Opportunities for Learning about Animal Welfare from Online Courses to Graduate Degrees

Janice M. Siegford
with help from Tina Widowski & Stephanie Yue Cottee
Talk Outline

- Challenges of providing animal welfare education to vets and vet students
- The case for online courses in animal welfare
  - Michigan State University’s online animal welfare course
- The case for graduate study in animal welfare
  - University of Guelph’s Master’s by coursework
  - Traditional graduate degrees focusing on animal welfare
Challenges of Welfare Education

There are particular challenges associated with providing credible instruction in animal welfare to practicing vets and veterinary students.
Challenges of Welfare Education

- The logistics of adding another course to an already full veterinary curriculum

- The geographic location of students seeking instruction often doesn’t coincide with the location of qualified instructors in animal welfare
Few Welfare-Trained CVM Faculty

- The majority of veterinary schools in the U.S. do not have faculty with specific training and expertise in animal welfare

- Animal welfare faculty are typically housed in animal science (ANS) departments
  - Not every veterinary school is located at a university with ANS
  - Not all ANS departments have faculty in animal welfare
Few Welfare-Trained CVM Faculty

- There are some exceptions to this rule
  - e.g., Michigan State, Iowa State, Ohio State, Washington State, and all Canadian vet schools

- The number of CVM faculty positions in animal welfare is growing
Making the Case for Online Courses

Online education works for animal welfare because…

- It allows for collaborative content assembly and delivery, pooling resources to create the depth and breadth needed
- It allows instructors and students from varying geographic locations to participate
- It can allow students to complete material according to their schedules and at their own pace
Faculty at Michigan State University have developed a web-based animal welfare assessment course.

- The primary audience for the course is graduate and veterinary students.
- The course uses interactive media and software to enhance the learning experience.

A problem-based approach teaches students to assess animal welfare from a scientific perspective.
Lecture Material

- Created by international animal behavior and welfare experts

- Materials have been prepared using PowerPoint and Adobe Presenter and then inserted into the course management system used at MSU (Angel)
Lecture Topics

Defining Animal Welfare
- David Fraser (U British Columbia)
- Don Broom (Cambridge)

Behavior
- Jeremy Marchant-Forde (Purdue, USDA ARS)
- Kirsty Laughlin Waller (Certified Humane)

Physiology
- Janice Siegford (MSU)
- Don Lay (Purdue, USDA ARS)

Production and Health
- Kirsty Laughlin Waller (Certified Humane)
- Jeanne Burton (MSU)

Neurobiology
- Janice Siegford (MSU)
- Adroaldo Zanella (Norway)

Pain and Suffering
- Dan Weary (U British Columbia)
- Ruth Newberry (Washington State U)

Human Animal Interactions
- Paul Hemsworth (Animal Welfare Centre)
- James Serpell (U Penn)

Ethics and Legislation
- Ray Anthony (U Alaska, Anchorage)
- David Favre (MSU)

Economics
- Chris Wolf (MSU)
- Janice Swanson (Kansas State)

Welfare Assessment and Standards
- Mike Appleby (WSPA)
- Adele Douglass (Certified Humane)
- Jeff Armstrong (MSU)
Emotion and Welfare

- The brain controls emotions and feelings and animal welfare at its most basic level is concerned with alleviation of animal suffering.
  - There is no simple pleasure center, but there are certain neurotransmitters that are released during pleasant experiences.
  - Changes in the levels of these transmitters as animals experience certain stimuli or conditions can be measured to gauge whether the animal perceives the experience as pleasant or stressful.
Emotion and Welfare

- The brain controls emotions and feelings and animal welfare is concerned.
  - There is a certain level of comfort and pleasantness.
- Changes in the levels of these transmitters as animals experience certain stimuli or conditions can be measured to gauge whether the animal perceives the experience as pleasant or stressful.

**Measurement of Neurotransmitters**

Measurement of levels of neurotransmitters may require brain tissue if precise, detailed anatomical knowledge is desired regarding where levels are changing and how they may change in one brain area relative to another. However, blood, urine, feces or saliva often can be used to indicate the overall state of the animal.
Test Your Knowledge

Which of the R’s listed below are included in the Three R’s proposed by Charles Hume?

☐ Reduction
☐ Revision
☐ Refinement
☐ Replacement
☐ Recognize
☐ Relieve
Test Your Knowledge

Which of the R’s listed below are included in the Three R’s proposed by Charles Hume?

- [ ] Reduction
- [x] Revision
- [ ] Refinement
- [ ] Replacement
- [ ] Recognize
- [ ] Relieve

"Revision" is not one of the three R's.

Please try again

OK
Virtual Welfare Assessments

• Students practice welfare assessment through comparative exercises (called scenarios)

• Students are presented with animals in various hypothetical situations and must evaluate and compare their welfare
Virtual Welfare Assessments

- Scenarios have been developed depicting various animal-related situations, e.g.:
  - Livestock in production
  - Companion animals
  - Laboratory animals
  - Exotic species kept in captivity
Domestic Dog: A Comparison of Shelter and Kennel Conditions

© 2004 Animal Behavior and Welfare Group, Michigan State University
Physical Enrichment

Animal Shelter

- Two donated toys including rubber kongs, nylabones, and tennis balls are provided to each dog
- Toys are rotated between dogs daily
- Toys are disinfected using a bleach soak before being exchanged

Breeding Kennel

- Several dog toys in each run
- Dogs are able to climb on houses and onto deck in yard
Animal Shelters

- Two donated toys such as rubber kongs, nylabones, and tennis balls are given to each dog.
- Toys are rotated weekly.
- Toys are disinfected and bleach soaked before being exchanged.

**Abstract**

Domestic dogs can be housed in a variety of confined conditions, including kennels, shelters and laboratories. Concern over the well-being of dogs housed in human care has prompted much research in recent years into the enrichment of environments for kennelled dogs. This paper highlights the findings and recommendations arising from this work. Two types of general enrichment method are discussed, namely animate (i.e. enrichment through the provision of social contacts with conspecifics and humans) and inanimate (i.e. enrichment through the provision of toys, cage furniture, auditory and olfactory stimulation). The benefits and, where relevant, possible disadvantages, to these various types of enrichment method are highlighted throughout.

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Housing: Enclosure Size

- Animal Shelter (housed by size):

<table>
<thead>
<tr>
<th>Cage type</th>
<th>Size (l x w x h)</th>
<th>Dog weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Cage</td>
<td>0.7 x 0.6 x 0.7 m</td>
<td>Up to 9 kg</td>
</tr>
<tr>
<td>Large Cage</td>
<td>1.2 x 0.6 x 0.7 m</td>
<td>9 to 16 kg</td>
</tr>
<tr>
<td>Run</td>
<td>0.9 x 1.5 x 1.5 m</td>
<td>16 to 45 kg</td>
</tr>
<tr>
<td>Double Run</td>
<td>1.9 x 1.5 x 1.5 m</td>
<td>Over 45 kg</td>
</tr>
</tbody>
</table>

- Breeding Kennel:

<table>
<thead>
<tr>
<th>Cage type</th>
<th>Size (l x w x h)</th>
<th># Dogs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Runs</td>
<td>3.0 x 1.5 x 1.8 m</td>
<td>1 or bitches &amp; pups</td>
</tr>
<tr>
<td>Houses</td>
<td>0.8 x 0.5 x 0.5 m</td>
<td>1 or bitches &amp; pups</td>
</tr>
<tr>
<td>Small crates</td>
<td>0.5 x 0.3 x 0.5 m</td>
<td>1</td>
</tr>
<tr>
<td>Larger crates</td>
<td>1.0 x 0.5 x 0.8 m</td>
<td>1 or bitches &amp; pups</td>
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USDA Standards for Dog Housing
Housing: Enclosure Size

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<tr>
<td>Small Cage</td>
<td>$2.3 \times 2.0 \times 2.3$ ft</td>
<td>Up to 9 kg</td>
</tr>
<tr>
<td>Large Cage</td>
<td>$1.2 \times 0.6 \times 0.7$ m</td>
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USDA Standards for Dog Housing
Time Budget

Animal Shelter

Breeding Kennel

Roll over behavior types for a detailed definition

*Behaviors were observed from 7:00 am to 7:00 pm.
Time Budget

Soliciting Contact

Repetitive Behaviors
In terms of welfare assessment, which **exercise, enrichment, and training** protocols rank higher?

Please answer the questions for this section (shown in bold above) in the quiz for the Dog Scenario.

Exercise, Enrichment, and Training

4. In terms of welfare assessment, which **exercise, enrichment, and training** protocols rank higher?
   - A. Animal Shelter
   - B. Breeding Kennel
   - C. The welfare in both situations is similar.

5. How confident do you feel in your choice of the better **exercise, enrichment, and training** protocols?
   - A. Very Confident
   - B. Confident
   - C. Somewhat Confident
   - D. Not Very Confident
   - E. Not Confident at All

6. Please list the specific elements that led you to make your choice for the better **exercise, enrichment, and training** protocols in terms of welfare.

Nutrition

7. In terms of welfare assessment, which **nutrition** situation ranks higher?
   - A. Animal Shelter
Facts & Figures for MSU’s Course

- The online course has been offered 8 times since Fall 2005
  - 137 students from around the globe have taken the course
  - ~30% of the students have had a veterinary orientation (pre-vet, vet student, or practicing vet)
Facts & Figures for MSU’s Course

- The course has received very positive feedback
  - Students enjoy the scenarios (and creating their own for the final project)
  - Students perceive the course as well organized and informative

- Suggestions for improvement
  - Provide the lecture material offline
  - Add audio to the lectures
Other Online Courses of Note

- Cambridge e-Learning Institute
  - Offers a Certificate in Animal Welfare
  - 2 year long course
  - Alternating weeks of reading and discussion forums

- University of Guelph
  - 3rd year undergraduate course in animal welfare
  - Taught by Ian Duncan
The Case for Graduate School

- It takes more than a course or two to really be a credible authority on animal welfare

- Graduate degrees can be a way of obtaining additional education, credibility, and expertise
  - For vets with a strong interest in animal welfare
  - For vets whose careers put them into roles where they must act as welfare experts
University of Guelph’s MSc

- A Master of Science degree by coursework and major project & paper
  - Offered through the Department of Animal and Poultry Science
  - With a Field of Specialization in Animal Behaviour and Animal Welfare
  - Completed in 1 year (3 semesters)

- Multidisciplinary program that targets students in animal care professions who are interested in meeting industry needs
University of Guelph’s MSc

- The program combines a core of graduate courses in animal welfare with selected electives
  - Electives are chosen to complement the student’s area of interest

- Students also complete a supervised project and major paper
  - The project allows students to gain specialized knowledge
  - Research and applied elements of the project can also provide students with hands-on experience
Learning Objectives of the MSc

- Understand historical, ethical and cultural roots of animal welfare
- Understand the physical and behavioral requirements of animals managed by humans
- Develop skills in evaluating animal welfare in scientific studies and in practical application
- Develop a broad appreciation of animal welfare issues across animal industries
  - farm, lab, zoo/wildlife, sport, companion
- Develop in depth knowledge of animal welfare issues and application in an area of specialization
Coursework Required for the MSc

Required courses include:
- Animals in Society: Historical and Global Perspectives on Animal Welfare (or MSU online)
- An upper level statistics course
- A critical analysis course
- An animal welfare assessment course
- The department seminar course (where they will present work from their project and major paper)
- Project and major paper
Coursework Required for the MSc

- Elective courses cover a wide range of subjects…
  - Behavior
  - Physiology
  - Nutrition
  - Reproduction
  - Genetics
  - Diseases
  - Management

- …in species ranging from laboratory animals to companion animals to production animals
MSc Project and Major Paper

- A small, but meaningful, project that has direct application for an animal industry

- Students can do practical research, develop assessment schemes, conduct literature reviews, and gain experience working with animals
MSc Project and Major Paper

- Students can work with advisors within or beyond the Department of Animal and Poultry Science, including with advisors at the vet school and conduct projects in industry, or in government.

- Once the work has been completed, students write it up as a major paper and present it in the department seminar course.
Examples of Major Project Topics

- Thermoregulation in the hippopotamus
- Examining fear responses in lines of sheep that have been selected for high or low immune response when challenged with a disease stressor
- Development of policy for keeping university livestock research facilities current with regard to best practices (e.g., euthanasia and routine surgeries)
- Avoidance behavior of laying hens for atmospheric ammonia
- Sickness behavior in laboratory dogs
- Investigating palatability of different fish diets in rainbow trout
- The impact of handling on pig behavior and welfare
Facts & Figures for the Guelph MSc

- The program is now officially in its 2\textsuperscript{nd} year
  - 8 students the 1\textsuperscript{st} year
    - 3 were accepted to vet school after the program
  - 16 students this year
    - Many plan to apply to vet school

- Students enjoy the coursework and the ability to tailor the program to meet their interests
Facts & Figures for the Guelph MSc

- Student must pay for their tuition and living expenses (stipends are not available)

- A rate limiting step is finding research projects and supervisors

- The multidisciplinary nature of the program poses administrative and accounting challenges across partner departments and colleges
What’s Next for the MSc?

- Target life-long learners who are done with formal education, including DVMs
  - Reformat the courses
  - Offer them through a Certificate in Animal Welfare or a Graduate Diploma in Animal Welfare
Traditional Graduate Degrees

- ANS departments have been traditional locations for obtaining MS and PhD graduate degrees with an animal welfare focus
  - Degrees are typically conferred in Animal Science, NOT in Animal Welfare
Traditional Graduate Degrees

- The strongest animal welfare graduate programs (i.e., more than one faculty in animal welfare) in North America include:
  - University of Guelph (7 Faculty—2 are in OVC)
  - University of British Columbia (4 Faculty + 4 adjunct at Agriculture and Agri-Food Canada)
  - Purdue University (3 Faculty + 5 adjunct at USDA ARS LBRU)
  - Michigan State University (3 Faculty)
  - Washington State University (3 Faculty—all are CVM affiliated)
  - University of California, Davis (3 Faculty—1 is in CVM)
  - Iowa State University (2 Faculty—1 is in CVM)
Traditional Graduate Degrees

- Other graduate programs with animal welfare faculty include:
  - University of Calgary
  - Colorado State University
  - University of Georgia
  - University of Illinois
  - Kansas State University
  - University of Minnesota
  - University of Maryland
  - Ohio State University
  - Rutgers
  - Texas A & M
  - Texas Tech
Species Covered

- Most programs focus on the welfare of livestock in production

- Limited options to study equine, laboratory or zoo animal welfare

- Scattered opportunities to study the welfare of companion animals
Benefits of Traditional Grad

- Allow students to pursue in depth study on a focused topic

- Students gain experience in analyzing, presenting, and writing about their research
  - Ideally students publish >2 peer-reviewed manuscripts
Problems with Traditional Grad

- Limited number of upper level courses in animal welfare available at individual institutions
  - Students may be knowledgeable in their research area, but may not have a broad understanding of animal welfare

- Ever decreasing institutional funding for graduate stipends and tuition/health benefits
Conclusion

There are a range of options beyond courses in veterinary school that can provide vets and vet students with credible education regarding animal welfare

- Individual needs can determine which option is appropriate
- With the development of additional certificate and continuing education options, vets will soon have an even broader range of choices
Thanks to....

- Rob Malinowski at the Information Technology Center at the MSU CVM
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