144 stud)</td>
<td>0.909501</td>
<td>0.057</td>
<td>2.48</td>
<td>0.97</td>
<td>6.32</td>
</tr>
<tr>
<td></td>
<td>(Trend)</td>
<td>2.1607 (28 stud)</td>
<td>0.909501</td>
<td>0.057</td>
<td>2.48</td>
<td>0.97</td>
<td>6.32</td>
</tr>
<tr>
<td>5. Professional</td>
<td>Language</td>
<td>2.000***</td>
<td>0.065</td>
<td>2.41</td>
<td>0.95</td>
<td>6.14</td>
<td></td>
</tr>
</tbody>
</table>
8.4.6 Demographics effects on ethical sensitivity scores

In the combined pre and post scores, students whose primary language was not English had lower scores for identification of their own thoughts, recognition of stakeholder perspectives, moral conflicts and professional conflicts between legal, organisational and ethical responsibilities, than students whose primary language was English (Table 8-2). There were trends for older students to have lower scores than younger students on expression of empathy, identification of all stakeholder perspectives and on the overall ES score:

- Empathy score = 2.41 (±0.239, p< 0.001) + -0.019 (±0.010, p=0.067) Age; \( r^2 = 1.6 \)
- Stakeholder perspective score = 2.85 (±0.179, p<0.001) + -0.025 (±0.007, p=0.001) Age; \( r^2 = 5.0 \)
- ES Score=77.99 (±3.96, p<0.001) + -0.40 (±0.168, p=0.018) Age; \( r^2 = 2.7 \)
Males’ scores on recognition of alternative actions and their impacts were lower than females, and there was a trend for males to have lower scores on expression of empathy. Students with a previous degree had lower scores for recognition of alternative actions and their impacts. On the overall ES score, males and students whose primary language was not English had lower scores than both females and students whose primary language was English, and there was a trend for older students to have lower overall ES scores than younger students.

8.4.7 Relationships between ES and moral reasoning scores

There were no relationships between overall ES scores in the post-teaching test and PI, MN or UP reasoning in the VetDIT-V3. However, there was a positive correlation between two of the identified elements of ES i.e. recognition of moral conflict between stakeholders and between legal, organisational and ethical responsibilities as a professional, and UP reasoning scores (CCs 0.31 and 0.23, respectively; P values 0.006 and 0.04, respectively).

8.4.8 Variability between post test scores based on scenario

The three scenarios (electric goad use on cattle, fly strike in sheep, a lame cow) did not account for significant variation in the ES components, except for students’ recognition of their own emotions (scenario means 1.92, 2.03, 2.16, respectively, OR 0.60, CI 0.36-0.99, p=0.048). Thus students’ recognition of their own emotions was greatest in the lame cow scenario, then the fly strike, then use of the electric goad.

8.5 DISCUSSION

Building on the substantial work of others to define and measure ethical sensitivity in relation to human ethics issues, this study extended ethical sensitivity to include all sentient beings, human and non-human, to develop awareness and understanding of how to interpret and describe animal ethics issues in veterinary and other animal related professions. As it was not possible to draw out the elements from a dialogue with non-human animals, the measure we developed utilised ten questions based on ethical sensitivity elements consolidated from previous research which were used with three short videos of animals representing common poor welfare experiences in Australian farming, but could be used with any situation.
8.5.1 Development of ES scoring

Inter-rater reliability was more easily achieved on the written responses than on the video responses. The moderate to substantial agreement on the written test using Landis and Koch’s interpretation was achieved with only an explanation of ES, the task and the scoring scale, and no scoring guide or training. Thus it seems likely that with a scoring guide and/or minimal training, scorers would be able to achieve a high level of agreement.

Agreement on the video scoring was low. It was difficult to isolate all the ES elements embedded in different parts of the dialogue, and scorers commented that several viewings of each video were required to be able to identify each of the criteria. Although there was fair agreement on ratings of voice, facial expression and body language in the vet role-play, the lack of agreement on identifying the ES elements indicates more would need to be done to develop skills in video assessment. For this reason, students’ video assessments were not included in this study.

Despite the difficulty of achieving inter-rater reliability on the video scoring, the value of the video assessment is that students have an opportunity to practice applying ethical sensitivity to real situations and thus develop the knowledge, skill and confidence to raise ethical issues. This is likely to reduce moral distress and disillusionment or even withdrawal from their chosen profession, which has been identified in nursing and law. Drama training and role-play have been found to enhance empathy scores of medical students as well as being exposed to role models, watching theatrical performances or movies demonstrating empathy, and that enhanced empathy can be sustained with supplemental educational activities such as lectures including visual presentations on empathy.

By working in groups of three rotating roles as veterinarian, farmer and camera operator on different issues, students also can gain insight into various ways of raising issues with ethical sensitivity. If the stakeholders’ awareness can be raised with sensitivity to both their own and others’ needs, including the animals’, there is greater potential for finding ethical solutions to address the issue. With further development of scoring systems for the video assessment, students would be able to analyse and score other groups’ responses as a learning exercise. These student videos also provide a useful demonstration tool for teaching ethical sensitivity with other student groups and for teacher training.
8.5.2 *Students’ ethical sensitivity scores pre-teaching*

Prior to any instruction on the elements of ethical sensitivity, students were not readily identifying their own or others’ emotions. In the written responses, students were using “I feel that” as a substitute for “I think that”. Students’ own emotions were rarely identified, e.g. angry, sad, indignant, disappointed. This reflects previous research with medical students which found affective neutrality to be a primary desensitising strategy, with students learning early that they are not supposed to talk about their feelings, and worrying they would be seen as incompetent or unprofessional if they didn’t put their feelings aside. The emphasis on the superiority of thoughts over feelings may also influence professionals to suspend identifying, reflecting on and analysing their emotions, which can be useful indicators of moral concerns. Emotions have a central role in, rather than being the antithesis of, rationality. Four relationships between feelings and thoughts have been identified, i.e. reflexive and emotional (working with or shaping emotions to endure or get rid of certain feelings), unreflexive and emotional (numbness or spontaneous action), reflexive and without feeling (rational action) and neither reflexive nor emotional (in routine actions). While membership of a scientific or professional group may shape our emotional/cognitive style, being able to identify emotions and their relationships with cognition enables more insight and control.

Students were more able to comment on the physical than emotional responses of animals. Veterinarians have limited ability to recognise canine emotions from facial expressions. Veterinary students have indicated less knowledge of animals’ mental and emotional, than physical, capacities in both first and fifth years of their course. In the 1950’s and 1960’s experimental psychologists placed the words “empathy” and “sympathy” between quotation marks as talk of animal emotion was taboo, even though it was established that rats who had learned to press a lever to obtain food, would stop doing it if their response was paired with the delivery of electric shock to a visible neighbouring rat. Such failure to acknowledge the complex emotional capacities of animals has continued, with only 63% of US veterinary teachers in a 2005 study agreeing that agricultural animals can experience something akin to boredom, and less than half of veterinary students aspiring to work with farm animals believing that poultry were capable of thought processes or emotions. For ethical sensitivity to be developed, knowledge of emotional capacities will need to be enhanced.

Expression of empathy also scored lower than identification of stakeholders’ perspectives. While these students were only in the middle of their veterinary course, empathy is reduced in the later stages of professional training. Students were more able to comment on the physical than emotional responses of animals.
stages of the veterinary course, particularly in males. A product of dualistic thinking about reason and emotion is the tendency of students, often following the example of their instructors, to view approaching a moral problem with sublime disinterest as a sign of intellectual sophistication instead of recognising that compassionate empathy is the backdrop for moral perception, moral reasoning and moral integrity.

Hoffman argues that empathy does not necessarily require a match between one’s feelings and the victims’ feelings and that mature adult empathy has a meta-cognitive dimension: One is aware of empathizing, i.e. one feels distressed but knows this is a response to another’s misfortune, not one’s own, and has an idea of how the other feels. One also has a sense of self and others as separate beings with independent inner states (feelings, thoughts and perceptions) that are only partly reflected in outward behaviour and facial expressions, and with separate identities and conditions. In studies of medical students, empathy can be seen as an effective emotion management strategy, distracting the practitioner from their own feelings and making them feel better about putting the patient first. However in animal-related professions, dichotomous interests of human and non-human animals may require greater awareness of the impact of one’s own cultural knowledge and experience to prevent empathy being given only to one or the other.

Responses to the ten ES assessment elements in this study were logically correlated. Students’ observations of the physical and emotional characteristics of animals were correlated with observing their own thoughts and feelings and explanation of why the issue was an ethical one, which the researchers had assumed were a unified group for scoring. Ability to appraise and interpret the situation was also logically correlated with recognising conflicts between one’s own legal, organisational and ethical responsibilities as both require reflection on one’s own cognition. Recognition of stakeholders’ perspectives, and moral conflicts within and between stakeholders and between one’s own responsibilities were not correlated with observational skills of physical and emotional characteristics, but were correlated with each other, and thus seem to be a separate skill.

This suggests that it is possible to identify physical and emotional reactions well, but not necessarily have the capacity or willingness to understand others’ perspectives and the moral conflicts that need to be addressed. Recognition of own and others’ emotions was correlated with empathy. Higher scores on empathy toward humans, but not animals, are associated with improved ability to recognise dogs’ emotions. Empathy was correlated with recognition of moral conflicts but not with recognition of stakeholders’ perspectives. This aligns with the characteristic patterns of
psychopaths, who have excellent perspective taking abilities but have apparent absence of the moral emotions such as guilt, remorse and other-directed concern. Such relationships show the importance of scientists and professionals developing all aspects of ethical sensitivity by being encouraged to discuss emotions and express empathy.

8.5.3 Effects of teaching ethical sensitivity

An increase in mean scores for identification of emotions of animals and people and expression of empathy after teaching shows the benefit of explicitly discussing and providing background scientific evidence on animals’ emotions and the importance of emotions to cognition. That scores on the identification of own emotions, and moral conflicts within and between stakeholders and between one’s own legal, organisational and ethical responsibilities did not show significant improvement and were lower than all other elements in the post test, suggests more teaching on these areas is needed. Defining the moral conflict is the area in which students have the greatest difficulty in other ethical sensitivity tests. This also suggests that overcoming resistance to expressing emotions is difficult or that students lacked sufficiently strong feelings about animal ethics issues to mention them. While the identification of emotions was specifically requested, it was included in the same question as thoughts. Consequently the expert group decided that in the revised measure there should be separate questions for identification of one’s own emotions, and the emotions of others (animals and people).

Recognition of stakeholder perspectives was lower in the post test. This was possibly because the sea transport of sheep and cattle for live export used as the issue in the pre-teaching responses had a more obvious wider range of stakeholders such as export companies, importers, ship workers, overseas customers, as well as the animal, the farmer, the Australian public and government in the post-test issues. The similarity of scores on nearly all of the ES components between the three scenarios used in the post test shows that students’ ethical sensitivity is comparable regardless of the issue. However scores for recognition of own emotions in the lame cow video were higher than the flystruck issue, which was higher than the use of electric prod on cattle, suggesting possibly greater concern for the suffering involved in lameness, or for dairy cows than sheep or beef cattle.
8.5.4 Demographic Effects on Ethical Sensitivity

Females had a higher overall ES score than males. This is aligned with the results of a meta-analysis of gender differences on ethical sensitivity in 19 studies, which showed gender differences consistently favouring women with an average effect size of 0.25, regardless of different levels of education and of the ethical sensitivity instrument.39 There was a trend for females to have higher scores on expression of empathy, which supports previous research identifying female veterinarians scoring higher than males in empathy toward animals33, and female first year veterinary and first and third year animal science students scoring slightly higher in human-related empathy scores.40 Older students showed less capacity to express empathy than younger students in this study and there was a trend for older students to have lower overall ES scores. In other studies, veterinary students have shown less self-reported empathy toward animals between first and fifth year,20 particularly males.21 In several studies, age has had a positive relationship with ethical sensitivity17 and practising vets with more than 20 years’ experience having more empathy than those at the beginning of their profession (0-5 years).33

Students whose primary language was not English had lower scores for appraisal and interpretation, recognition of stakeholders’ perspectives, moral conflicts between stakeholders and between legal, organisational and ethical responsibilities, and lower overall ES scores. This seems to align with their higher ‘maintaining norms’ and lower ‘universal principles’ reasoning, as well as being less likely to choose actions favouring life and bodily integrity of animals on the Veterinary Defining Issues Test.19 If students are less able or willing to recognise stakeholders’ perspectives and moral conflicts, they are likely to be less conflicted and more satisfied with the status quo. In contrast to other studies,17 students with higher education levels (i.e. a previous degree) did not show higher levels of ES overall.

8.5.5 Relationship of ES to Moral Reasoning

This ES measure has discriminate validity with the distinctiveness of the overall AEST score from the DIT scores supporting previous studies showing only low correlation between ethical sensitivity and moral judgment, thus identifying these as separate elements.13,41 The correlation between universal principles reasoning and two of the ES elements - recognition of moral conflicts between stakeholders and between legal, organisational and ethical responsibilities of professionals - is logical, as UP reasoning requires strong recognition of conflicting interests in order to effectively assess what action would achieve the greatest and fairest benefit.
8.5.6 Practical Application

Ethical sensitivity has been identified as a necessary component for moral behaviour. This study supports previous research showing that ES can be improved with instruction and provides tools to assist with this. Ethical sensitivity has also been shown to play a role in the development of moral judgment. Producing role-play videos should help develop confidence, and practical skills to raise issues and so reduce moral distress in animal-related professions.

As well as developing skills within professions, it could also be useful for industry and government as an ethical assessment tool. Before new initiatives affecting animals and people are undertaken, e.g. a cull following a disease outbreak, an ethical assessment to identify and interpret welfare concerns may help prevent much suffering, disruption to livelihoods, moral distress in the community and the need for government intervention. Sometimes ethical assessment needs to be done quickly, if the situation is causing extreme harm. Preferably a careful ethical assessment can be done proactively to provide all the information necessary to inform future planning.

8.5.7 Limitations

This initial research to develop and measure ethical sensitivity in relation to animal ethics issues needs further development. The ethical sensitivity teaching and assessment for this research was inserted into an already planned course for veterinary students and testing in other populations is important before widespread use. Because ethical sensitivity is fundamental to moral reasoning and moral action, it may be helpful to introduce this skill in the first rather than third year of a course, with ongoing reinforcement throughout the course, preferably by all teachers of the course.

If the teaching of ethical sensitivity becomes a permanent part of any curriculum, extra time would be well-spent by faculty staff to develop deeper understanding of ES and thus be more able to model and develop students’ capacity across all programs in the course. Due to difficulty and inexperience with video scoring, formal training may help. There was some concern that the students who score well in a role-play may not necessarily demonstrate ethical sensitivity in real situations. However, neurobiological research supports the theory that empathic individuals exhibit non-conscious mimicry of the posture, mannerisms and facial expressions of others to a greater extent than non-empathic individuals i.e. to empathise, we need to invoke the representation of the
actions associated with the emotions we are witnessing. Therefore we suggest it is likely that students who can demonstrate these attributes in a role-play are more likely to also automatically demonstrate them in real situations.

8.6 ANIMAL WELFARE IMPLICATIONS AND CONCLUSION
This study suggests that ethical sensitivity to animal welfare issues can be developed in those dealing with animals. It suggests that, in veterinary students at least, encouragement and justification is needed for identifying emotions in themselves and others and for expressing empathy and can result in improvements relatively quickly. Identification of moral conflicts between stakeholders and between legal, organisational and ethical responsibilities as a professional requires greater effort to develop. These teaching and assessment tools have the potential to develop skills to enable students to raise animal welfare concerns and work toward ethical decision-making and action.
8.7 REFERENCES

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CHAPTER 9 GENERAL DISCUSSION

9.1 CONTEXT
Veterinarians are regularly faced with animal ethics issues and dilemmas in their roles as practitioners and policy advisors in industry and government, and have identified insufficient education as an impediment to managing their concerns. This can lead to moral distress. However, animal ethics education in veterinary and other animal related fields is relatively new. Approaches to animal ethics education vary internationally and there are currently no common competencies for assessment to determine levels of expertise in addressing animal ethics issues.

Rest argues that if courses in ethics are worth curricula space and student time, then at least three assumptions must be true:

1. Some ways of deciding what is right are more justifiable than others. Given some moral problem, we do not assume that every conceivable action or reason is as good as every other.

2. There must be some agreement among “experts” on what the more justifiable ethical positions are. Although there might not be complete agreement on one unique line of action, nevertheless, presumably fair-minded people familiar with the facts must agree that some positions are defensible but that others are less so. Defensibility cannot be completely idiosyncratic.

3. Ethics courses influence students in some positive way. The way students will live their lives as professionals is constructively influenced by ethics courses.

This thesis suggests these assumptions can be applied to animal ethics education, and competencies developed so that veterinarians and other animal related professionals can provide leadership in preventing and addressing animal ethics issues. To help achieve this, this research has:

- Identified a scientific approach to animal ethics education to inform the development of animal ethics competencies (Chapter 2)
- Designed a measure and teaching strategies for developing moral judgment on animal ethics issues (Chapters 3 and 4)
- Identified and compared moral judgment on animal ethics issues by students in animal and non-animal related disciplines (Chapter 5)
• Identified relationships between moral reasoning and moral action choices (Chapter 6)
• Identified veterinary students’ perceptions of their moral sensitivity, moral motivation and moral action in relation to animal ethics issues and how these relate to moral judgment (Chapter 7)
• Designed a measure and teaching strategies for developing ethical sensitivity in relation to animal ethics issues (Chapter 8)

The following sections provide a summary of the results and practical implications of each of the six studies completed for this thesis, their limitations and future research opportunities.

9.2 SUMMARY OF RESULTS AND IMPLICATIONS

9.2.1 A scientific approach to animal ethics education to inform the development of animal ethics competencies

This thesis supports the concept of the science of morality from a number of perspectives. Firstly, ethics is grounded in the facts of nature i.e. sentient beings’ common desire for survival and well-being. Prominent neuroscientists have declared that consciousness is evident in vertebrate animals e.g. mammals, birds, and invertebrates e.g. insects and cephalopod molluscs. Further, considerable convergence of understanding of moral development in humans and animals through neuroscience, cognitive psychology and evolutionary biology supports the view that many sentient species have developed nurturing, cooperation and moral emotions such as empathy which enhance life and well-being. These facts draw one to the conclusion that any theory that prioritises humans over animals has no logical ground as “the more likely conclusion is that those traditions are based on a priority principle (that humans have priority over other animals) which violates the impartiality which is supposed to be characteristic of morality.”

Secondly, through observation, reason, communication and experiment, it is possible to determine better and worse ways for humans to decide and act to enhance survival and well-being universally. The fact that well-being may be interpreted differently by some, does not mean that there are not better and worse ways of achieving survival and well-being, just as in medicine, health can be interpreted differently and studies are ongoing to determine better and worse ways to achieve better health. We also still teach human and animal medicine although our knowledge is constantly
growing, being superceded and replaced by new knowledge. Ethical behaviour has been analysed, measured, developed and taught in a scientific (rational) way using Rest’s four components for moral behaviour i.e. moral sensitivity, judgment, motivation and character.\(^{16}\) While others have raised the importance of introducing the four components into veterinary ethics education,\(^{17}\) there were no specific measures and strategies for identifying and developing these four moral components in relation to animal ethics issues in veterinary and other animal related fields. This study focussed mainly on identifying, measuring and developing moral judgment, and to a lesser extent, ethical sensitivity, as well as identifying capacity for moral motivation and moral action.

**9.2.2 A measure of moral judgment on animal ethics issues**

This research developed for the first time a measure of moral judgment in relation to animal ethics issues, the Veterinary Defining Issues Test (VetDIT) (Chapter 3) and took steps to refine and validate it (Chapters 4 & 5). Using this test, a significant finding of the first study (Chapter 3) was that first year veterinary students prioritised universal principles reasoning twice as often as maintaining norms reasoning and six times more than personal interest reasoning, whereas on human ethics issues all three reasoning types were similarly important, and similar to US freshmen scores. Because moral judgment is one of the important components of moral action, this suggests a strong foundation for veterinarians’ capacity to address animal ethics issues.

Three ethical decision-making strategies Human Continuum, Mepham’s Matrix and Preston’s Ethic of Response - were also trialled with first year veterinarians (Chapter 3). Students found the Human Continuum more useful for clarifying their own and others perspectives, and preferred it overall, followed by Preston’s Model, then Mepham’s Matrix. A majority of students agreed that all three methods made them more aware of the complexity of making ethical decisions, using ethical frameworks and principles, and improving their moral reasoning skills, but showed more uncertainty and disagreement that these tools helped them modify their positions.

**9.2.2.1 Practical Implications**

The VetDIT provides a useful tool for veterinary education to:

- identify students’ development in moral judgment
- identify individuals and types of students in need of further help
- enable students’ reflection on their moral judgment development
Students find ethical decision-making tools such as the Human Continuum and Preston’s Ethic of Response useful to clarify their own and others’ perspectives, understand the complexity of ethical decision-making, and develop their ethical decision-making skills.

9.2.3 Teaching strategies and tools for developing moral judgment on animal ethics issues

Results of an intervention study (Chapter 4) showed that moral judgment on animal ethics issues, as determined by scores on the VetDIT, can be developed substantially with direct teaching of Kohlberg’s moral development theory, and teaching strategies that include the Human Continuum, and guided and independent practice in small groups using a new template based on combined universal ethical frameworks in Preston’s ethical decision making model. The improvement in UP scores in this three hour intensive workshop was equivalent to the growth in moral judgment scores on human ethics issues between high school and college students, and a similar increase to that achieved in other direct teaching approaches.\textsuperscript{18, 19} In comparison, there was no improvement when students were exposed to the same information in lecture format. The VetDIT was further validated by being able to discriminate between students with more experience in ethical decision making.

A longitudinal analysis of students VetDIT scores between first and third year (Chapter 4) indicated moral judgment development had not occurred through the normal veterinary program, which reflects previous research in medicine, dentistry, law, and veterinary medicine showing that professional programs do not promote moral judgment development unless the program includes a well-validated ethics curriculum.\textsuperscript{20}

9.2.3.1 Practical Implications

Intervention studies for moral judgment development:

- are likely to be effective when they involve student interaction with guided practice in ethical decision making using universal principles and frameworks along with moral development theory
- can achieve results in a shorter period than expected from previous studies using the DIT.\textsuperscript{21} Whether such gains can be retained, or applied to decision making in practice are areas for further research.
- can measure the effectiveness of a program in developing moral judgment using the VetDIT
• can use the Ethic of Response template to help students combine universal frameworks for ethical decision-making on animal ethics issues

9.2.4 A comparison of moral judgment on animal ethics issues of students in animal and non-animal related disciplines

This study identified that the predominantly universal principles approach to moral reasoning on animal ethics issues is not unique to first-year veterinary students, and that first-year students across a range of animal-related and non-animal-related professions also prioritise such reasoning, over abiding by the law or personal interest reasoning (Chapter 5). As well, this study suggested that deontological reasoning is prioritised over utilitarian, virtue and care ethics frameworks, with animals’ right to life and treatment of greatest importance in two of the three scenarios. Utilitarian reasoning was a priority when deciding between action choices where both involved significant harms to hens, with the principle of fairness second in importance.

This has important implications for animal ethics education to maintain high levels of moral judgment and help to transpose this into moral action to address animal ethics concerns. Many animal-related professionals routinely engage in practices that inhibit the welfare of animals in their care, with systems around them focused on personal interests, commercialism and conventional morality. This would suggest a need to identify and develop the other components for moral action i.e. moral sensitivity, motivation and character, to help prevent students becoming frustrated and disillusioned with their professions and their roles in them.

9.2.4.1 Practical Implications

Prioritisation of UP reasoning on animal ethics issues suggests:
• there is already a strong foundation for students from a range of animal and non-animal related disciplines to make ethical decisions to address animal ethics issues. This needs to be further nurtured and sustained, along with the other components for moral behaviour.
• using a universal principles approach in teaching animal ethics would be aligned with the majority of students’ expectations
9.2.5 The relationship between moral reasoning and moral action choices in relation to animal ethics issues

The preferred action choices regarding the three animal issues in the VetDIT V2 and V3 of students across seven professional programs – five animal-related and two non-animal related - showed little significant difference, with preferences tending to show greater support for life and fairness, over the less universal values of compliance with a society’s laws, loyalty to clients, and taking the easiest or most profitable option for oneself (Chapter 6). However this study showed the relationship between level of moral reasoning and action choice is complex. Different ethical frameworks within UP reasoning e.g. deontological, utilitarian or care ethics, were related to different action choices. Different PI reasoning also related to different action choices for the same scenario. However MN reasoning items related to the same action choice as students were living in the same country and thus subject to the same laws and codes. An international study may show different action choices correlating with MN reasoning, based on different laws and conventions. As well, different levels of reasoning were related to the same action choice.

However, similarity in the number of correlations of PI, MN and UP items to action choices, between the three animal and three human scenarios and between groups studying different education programs suggests that a common approach could be used to develop moral judgment in ethics education, similar to the One Welfare concept of combining human and animal welfare for expanded capacity to enhance the well-being of both humans and animals. Different correlations across program groups may have been due to demographic differences between groups. Being from an English or non-English speaking background, previous education and experience with different animal types, all had an effect on action choice in some program groups.

9.2.5.1 Practical Implications
The VetDIT provides an efficient educational tool to reflect on one’s intuitive action choices and identify how they relate to moral reasoning. Discussing this relationship will in turn affect one’s own and others’ future intuitions. \textsuperscript{22-24}
9.2.6 Veterinary students’ capacity in the four components of moral behaviour to address animal ethics issues

This study (Chapter 7) investigated the other three components of moral behaviour, asking first and fifth year veterinary students to indicate their level of agreement with statements related to moral sensitivity, motivation and action regarding animal ethics issues. It suggested considerable ethical sensitivity, with the majority concerned about animal ethics issues and experiencing moral distress. Most believed the veterinary profession should be involved in addressing animal issues. While most students were motivated to study veterinary science due to enjoyment working with animals and to help sick and injured animals, more than one third of students included “improving the way animals are treated” in their top three motivations for studying veterinary science. However less than half of these students agreed they were competent in ethical decision-making skills. The majority of students had taken little or no action to address their concerns, with no significant difference between first and fifth year students.

Higher levels of moral distress in students with higher PI reasoning suggests building capacity for moral judgment may reduce this distress. Lower levels of moral distress and less interest in being involved in animal issues in students with higher MN scores suggests the need for development of moral sensitivity. Students with higher levels of UP reasoning showed more concern and more motivation to give priority to animals’ interests but perceived they had done less to address animal ethics issues, possibly due to greater awareness of the number and size of issues to be addressed or because their opportunities to address issues were limited. As students who had acted to resolve animal ethics concerns indicated less support within their university culture to discuss and resolve animal ethics issues than those who had taken no action, veterinary and animal science schools may need to consider how they support concerned students and ethical behaviour.

9.2.6.1 Practical Implications

Further work is needed to determine if these findings are representative of other veterinary and animal related programs internationally. However, this study suggests:

- the need for a greater focus on developing competence and confidence in ethical decision making and action to address animal ethics issues in all animal-related courses. This should help prevent moral distress from students’ strong concerns and satisfy the majority of students’ motivation to prioritise animals’ interests and be involved in the wider social issues of animal protection.
• an opportunity for a specialty elective course and/or a post-graduate program for those students who want to make a career of preventing and addressing animal ethics issues. It would develop advanced knowledge and skills and job pathways for strategic policy positions in not-for-profit organisations, industry and government.

• based on current veterinary students’ interest in their profession being more involved in addressing animal ethics issues, professional associations could take a more proactive role in encouraging post-graduate animal ethics programs to develop ethics skills to support their members, reduce moral distress, and enable the profession to provide leadership in public policy and veterinary practice. This may have budgetary implications for university departments to fund a lecturer skilled in animal ethics.

9.2.7 A measure and teaching strategies for developing ethical sensitivity in relation to animal ethics issues

A new measure, the Animal Ethical Sensitivity Test (AEST) was developed and trialled using a range of strategies to enhance the capacity for veterinary students to communicate with ethical sensitivity in their professional role (Chapter 8). It included both a written and video response to ethical sensitivity questions designed to encompass the main elements of ethical sensitivity identified in the research literature. Gains in ethical sensitivity using the written measure and a lack of correlation between ethical sensitivity and VetDIT scores support previous studies that indicated ethical sensitivity can be developed and is distinct from moral judgment. While scores for identification of animals’ and people’s emotions and expression of empathy did improve after teaching, scores for expression of own emotions remained lower than other elements. Similarly, human medical research has found affective neutrality, with students learning early that they are not supposed to talk about their feelings, and worrying that they would be seen as incompetent or unprofessional if they didn’t put their feelings aside. Recognition that emotions have a central role in, rather than being the antithesis of, rationality, and identifying emotions, including the moral emotions, in both humans and animals, is therefore an important aspect of ethical sensitivity development. Ability to identify moral conflicts between stakeholders and between legal, organisational and ethical responsibilities as a professional also retained lower scores after teaching, suggesting this also requires further attention.

For the video component, each student participated in making three videos working in three different roles as veterinarian, client and camera operator within their group on three different
issues. While good inter-rater reliability of video scores was difficult to achieve, making these videos provided students with the opportunity to adopt different perspectives, as well as observe others’ methods of raising difficult issues with ethical sensitivity. It is therefore seen as a vital part of the learning process.

9.2.7.1 Practical Implications
For veterinary educators, this study suggests:

- the AEST is a useful teaching and assessment measure to identify and develop students’ recognition of, and ability to communicate with, ethical sensitivity. Further development is needed, particularly for inter-rater reliability on the video component.
- ethical sensitivity is a separate skill for development
- students need to be encouraged to recognise emotions in animals and people and to express their own emotions and empathy
- capacity to explain moral conflicts between stakeholders and particularly within their own role as a professional

For animal industries and government departments this measure may be adaptable as an ethical assessment tool to carefully assess an animal use situation or a proposed animal enterprise to prevent potential ethical issues.

9.2.8 A summary of demographic effects on moral judgment and moral sensitivity across the various studies, and their implications

9.2.8.1 Education
Formal education has been shown to be the major factor in increased UP reasoning on human ethics issues in DIT studies. Although influenced by the type of university and program, a vital education characteristic has been a commitment to critical reflection. This research, on animal ethics issues, supported previous research in that first year veterinary students with a previous degree had lower PI reasoning (Chapter 3) In another VetDIT study (Chapter 4) those students with a previous degree in a combined group of first and third year veterinary and first year animal science students had higher UP reasoning. However the action choices of those with a previous degree in the third and fifth year of their veterinary course (Chapter 6) were more conventional and less likely to be the life-valuing principled options, which possibly reflects research showing negative effects of
professional degree programs on moral judgment. In relation to ethical sensitivity, third year students with a previous degree did not show higher scores than those without a previous degree, supporting previous studies on human ethics issues that suggest ethical sensitivity is not being developed in higher education, particularly science programs, the main type of previous degree in this research.

9.2.8.2 Age
There were no age effects in the first two studies on moral reasoning with first year veterinary students. However two other studies (Chapters 4 and 5) showed PI scores decreased and UP scores increased with age (on animal and human ethics issues respectively). Previous DIT research indicates that formal education is more predictive of UP score change than age with scores tending to plateau when formal education ends.

9.2.8.3 Sex
While in the first group of first year vet students studied, males showed no difference in moral reasoning, males in the mixed first year student group from animal and non-animal-related fields showed higher MN and lower UP reasoning on animal ethics issues than females and higher PI and lower UP reasoning than females on human ethics issues, consistent with significantly higher moral reasoning scores of females in a review of previous DIT research.

In self-perceptions of moral sensitivity, male first year vet students showed no difference in concern for, or moral distress in relation to, animal ethics issues, compared with females. However male third year vets’ mean score on the Animal Ethical Sensitivity Test was lower than females overall, supporting other ethical sensitivity studies, and empathy studies where males rated themselves lower than females on empathy and showed lower levels in the later years of veterinary study.

9.2.8.4 Culture
Variations in attitudes to animals’ welfare based on country of origin have been noted in previous research. However many cross-cultural DIT human ethics studies support Kohlberg’s belief that his stages of moral judgment are universal, though this is not conclusive. No previous quantitative evaluations of cultural effects on moral judgment and moral sensitivity on animal ethics issues have been identified. Overall, results from the VetDIT identified higher MN and lower UP reasoning
(Chapters 4 & 5) on animal ethics issues by students whose primary language was not English than students whose primary language was English.

In relation to ethical sensitivity, first year students whose primary language was not English indicated less concern about how animals are treated in the general Australian community, more uncertainty regarding whether they have experienced moral distress, and were less likely to agree that vets face difficulties in protecting animal’s interests, compared with first year students whose primary language was English (Chapter 7). Similarly, third year veterinary students whose primary language was not English had lower ethical sensitivity scores, compared with third year veterinary students whose primary language was English (Chapter 8). Thus there appears to be a cultural effect on moral reasoning and ethical sensitivity.

9.2.8.5 Experience with animals
Self-reported levels of experience with different animals has been shown to have an effect on veterinary students’ attitudes and values in relation to animals,32,33 but the effect of such experience with animals on moral judgment and sensitivity in relation to animal ethics issues has previously not been measured. In first year veterinary students, there was a trend for students who indicated they had more experience with companion animals to have higher PI scores (Chapter 3) suggesting that companion animal experience does not necessarily create a universal approach to all sentient beings’ interests. Third year vets who indicated they had companion animal experience were less likely to choose to euthanize a healthy cat than those without companion animal experience (Chapter 6). Students indicating more companion animal experience were more likely to strongly agree that veterinary medicine should require a commitment to animals’ interests over those of their owners/caregivers (Chapter 7).

First year veterinary students who indicated more experience with farm animals were less likely to agree with prioritising animals’ interests and showed less agreement that vets face difficulties in protecting animals’ interests (Chapter 7). Veterinary students specifying greater horse experience however indicated more knowledge of animals’ physical and emotional characteristics, possibly because of the strong owner/horse bond (Chapter 7), and third years who indicated they had horse experience (Chapter 6) were less likely to advise research to breed blind hens should proceed. In the combined study of students in animal and non-animal related fields (Chapter 5) there was no effect of indicated levels of experience with companion or farm animals, or horses.
9.2.8.6 Practical Implications

The demographic influences in this research are often aligned with previous attitude research and provide some insight for educators on which sub groups within their cohorts may require more development than others.

9.3 LIMITATIONS

These moral judgment and moral sensitivity measures and strategies have so far only been tested in one university in Australia. Although this meant greater comparability on the measurements and strategies and maximising time spent on teaching and testing, these tools need to be further investigated, refined and developed in other universities and countries. Another constraint was that ethics teaching often had to fit into an already planned and busy program. There was no opportunity to plan an overall curriculum and assessment design for ethics education across the veterinary program, which is recommended for greatest effect.\(^{34}\)

Further work needs to be done on validating the VetDIT and the AEST. Rest et al’s validation process for the DIT continued for over 20 years using a range of criteria.\(^{13}\) Several criteria have been investigated to test the validity of the VetDIT during this research. Significant but low correlations between MN and UP reasoning on the combined three human and combined three animal ethics scores were identified in the first study (using VetDIT Version 1) (Chapter 3) and between PI, MN and UP reasoning on human and animal ethics scores across animal and non-animal related courses (VetDIT Version 2) (Chapter 5). Comparability between Versions 1, 2, and 3 was identified (Chapter 4). The number of PI, MN and UP item/action relationships were similar for human and animal ethics issues in the combined results from all groups involved in the research for this thesis (Chapter 6). These correlations suggest the VetDIT scenarios are identifying similar reasoning and action choices between human and animal issues.

The VetDIT showed sensitivity to an ethics intervention study with an increase in UP scores after teaching (Chapter 4), another of Rest’s criteria for construct validity. The longitudinal study did not show an upward trend (Chapter 4) which aligned with previous research which has also shown a lack of development in moral reasoning in professional courses without an ethics program intervention.\(^{35}\) Comparison of VetDIT scores with students who were more knowledgeable in ethics
was only possible with first year students who had completed most of an ethics course. This did not indicate differences in UP reasoning level as might be expected. It would be helpful to compare VetDIT results with people with even greater expertise in philosophy/ethics e.g. graduate moral philosophy students, particularly those who have studied an animal ethics course. Comparability of scores on nine of the ten ethical sensitivity elements across three animal ethics scenarios was a positive beginning to validating the AEST. However further studies in different contexts are needed.

9.4 FUTURE RESEARCH

Further research using the VetDIT internationally would help with refinement and validation. Much research is also needed to identify practitioners’ moral judgment development on animal ethics issues in veterinary science and other animal related fields, and to identify if workshops or full courses using the four component model assist students and practitioners to address the animal ethics issues they face and reduce moral distress.

Teaching strategies and measures for the other two components of moral behaviour, moral motivation and moral character, in relation to animal ethics issues, also require development and testing. Development of students’ capacities in these two aspects may be vital, as this research suggests many students are already demonstrating high levels of ethical sensitivity and moral judgment, and indicate high motivation, but little or no action. Previous general psychological research has identified that a majority do not translate ethical intentions into action,\(^{36}\) suggesting that while moral sensitivity and moral judgment are a particularly important core of animal ethics education, much more research is needed to develop effective action-oriented skills in animal ethics courses in veterinary and other animal- and non-animal related fields. It will also be important to investigate the moral reasoning and sensitivity of veterinary faculty, and demonstrated moral action, due to the importance of the moral climate discussed in the research literature.\(^{34}\)

More research is needed to determine whether the ethical decision-making models found useful by students in this research are helpful for addressing animal ethics issues faced by veterinarians in practice. In addition, Verges\(^{35}\) argues that although ethical decision making models are useful, “they emphasize reactive approaches to ethical issues and overlook preventative measures that might help solving ethical problems before they arise.”\(^{37}(p.497)\) Most models start with the ethical dilemma to activate ethical deliberation, instead of being active before the problem by identifying and perhaps
modifying the contextual factors that influence ethical decisions before an ethical decision making model is applied. For ethics education/training Verges suggests:

a. learning about models of ethical decision making and their application to different ethical dilemmas as a central part of ethics training, and
b. ethical and moral inquiry emphasising a proactive attitude directed to achievement of the best possible ethical practice instead of avoidance of ethical violations. Focussed on "who shall I be" rather than "what shall I do", it is an aspirational model of ethical judgement.

Fostering ethical sensitivity for proactive ethical inquiry in veterinary students, faculty and practitioners and indeed animal industries and professions as a whole would be a useful area of research, to prevent future ethical concerns, in preference to having to resolve the often intractable problems once they are embedded in practice.

9.5 CONCLUSIONS
This thesis examined the potential for assessing and developing the capacity of veterinarians and other animal related professionals to address animal ethics issues. It identified a scientific approach to morality and the development of moral behaviour to enable clarity of purpose and common competencies for leadership in animal ethics. Measures for assessing moral judgment and moral sensitivity in veterinary and other animal related fields were developed and trialled, along with teaching strategies and ethical decision making models. Increases in moral judgment and moral sensitivity skills were identified using these tools. This body of work thus provides a basis for developing practical animal ethics education, particularly in veterinary and other animal related fields, but also in related disciplines such as moral philosophy, moral psychology and public policy. Further research is needed to develop strategies and measures for developing the other two components of moral behaviour – moral motivation and moral character – and to identify the effectiveness of this scientific approach internationally, in developing capacity to prevent and address animal ethics issues. However it is hoped that this body of work will, at the very least, contribute to the development, particularly in veterinary and other animal related professions, of leadership for moral action in animal ethics.
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APPENDIX A    VetDIT V1 SCENARIOS

VET SCENARIO 1: REQUEST TO EUTHANIZE A HEALTHY ANIMAL
A woman brings her lively 5-year-old kelpie/cattle cross dog in to see a veterinarian, Dr. Benjamin, for euthanasia. She says she is moving into an apartment with her boyfriend who does not like the dog, and pets are not allowed in the apartment building. Besides this, the dog is too active for her and barks all the time. The vet asks if she has tried to put the dog up for adoption, but she replies that the local pound already has too many working dogs and they would probably euthanize it anyway. She simply wants the dog humanely destroyed, and if the vet does not euthanize it, her boyfriend will shoot it. Dr. Benjamin wonders what to do.

VET SCENARIO 2: PIG HUSBANDRY
Dr. Jones, a veterinarian, examines a sick pig at a large-scale piggery that she visits once or twice per year. It is emaciated, has diarrhea, and is pregnant. There are approximately 20 other pigs the vet can see are in a state of ill-health. The owner says he is having a tough time in the current economic climate. He wants the vet to only treat the one pig. The quality of animal husbandry on the farm seems to have deteriorated over the years, despite the vet offering suggestions. Dr. Jones wonders whether she should report the owner to the RSPCA (Royal Society for the Prevention of Cruelty to Animals) Inspector.

VET SCENARIO 3: BREEDING MODIFICATION IN CONFINEMENT AGRICULTURE
Modern egg production systems have many animal-welfare problems. Often the laying hens live in cages, with limited possibility to walk. Alternatively, they are kept in large groups where there is a better opportunity for exercise, but this results in feather pecking, which in turn leads to damage to plumage and ultimately flesh wounds. These wounds encourage additional pecking from other hens, and in the worst cases there is a real risk of cannibalism.

Several attempts have been made to alter production systems to reduce these negative effects, but they have been largely unsuccessful. A common containment measure is to remove the tips of the beaks of 1-day-old chickens. Another approach involves breeding blind hens. According to a Canadian study (Ali & Cheng, 1985), congenitally blind chickens do not face the same problems of feather pecking, cannibalism, and other associated problems as do sighted ones. Purely from an animal-welfare perspective, the breeding and use of these hens appears to be quite unproblematic. Studies also show that the blind hens have no problem finding feed and water, have a lower feed
intake, a body weight similar to laying hens with unimpaired vision, and produce more eggs per
day. A veterinarian, Dr. Vivardi, is asked to provide professional advice regarding whether a
proposed plan to breed chickens so that they are congenitally blind should proceed.
APPENDIX B  VetDIT V2
If you consent to this questionnaire being used for research purposes, please record a self-established research code using the formula below:

**Research Code**: 
* Formula for Code: The *year* of your birth, the *month* of your birth, and the *first 4 letters* (or 2-3 letters if the name is shorter) of your first pet's name e.g. 199206SMOK. If you have never had a pet, use the first 2-4 letters of your first best friend's name.

**Instructions**
This questionnaire is concerned with how you define the issues in a social problem. Three animal scenarios are presented. After each scenario are twelve questions representing different issues that might be raised by the problem. In other words, the questions/issues raise different ways of thinking about what is important in making a decision about the social problems. You will be asked to **rate and rank** the questions in terms of how important each one seems to you.

**Here's an example**: Imagine that you are able to vote for a candidate for Prime Minister/President of your country. Before you vote, you are asked to rate how important some issues are in making up your mind about which candidate to vote for, using a rating scale of 1 to 5 (below) and circling the chosen level of importance for each issue. Assume that you thought that Question 1 was of great importance, Question 2 had some importance, Question 3 had no importance, Question 4 had much importance, and Question 5 had much importance. Using the following scale, you would record this as:

(1) = Great importance  (2) = Much importance  (3) = Some importance  (4) = Little importance  (5) = No importance

1 2 3 4 5 1. Financially has the current government made me better off?
1 2 3 4 5 2. Does the candidate have a superior moral character?
1 2 3 (d) 4 5 3. Which candidate is the best looking?
1 2 3 4 5 4. Which candidate would make the best world leader?
1 2 3 4 5 5. Which candidate has the best ideas for our country's internal problems, like crime and health care?

**Further, the questionnaire will ask you to rank the questions in order of importance.** In the space below, the numbers represent the issue number. For example based on your ratings above, you may choose the most important issue to consider as Question 1. **Financially am I better off**; the second most important issue as Question 5. **Who has the best ideas for internal problems** ...; the third most important issue as Question 4. **Who would make the best world leader**; and the fourth most important issue as Question 2. **Who has a superior moral character**, as follows:

| Most important issue | 1 2 3 4 5 6 7 8 9 10 11 12 (12 issues are presented for each social problem) |
| Second most important issue | 1 2 3 4 5 6 7 8 9 10 11 12 |
| Third most important issue | 1 2 3 4 5 6 7 8 9 10 11 12 |
| Fourth most important issue | 1 2 3 4 5 6 7 8 9 10 11 12 |

**Note**: Some of the items may seem irrelevant to you (as in Item 3) or not make sense to you. In that case, rate as "No" importance, and do not rank the item.

In addition you will be asked to state your preference for what action to take in a story i.e. 1= strongly favour some action, 2= can't decide, 3 = strongly oppose the action. For example:
1. Should vote for Candidate A 
2. Can't Decide 

**PLEASE BEGIN**
Scenario 1 - Request to Euthanize a Healthy Dog

A woman brings her lively five year old kelpie/cattle cross dog in to see a veterinarian, Dr Benjamin, for euthanasia. She says she is moving into an apartment with her boyfriend who doesn't like the dog, and pets aren't allowed in the apartment building. Besides this, the dog is too active for her and is barking all the time. The veterinarian asks if she has tried to put the dog up for adoption, but she replies that the local pound already has too many working dogs and they would probably euthanize it anyway. She simply wants the dog humanely destroyed and, if the veterinarian doesn't euthanize it, her boyfriend will shoot it. Dr Benjamin wonders what to do.

A. What action do you favour the veterinarian taking? (circle the action):

1. Should euthanize the dog
2. Can't decide
3. Should not euthanize the dog

B. Rate the following 12 issues in terms of importance (1-5): (1 = Great importance, 2 = Much importance, 3 = Some importance, 4 = Little importance, 5 = No importance)

Great (1) to No (5) importance

1 2 3 4 5  1. Should the veterinarian support the owner's legal right to euthanize the dog?
1 2 3 4 5  2. Should the veterinarian risk losing a client by refusing to euthanize the dog?
1 2 3 4 5  3. Does the dog have a right to life?
1 2 3 4 5  4. Would the Australian Veterinary Journal be interested in an article on this?
1 2 3 4 5  5. Would refusal to euthanize cause a confrontation with the owner and the boyfriend?
1 2 3 4 5  6. What action would be supported by the veterinary profession?
1 2 3 4 5  7. Should the veterinarian secretly rehome the dog out of respect for its life?
1 2 3 4 5  8. Is it more caring to argue for the dog's life or accept the owner's decision?
1 2 3 4 5  9. Should the veterinarian tell the client to find another veterinarian to euthanize the dog?
1 2 3 4 5  10. What do most veterinarians in Australia do in this situation?
1 2 3 4 5  11. Should the veterinarian weigh up the possible consequences to all concerned of euthanizing the dog?
1 2 3 4 5  12. Does the veterinarian have the time to consider this issue in his/her busy day?

C. Rank which issue is most important (by circling the question number below):

Most important issue to consider
1 2 3 4 5 6 7 8 9 10 11 12

Second most important issue to consider
1 2 3 4 5 6 7 8 9 10 11 12

Third most important issue to consider
1 2 3 4 5 6 7 8 9 10 11 12

Fourth most important issue to consider
1 2 3 4 5 6 7 8 9 10 11 12
Scenario 2 - Pig Husbandry

Dr Jones, a veterinarian, examines a sick pig at a large scale piggery that she visits once or twice per year. It is emaciated, has diarrhoea, and is pregnant. There are approximately 20 other pigs that the veterinarian can see are also in a state of serious ill-health. The owner says he is having a tough time in the current economic climate. He wants the veterinarian only to treat the one pig. The quality of animal husbandry on the farm seems to have deteriorated over the years, despite the veterinarian offering suggestions. Dr Jones wonders whether she should report the owner to the appropriate authority.

A. What action do you favour the veterinarian taking? (circle the action)

| 1. Report the farmer to the authorities | 2. Can't decide | 3. Do not report the farmer to the authorities |

B. Rate the following 12 issues in terms of importance (1-5): (1 = Great importance, 2 = Much importance, 3 = Some importance, 4 = Little importance, 5 = No importance)

Great (1) to No (5) importance

1 2 3 4 5  1. Is it a veterinarian's professional role to make this judgement?
1 2 3 4 5  2. Could the veterinarian best help by treating all the pigs for a lower price?
1 2 3 4 5  3. Will other farmers want to employ the veterinarian if she reports this farmer?
1 2 3 4 5  4. Will there be more benefit than harm, if the farmer is reported?
1 2 3 4 5  5. Is it within the bounds of accepted practice to lose some animals in any large scale animal production system?
1 2 3 4 5  6. Is pork more popular than chicken meat?
1 2 3 4 5  7. Should the veterinarian's decision be based on what the AVA Code suggests?
1 2 3 4 5  8. Is it worth the trouble of reporting this one farmer?
1 2 3 4 5  9. Is it unlikely for a prosecution to be successful in a case like this?
1 2 3 4 5 10. Will the farmer blame the vet?
1 2 3 4 5 11. Will the veterinarian be upset if she reports the farmer?
1 2 3 4 5 12. Do the pigs have a right to treatment?

C. Rank which issue is most important (by circling the question number below):

Most important issue to consider 1 2 3 4 5 6 7 8 9 10 11 12
Second most important issue to consider 1 2 3 4 5 6 7 8 9 10 11 12
Third most important issue to consider 1 2 3 4 5 6 7 8 9 10 11 12
Fourth most important issue to consider 1 2 3 4 5 6 7 8 9 10 11 12
Scenario 3 - Breeding modification in confinement agriculture

In large-scale commercial egg production housing systems, laying hens often engage in feather pecking, which leads to damage to plumage, flesh wounds, and, in the worst cases, a risk of cannibalism. A common way of reducing these effects is removing the tips of the beaks of day old chickens. Another possible approach involves breeding congenitally blind hens. Research with blind adult hens at commercial stocking densities indicated these hens were physically and socially less active, with less feather pecking, less comb damage, and higher egg output, than sighted birds, whilst maintaining similar body weight. In another study, blind chickens up to six weeks old sat and preened more, did less environmental pecking, showed reduced behavioural synchrony and group aggregation, and lower body weight, and exhibited a number of abnormal behaviours, suggesting they may be more stressed, and likely to miss positive experiences of moving easily, social interaction, and finding food. A veterinarian, Dr Vivardi, is asked to provide professional advice regarding whether a proposed development plan, to breed congenitally blind chickens to assess welfare and productivity on a commercial scale, should proceed.

A. What action do you favour the veterinarian taking? (circle the action)

| 1. Should advise the research proceeds | 2. Can't decide | 3. Should advise against the research |

B. Rate the following 12 issues in terms of importance (1-5): (1 = Great importance, 2 = Much importance, 3 = Some importance, 4 = Little importance, 5 = No importance)

Great (1) to No (5) importance

1. Are the public likely to abuse the veterinarian if he/she advises the research proceeds?
2. Is this research in line with veterinarians’ accepted standards?
3. Is it important to consider whether the benefits of less stress to the birds outweigh the harm of taking away one of their natural features?
4. Which decision is better for the future of the egg farming industry?
5. Is it fair to manipulate animals to fit production systems?
6. Would the vet be criticised professionally for having an emotional unscientific reaction if he/she opposed this?
7. Is it disrespectful to interfere with the “wholeness” of a bird?
8. Is this any different from breeding practices which have been used for many years to modify characteristics of farm animals?
9. Are the natural sciences better than the pure sciences?
10. Is recommending the breeding of blind chickens what a good person would do?
11. Will this project provide interesting work for the veterinarian if it goes ahead?
12. If it is legal, is there any reason not to genetically modify farm animals?

C. Rank which issue is most important (by circling the question number below):

Most important issue to consider: 1 2 3 4 5 6 7 8 9 10 11 12
Second most important issue to consider: 1 2 3 4 5 6 7 8 9 10 11 12
Third most important issue to consider: 1 2 3 4 5 6 7 8 9 10 11 12
Fourth most important issue to consider: 1 2 3 4 5 6 7 8 9 10 11 12
**Demographic Information:**

*Please circle the most appropriate response or record your answer as required:*

1. Current Age: ______________

2. Sex: Male  Female

3a. Degree currently enrolled in: ___________________________________________________

   b. Previous university degree(s): Yes  No

   c. If yes, please identify degree(s) completed:

   ___________________________________________________

4. Is English your primary language? Yes  No

5. Rate the extent to which you have had experience with the following groups of animals:

   1 = Very great extent; 2 = Great extent; 3 = Some extent; 4 = Minimal extent; 5 = Never

   a. Companion animals 1 2 3 4 5

   b. Farm animals       1 2 3 4 5

   c. Horses             1 2 3 4 5

**Thank you for completing this questionnaire.**

Do you have any comments on any aspects of the questionnaire, including any difficulties you had, suggestions for improvement, or just general comments? We really appreciate your feedback.

________________________________________________________________________________

________________________________________________________________________________

________________________________________________________________________________

________________________________________________________________________________

________________________________________________________________________________

Veterinary Defining Issues Test Version 2-2 Revised 17.7.15
If you consent to this questionnaire being used for research purposes, please record a self-established research code number using the formula below:

Research Code Number*: _____________

* Formula for Code: The year of your birth, the month of your birth, and the first 4 letters (or 2-3 letters if the name is shorter) of your first pet's name e.g. 199206SMOK. If you have never had a pet, use the first 2-4 letters of your first best friend's name.

Instructions

This questionnaire is concerned with how you define the issues in a social problem. Three animal scenarios are presented. After each scenario, are twelve questions representing different issues that might be raised by the problem. In other words, the questions/issues raise different ways of thinking about what is important in making a decision about the social problems. You will be asked to rate and rank the questions in terms of how important each one seems to you.

Here's an example: Imagine that you are able to vote for a candidate for Prime Minister/President of your country. Before you vote, you are asked to rate how important some issues are in making up your mind about which candidate to vote for, using a rating scale of 1 to 5 and circling the chosen level of importance for each issue. Assume that you thought that Question 1 was of great importance, Question 2 had some importance, Question 3 had no importance, Question 4 had much importance, and Question 5 had much importance. Using the following scale, you would record this as:

(1) = Great importance
(2) = Much importance
(3) = Some importance
(4) = Little importance
(5) = No importance

1. Financially has the current government made me better off?
2. Does the candidate have a superior moral character?
3. Which candidate is the best looking?
4. Which candidate would make the best world leader?
5. Which candidate has the best ideas for our country's internal problems, like crime and health care?

Further, the questionnaire will ask you to rank the questions in order of importance. In the space below, the numbers represent the issue number. For example based on your ratings above, you may choose the most important issue to consider as Question 1. Financially am I better off; the second most important issue as Question 5. Who has the best ideas for internal problems ...; the third most important issue as Question 4. Who would make the best world leader; and the fourth most important issue as Question 2. Who has a superior moral character, as follows:

Most important issue: 1 2 3 4 5 6 7 8 9 10 11 12 (12 issues will be presented for each social problem)
Second most important issue: 1 2 3 4 5 6 7 8 9 10 11 12
Third most important: 1 2 3 4 5 6 7 8 9 10 11 12
Fourth most important issue: 1 2 3 4 5 6 7 8 9 10 11 12

Note: Some of the items may seem irrelevant to you (as in Item 3) or not make sense to you. In that case, rate as "No" importance, and do not rank the item.

In addition you will be asked to state your preference for what action to take in a story i.e. 1= strongly favour some action, 2= can't decide, 3 = strongly oppose the action. For example:
1. Should vote for Candidate A
2. Can't Decide
3. Should not vote for Candidate A

PLEASE BEGIN
Scenario 1 - Request to Euthanize a Healthy Cat

A woman brings in to the veterinary clinic a two-year-old desexed male domestic short-haired cat that recently has begun "spraying" in the house. This behaviour began shortly after the birth of her first child six months ago and has cost her over five hundred dollars in cleaning bills. She wants Dr Gratton, the veterinarian, to euthanize the cat. Dr Gratton recommends several behavioural specialists, but the woman is too busy with the new baby to spend any more time or money on the cat. Dr Gratton already has five stray cats in the back room that are, to the best of her knowledge, problem free and have been waiting for adoption for over two weeks. Dr Gratton is fairly certain the cat would do well in a childless home, but so would any of the other cats she has waiting for a home. Dr Gratton wonders what to do.

A. What action do you favour the veterinarian taking? (circle the action)

1. Should euthanize the cat
2. Can't decide
3. Should not euthanize the cat

B. Rate the following 12 issues in terms of importance (1-5): (1 = Great importance, 2 = Much importance, 3 = Some importance, 4 = Little importance, 5 = No importance)

Great (1) to No (5) importance

1. Should the veterinarian support the owner's legal right to euthanize the cat?
2. Should the veterinarian risk losing a client by refusing to euthanize the cat?
3. Does the cat have a right to life?
4. Would the Australian Veterinary Journal be interested in an article on this?
5. Would refusal to euthanize cause the woman to become abusive toward the veterinarian?
6. What action would be supported by the veterinary profession?
7. Should the veterinarian secretly rehome the cat out of respect for its life?
8. Is it more caring to argue for the cat's life or accept the owner's decision?
9. Should the veterinarian tell the client to find another veterinarian to euthanize the cat?
10. What do most veterinarians in Australia do in this situation?
11. Should the veterinarian weigh up the possible consequences to all concerned of euthanizing the cat?
12. Does the veterinarian have the time to consider this issue in his/her busy day?

C. Rank which issue is most important (by circling the question number below):

Most important issue to consider
Second most important issue to consider
Third most important issue to consider
Fourth most important issue to consider
Scenario 2 - Sheep Research

Dr Pinto is a busy staff veterinarian at a research facility in a university medical school. An animal health technician presents Dr Pinto with a sheep that has a badly infected hind limb following experimental hip surgery. This infection would be very painful for an extended period. The research project involved has received full approval from the university Research Ethics Committee. Dr Pinto knows, both from the research protocol and from previous experience with the project, that long term survival of the sheep is critical to the success of the research. The principal investigator has always been cooperative; however, he is out of the country for two weeks and cannot be contacted. His research associates suggest that Dr Pinto takes no action until the principal investigator returns. Provision for treatment is not included in the experimental protocol, and a minimum number of sheep has been assigned to the trial, so the loss of one sheep could affect the significance of the results. Dr Pinto is unsure whether to remove the sheep from the trial and provide treatment.

A. What action do you favour the veterinarian taking? (circle the action)

| 1. Remove from the trial and treat the sheep | 2. Can't decide | 3. Do not remove from the trial and not treat the sheep |

B. Rate the following 12 issues in terms of importance (1-5): (1 = Great importance, 2 = Much importance, 3 = Some importance, 4 = Little importance, 5 = No importance)

1. Does Dr Pinto have the authority to make such decisions?
2. What would be the most caring action to take?
3. Will Dr Pinto's job be on the line if he interferes with the research protocol?
4. Will there be more benefit than harm, if the sheep is treated?
5. Is it accepted practice for some animals to suffer in order for progress to be made in developing new treatments?
6. Have the Workplace Safety Guidelines been up-dated?
7. Should the veterinarian's decision be based on what the Australian Code of Practice for the Care and Use of Animals for Scientific Purposes suggests?
8. Is it worth the trouble of treating this one sheep?
9. Is it likely that the sheep will die anyway?
10. Will the principal researcher blame Dr Pinto if the research results are affected?
11. Will the veterinarian be constantly worried if he doesn't treat the sheep?
12. Does the sheep have a right to treatment?

C. Rank which issue is most important (by circling the question number below):

Most important issue to consider 1 2 3 4 5 6 7 8 9 10 11 12
Second most important issue to consider 1 2 3 4 5 6 7 8 9 10 11 12
Third most important issue to consider 1 2 3 4 5 6 7 8 9 10 11 12
Fourth most important issue to consider 1 2 3 4 5 6 7 8 9 10 11 12
Breeding modification of pigs

Pigs are usually raised in intensive conditions. They tend to panic when they are brought into new environments. In particular when they are transported to the slaughterhouse the situation can be too stressful for them. Sometimes this stress leads to a loss of meat quality and even to sudden death. A new breeding program that would produce genetically-modified sows is proposed to identify and select pigs that can withstand more stress, but also would reduce activity levels and motivation to perform a wide range of behaviours. Some pigs may be produced with undesirable, even potentially lethal, characteristics during the programme. A veterinarian, Dr Chi, is asked to give her advice.

A. What action do you favour the veterinarian taking? (circle the action)

<table>
<thead>
<tr>
<th>1. Should advise the breeding program proceeds</th>
<th>2. Can't decide</th>
<th>3. Should advise against the breeding program</th>
</tr>
</thead>
</table>

B. Rate the following 12 issues in terms of importance (1-5): (1 = Great importance, 2 = Much importance, 3 = Some importance, 4 = Little importance, 5 = No importance)

Great (1) to No (5) importance

1  2  3  4  5

1. Are the animal activist groups likely to abuse Dr Chi if she advises the research proceeds?
2. Is this breeding program in line with the Australian Veterinary Association's accepted standards?
3. Do the benefits of less stress to the pigs outweigh the harm that may be caused to the pigs in the breeding program?
4. Which decision is better for the future of the pig farming industry?
5. Is it fair to manipulate animals to fit pig production systems?
6. Would the veterinarian be criticised professionally if she opposed this new program?
7. Is it disrespectful to interfere with the nature of the pig?
8. Is this any different from breeding practices which have been used for many years to modify characteristics of farm animals?
9. Are the natural sciences better than the pure sciences?
10. Is recommending this pig breeding program what a good person would do?
11. Will this project provide interesting work for the veterinarian if it goes ahead?
12. If it is legal, is there any reason not to genetically modify farm animals?

C. Rank which issue is most important (by circling the question number below):

Most important issue to consider 1 2 3 4 5 6 7 8 9 10 11 12
Second most important issue to consider 1 2 3 4 5 6 7 8 9 10 11 12
Third most important issue to consider 1 2 3 4 5 6 7 8 9 10 11 12
Fourth most important issue to consider 1 2 3 4 5 6 7 8 9 10 11 12
**Demographic Information:**

*Please circle the most appropriate response or record your answer as required:*

1. Current Age: ______________
2. Sex: Male Female
3a. Degree currently enrolled in ____________________________________________________________
3b. Previous university degree(s): Yes No
3c. If yes, please identify degree(s) completed: ____________________________________________

4. Is English your primary language? Yes No

5. Rate the extent to which you have had experience with the following groups of animals:
   1 = Very great extent; 2 = Great extent; 3 = Some extent; 4 = Minimal extent; 5 = Never
   a. Companion animals 1 2 3 4 5
   b. Farm animals 1 2 3 4 5
   c. Horses 1 2 3 4 5

Thank you for completing this questionnaire.

Do you have any comments on any aspects of the questionnaire, including any difficulties you had, suggestions for improvement, or just general comments? We really appreciate your feedback.

________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________

Veterinary Defining Issues Test Version 3 Revised March 2014
Animal Ethics Issues Survey

Thank you for participating in this research which aims to identify the animal ethics issues, conflicts and dilemmas of students in animal-related professions in Australia, how these are addressed and the expectations and satisfaction with the profession and its role in animal ethics.

Please refer to the following definitions related to this survey:

- **ethics** - how we should live together in terms of "what is right, fair, just or good" (Preston, 2001)
- **ethics issues** - matters of concern regarding personal, professional and social responsibility in terms of how we treat others
- **animal ethics** - how humans should treat animals
- **animal ethics issues** - matters of concern regarding personal, professional and social responsibility in terms of how we treat animals
- **animal interests** - wellbeing, or capacities for pleasure and fulfilment, and avoidance of pain, suffering and death
- **ethical conflict** - ethical conflicts arise when someone has to make a choice between violating or abiding by one or more of their moral principles (Huebsch, eHow Contributor http://www.ehow.com/facts_7385389_ethical-conflict_.html)
- **ethical dilemma** - a complex situation "when two or more principles or values conflict. More than one principle applies and there are good reasons to support mutually inconsistent courses of action. Although it seems terrible to give up either value, a loss is inescapable." (Jameton 1984)
- **moral distress** - stress related to ethical dilemmas "when one knows the right thing to do, but institutional or other constraints make it difficult to pursue the desired course of action" (Raines, 2000)
- **university culture** - a set of shared perceptions about beliefs, values, norms which affect behaviours of staff and students at a particular university
UQ Animal Ethics Issues Survey

Please record your self-established research code number using the formula below:

**Research Code Number**: __________

* Formula for Code: The year of your birth, the month of your birth, and the first 4 letters (or 2-3 letters if the name is shorter) of your first pet’s name e.g. 199206SMOK. If you have never had a pet, use the first 2-4 letters of your first best friend’s name.

A. Animal ethics issues, conflicts and dilemmas

Read each of the following statements and tick the box which best matches your current point of view:

<table>
<thead>
<tr>
<th>Statements</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Unsure</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1. Ethical issues, conflicts or dilemmas in relation to how animals are treated in the general Australian community are a concern for me</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A2. a. If you have identified any ethical issues, or are experiencing conflicts or dilemmas, in the way animals are treated in the general Australian community, please list below. If not, please write "Nil".

<table>
<thead>
<tr>
<th>Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>A2 b. How much have you done to resolve these animal ethics issues, conflicts and/or dilemmas?</td>
</tr>
<tr>
<td>A2 c. Have these issues, conflicts and/or dilemmas been resolved?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Statements</th>
<th>A great deal</th>
<th>A lot</th>
<th>Some</th>
<th>Little</th>
<th>Nothing</th>
<th>Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>A2 b. How much have you done to resolve these animal ethics issues, conflicts and/or dilemmas?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Statements</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Unsure</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>A3. I have experienced moral distress (i.e. stress related to ethical dilemmas &quot;when one knows the right thing to do, but institutional or other constraints make it difficult to pursue the desired course of action&quot;) in relation to the treatment of animals.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Statements</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Unsure</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>A4. My university provides an environment which supports students to discuss and resolve animal ethics issues, conflicts and/or dilemmas related to how animals are treated</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### B. Professional role in animal ethics

<table>
<thead>
<tr>
<th>Statements</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Unsure</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1. My primary focus as a veterinarian should be the interests of all animals in my care</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B2. As a veterinarian I should be involved in the wider social issues of animal protection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B3. Veterinary medicine should require a commitment to animals' interests, over the interests of their owners/carers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B4. The veterinary profession should be involved in addressing animal ethics issues in the wider community</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B5. The veterinary profession is sufficiently involved in addressing animal ethics issues in the wider community</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B6. Knowledge and skills to address animal ethics issues should be taught in the veterinary course</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### C. Knowledge and skills in animal ethics

<table>
<thead>
<tr>
<th>Statements</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Unsure</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1. I have knowledge and understanding of the range of ethical frameworks and principles on which animal ethics is based</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C2. I am competent in ethical decision making skills to guide moral judgement on animal ethics issues</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C3. I have knowledge and understanding of different species' physical characteristics</td>
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<tr>
<td>C4. I have knowledge and understanding of different species' mental and emotional characteristics</td>
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</tr>
</tbody>
</table>

### D. Personal action in animal ethics

<table>
<thead>
<tr>
<th>Statements</th>
<th>Very great extent</th>
<th>Great extent</th>
<th>Some extent</th>
<th>Minimal extent</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1. To what extent have you personally acted to improve how animals are treated in the wider community?</td>
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<tr>
<td>D2. List what you have personally done to improve how animals are treated in the wider community (list all relevant activities you have engaged in):</td>
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</tbody>
</table>
D3. Veterinarians face difficulties in protecting animals’ interests

D4. What, if any, are the difficulties for veterinarians in acting to protect animals’ interests when carrying out their profession? If you don’t think there are difficulties, please indicate "Nil" below.

E. Motivation for choosing to study veterinary science

Rank the top 3 motivators below (1 = most important; 2 = second most important, 3 = third most important) for your choosing to do veterinary science.

Note:

If only one or two apply to you, choose only one or two responses.
If there are other important reasons not listed here, please rank "Other" from the list below, and describe these other reason(s).

1. Having a farming background
2. Other members of my family or friends work with animals
3. Want a physical outdoor job
4. Interest in science
5. Enjoy practical hands-on skills
6. Enjoy working with animals
7. To improve the way animals are treated
8. To help sick or injured animals
9. Becoming part of a valued profession
10. Financially rewarding job
11. To develop a profitable animal industry
12. Good job security
13. One of the hardest courses to get in to
14. Other: ________________________________

F. University Culture i.e. a set of shared perceptions about beliefs, values, norms which affect behaviours of staff and students at a particular university

<table>
<thead>
<tr>
<th>Statements</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Unsure</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1. My university culture shows an interest in improving animal health</td>
<td></td>
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<tr>
<td>F2. My university culture shows an interest in improving animal production</td>
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</tr>
<tr>
<td>F3. My university culture shows an interest in improving how animals are treated in the Australian community (i.e. to improve their well-being - capacities for pleasure and fulfilment, and avoidance of pain, distress and death.)</td>
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</tbody>
</table>
F4. List the ways that your university has shown interest/involvement in improving animals’ interests in the Australian community ____________________________________________________________
________________________________________________________
________________________________________________________________________________
______________________________________________________________________________________________

**Student Demographic Information:**

*Circle the most appropriate response, or write your answer, as required:*

1. Age in years: ______________

2. Gender:       Male     Female

   3a. Previous university degree(s): Yes  No
3b. If yes, please identify degrees completed:
   __________________________________________________________________________________________

4. Is English your primary language?  Yes  No

5. Rate the extent to which you have had experience with the following groups of animals:
   1= Very great extent; 2= Great extent; 3= Some extent; 4=Minimal extent; 5= Never

   Companion animals  1  2  3  4  5
   Farm animals       1  2  3  4  5
   Horses             1  2  3  4  5

If you would like to make any further comments about animal ethics issues, or suggestions on ways to improve this survey for future use, please add your comments below:

________________________________________________________________________________________________
________________________________________________________________________________________________
________________________________________________________________________________________________
________________________________________________________________________________________________
________________________________________________________________________________________________

Thank you for completing this survey.
APPENDIX E  ANIMAL ETHICAL SENSITIVITY QUESTIONS

1. a. Describe animals’ (and people’s) physical responses to the prevailing conditions
   b. Describe the likely emotions of animals and people involved
   c. Identify your own thoughts (perceptions, appraisal, interpretation) about the situation
   d. Identify your emotions in relation to this situation
   e. Identify if there are ethical issues and why
2. Identify all stakeholders’ perspectives, including groups in the broader community i.e. their likely perceptions and appraisal of the situation (in the video, drawing out these perspectives)
3. Express empathy (i.e. being able to imagine and acknowledge what the animal/person is experiencing) for the various perspectives
4. Identify ethical conflicts (where needs and interests of animals and other stakeholders clash), including any ethical dilemmas (where harm is inescapable)
5. Identify whether legal, organisational and ethical responsibilities as a professional are aligned or in conflict
6. Identify alternative lines of action to address any ethical issues; and possible consequences of various lines of action/inaction to increase well-being and reduce harm for key parties
**APPENDIX F  ANIMAL ETHICAL SENSITIVITY SCORE SHEET**

**Student Name:** _____________________________________________________________  
**Topic:** ____________________________________________________________

<table>
<thead>
<tr>
<th>ETHICAL SENSITIVITY ELEMENTS</th>
<th>Key Criteria</th>
<th>Examples</th>
<th>Written Score</th>
<th>Video Score</th>
<th>Weight</th>
<th>Weighted Written Score</th>
<th>Weighted Video Score</th>
</tr>
</thead>
</table>
| 1a. Describe animals' (and people’s) physical responses to the prevailing conditions | 1. No or limited description of the physical responses of the animals and people involved or key environmental factors involved in the situation  
2. Describes only some of the most relevant physical responses of the animals and people involved and/or key environmental factors involved in the situation  
3. Describes well the key features that identify lack of well-being of the animals and people involved and key environmental factors involved in the situation | Animal responses might include e.g. arched back, limping, agitation, bellowing, slowness;  
People’s responses might include e.g. rough handling, lack of attention, slumped shoulders, shouting;  
Environmental conditions might include e.g. bare ground, wet/cold, loud noises, isolation, crowded. | 1-3* | | | |
| 1b. Describe the likely emotions of animals and people involved | 1. No or limited description of the emotions of the animals and/or people involved  
2. Describes only some of the most relevant emotional responses  
3. Describes well the relevant emotional responses of the animal(s) and people | Emotions e.g. feeling cold, pain, fear, frustration, anger, anxiety, boredom, depression | 1-3* | | | |
| 1c. Identify your own thoughts (perceptions, appraisal, interpretation) about the situation | 1. No or limited appraisal or interpretation of the situation  
2. Some valid assessment of the situation  
3. Assesses clearly the importance and severity of the situation and interprets possible causes and effects | Perceptions e.g. how important it is to address the situation, whether it is preventable  
Appraisal e.g. the severity of the situation, difficulty of addressing the issue  
Interpretation e.g. possible causes & effects | | | | |
| 1d. Identify your emotions in relation to this situation | 1. No or limited identification of emotions, may confuse thought and emotion e.g. I feel that the animal should have been treated earlier  
2. Provides some of the relevant emotions that might arise from the situation  
3. Thorough use of appropriate words to describe their emotions | Emotions e.g. anxious, disappointed, sad, concerned, angry, disgusted etc Ideally refers to specific relevant emotions i.e. empathy, compassion, indignation, remorse, guilt, shame, contempt, derision | | | | |
| 1e. Identify if there are ethical issues and why | 1. No or minimal reference to concern for animals’ and/or people’s physical or emotional suffering or harm as ethical issues, and the effect of actions/lack of actions to address animals’ and humans’ well-being  
2. Explains concern regarding how animals and/or people are being harmed or suffering physically and/or emotionally as ethical issues, with little or no reference to actions to prevent suffering, or create well-being  
3. Identifies in detail concerns regarding how animals and/or people are being harmed or suffering physically and/or emotionally as ethical issues, and if there is no or insufficient action to prevent or alleviate suffering or create well-being. | Ideally uses ethical terms such as unjust, unfair, disrespectful, ignoring responsibilities or violating rights, needs and interests not being met. | | | | |

Subtotal: Add scores a) - e) i.e. average X6
<table>
<thead>
<tr>
<th>ETHICAL SENSITIVITY ELEMENTS</th>
<th>Key Criteria</th>
<th>Examples</th>
<th>Written Score 1-3*</th>
<th>Video Score 1-3*</th>
<th>Weight</th>
<th>Weighted Written Score</th>
<th>Weighted Video Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Identify all stakeholders’ perspectives, including groups in the broader community i.e. their likely perceptions and appraisal of the situation (in the video, drawing out these perspectives)</td>
<td>1. No or limited range of animals’ or people’s perspectives identified, e.g. animals’ perspective not identified</td>
<td>Immediate stakeholders: animals, farmers, handlers, vet, exporter; Stakeholders in the broader /longer picture – industry organisations, consumers, general public, veterinary profession, welfare organisations, etc</td>
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<td>X3</td>
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<td></td>
<td>2 Perspectives of a range of immediate stakeholders identified, e.g. animal, farmer, vet</td>
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<td></td>
<td>3. Interprets in detail the perspectives of a range of immediate stakeholders and those more broadly or in the longer term</td>
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<tr>
<td>3. Express empathy (i.e. being able to imagine and acknowledge what the animal/person is experiencing) for the various perspectives</td>
<td>1. Doesn’t explain how empathy would be expressed through their words or actions</td>
<td>Identifying the needs of the animals may include explaining what is happening, what the animal is experiencing, and what is needed to the appropriate people e.g. need for careful handling and treatment of animals (physical comfort, alleviation of pain, good food, rest, association with own kind (herd animals)) etc to alleviate their suffering, as much as possible immediately; as well as initiating action to prevent further suffering to this or other animals that may also be affected. Identifying the needs of the people involved may include e.g. providing information, reassurance, expressing understanding of other stakeholders’ likely concerns, asking about their concerns, seeking clarification, and offering possible solutions, with reassurance of likely positive consequences in appropriate time-frames.</td>
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<td>X3</td>
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<td></td>
<td>2. Explains how they would imaginatively reconstruct the animal’s/person’s experience by describing, expressing understanding, acknowledging difficulties others may be experiencing.</td>
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<td>3. Explains with detailed understanding the perspectives of animals and people affected by the situation</td>
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<tr>
<td>4. Identify ethical conflicts (where needs and interests of animals and other stakeholders clash), including any ethical dilemmas (where harm is inescapable)</td>
<td>1. No or limited identification of different parties’ needs and interests and does not show how they conflict or clash</td>
<td>Internal ethical conflicts e.g. farmer’s desire to help animals V desire to keep from going bankrupt; External conflicts e.g. Animal welfare groups desire to prevent suffering of animals by improved training and facilities V Farmers desire to make a living and reduce costs.</td>
<td></td>
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<td>X4</td>
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<td></td>
<td>2. Explains some needs and interests and internal or external ethical conflicts</td>
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<tr>
<td></td>
<td>3. Identifies needs and interests relating to a range of internal ethical conflicts as well as ethical conflicts between stakeholders</td>
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</tr>
<tr>
<td>ETHICAL SENSITIVITY ELEMENTS</td>
<td>Key Criteria</td>
<td>Examples</td>
<td>Written Score 1-3*</td>
<td>Video Score 1-3*</td>
<td>Weight</td>
<td>Weighted Written Score</td>
<td>Weighted Video Score</td>
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<tr>
<td>5. Identify whether legal, organisational and ethical responsibilities as a professional are aligned or in conflict</td>
<td>1. Explains no or limited responsibilities and doesn’t clearly identify how they are aligned or conflict 2. Identifies some responsibilities and is able to explain some conflict/alignment between some of these responsibilities 3. Explains legal, organisational and ethical responsibilities and how they align or are in conflict, showing insight and understanding of the moral complexity of the situation</td>
<td>Legally a vet may have a duty to report poor treatment of animals; however, organisationally the veterinary practice may not want the vet to report or speak out and lose a client, or lose support in the community; whilst the Veterinary Board may expect the vet to act. Ethically the vet should prevent suffering but the owner has the legal right to refuse treatment. Ethically the vet has a responsibility to increase well-being and prevent or reduce suffering of animals; yet also ethically does not want the farmer/owner to suffer. The law and/or his or her veterinary practice may allow practices that the vet ethically believes are causing harm to animals.</td>
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<td>X2</td>
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<tr>
<td>6. Identify alternative lines of action to address any ethical issues; and possible consequences of various lines of action/inaction to increase well-being and reduce harm for key parties</td>
<td>1. Identifies no or minimal action to address ethical issues; is accusing; or unconcerned about the presence of an ethical issue; and does not identify possible consequences of alternative actions 2. Able to identify limited actions and consequences 3. Explains a range of actions, their possible benefits/harms to both animals and people, including the wider community, both immediately and in the longer term; and alleviates concerns that may arise from actions proposed</td>
<td></td>
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<td></td>
<td>X2</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>WRITTEN SCORE</th>
<th>VIDEO ONLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>/60</td>
<td>/60</td>
</tr>
</tbody>
</table>

<p>| Voice /tone | 1. Little concern in voice, and/or angry, accusing, negative, disinterested or sarcastic 2. Some concern demonstrated, but apparently lacking in sincere and sustained concern 3. Tone is very understanding, concerned, non-accusatory, supportive, aligned with empathy | | |
| Body language/setting | 1. Too close and confronting, or too casual, or arrogantly turned away, distracted body movements 2. Clear attempt to respectfully relate to the person; positioned to show attentiveness, even if reading script 3. Attentive, no distracting movements, non-confrontational, in an appropriate position/environment to engage the person, script not obvious, aligned with empathy | | |</p>
<table>
<thead>
<tr>
<th>ETHICAL SENSITIVITY ELEMENTS</th>
<th>Key Criteria</th>
<th>Examples</th>
<th>Written Score 1-3*</th>
<th>Video Score 1-3*</th>
<th>Weight</th>
<th>Weighted Written Score</th>
<th>Weighted Video Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facial expression</td>
<td>1. Inappropriate expression e.g., angry, or disinterested; unresponsive</td>
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<td></td>
<td>2. Some attempt to make eye-contact with people, shows concern for well-being, interest, even if reading script</td>
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<tr>
<td></td>
<td>3. Eye contact with people, non-accusatory, shows concern for well-being of animals and people involved, sincere, aligned with empathy</td>
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<tr>
<td>PRESENTATION SCORE</td>
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<td></td>
<td></td>
<td></td>
<td>9</td>
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</tr>
</tbody>
</table>

* Body language, facial expression, tone – assessed in separate section 7-9