Animal welfare and Ethics course for post-graduate at Veterinary School: how to improve assessment methodologies with a bottom-up approach.

Ferrante, Linda[a]; Normando, Simona[a]; Florio, Daniela[b] and de Mori, Barbara[a]

[a]Department of Comparative Biomedicine and Food Science, Università degli Studi di Padova, Italy, [b]Department of Medical Veterinary Sciences, Università di Bologna, Italy.

Abstract

Animal Welfare, with its strong ethical component, is increasingly central to public debate and in all sectors dealing with animals has become a key expertise to acquire. This paper presents a post-graduate level course on animal welfare and ethics assessment delivered by the Veterinary School of Padua University, Italy. The course was delivered at Garda Zoological Park, Italy, allowing students to do an experience with wildlife in a peculiar management system. Teachers used an inquiry-based approach to lead students 'construct' their experience in welfare assessment. At the end of the course students, divided into groups, had to develop a protocol for the assessment of the animal welfare of a species in the zoo. The analysis of these final works and a pre-test and post-test questionnaires were used to assess the effectiveness of the course. Results highlighted a growing awareness of the complexity of assessment methodologies and more attention on animal based indicators. Students found difficulties using a bottom-up approach but were satisfied at the end of the course. Improvements can be done to promote reflections on reasons to assess animal welfare and its ethical component, on the utility of such assessment and on a balanced use of tools and methodologies.

Keywords: Animal welfare, ethics, assessment, inquiry-based learning, bottom-up approach, zoo animals.

1. Introduction

Nowadays teaching animal welfare in its scientific and ethical intertwining facets to all professionals dealing with animals in human care is of paramount importance. Media, common people, and professionals dealing with animals in every field join a debate about animal welfare that is becoming more widespread and complex every year. Members of the European Parliament receive more pressure about animal welfare than about any other topic (Broom, 2005). Many sectors are involved, from scientific research and farming to companion animals and wildlife conservation and many professions like physicians, biologists, veterinarians, keepers, and animal scientists deal on a daily basis with animal welfare issues.

Traditionally, training in Animal Welfare was primarily within the limited scope of animal health and productivity, and the curriculum has reflected this limited understanding for a long time (De Boo & Knight, 2005). Today, the range of animal subjects considered in animal welfare courses has been extending and there is a strong need to improve training of people in assessment methodologies and in the ethical evaluation.

This paper is focused on a pilot course about animal welfare and ethics assessment methodology. Authors chose to start the experience with a post graduate course because this kind of training allowed more flexibility in a subject that deserves new developments: the objective was to test the learning methodology and to spread understanding of the theoretical and practical difficulties related to welfare assessment. Furthermore, that type of course allowed participants to cross over the experience on welfare issues that they encountered in their work experience in different fields: people working with farm animals were able to confront issues and methodology with people working in zoos or with companion animals.

To test the knowledge on welfare assessment and ethics, authors developed a questionnaire of 20 questions. The questionnaire allowed to identify modification in the way of thinking of the students about animal welfare and ethics after the course and the practical experience offered in it. Interestingly, authors observed that even professionals that deal with animal welfare issues daily could have never thought over what welfare is. Common prejudices as that welfare is only the absence of suffering, or that if animals are healthy or they can adapt to a certain situation it means their welfare is acceptable, are still surprisingly common.

2. Course details

The course "Animal Welfare and Ethics" was organized by the Department of Comparative Biomedicine and Food Science of Padua University. The course was a lifelong learning training open to veterinary medicine, life science, animal science and human science degrees. It was a 48-hour course, held during three weekends (one in September, one in October and one in December), organized in twelve 4-hour sessions, two of which were held on Fridays and two on Saturdays. The course was distributed over such a long time period to let students have the time to work on the project-work they were assigned at the beginning of the course and to allow them to follow up on the concepts learned with a bottom-up methodology. No specific competencies on animal welfare science were requested to the students. The teachers belonged to different scientific areas to encompass the interdisciplinary of the topic, such as veterinary sciences, behavior science, biology and ethics and all of them had specific competencies in animal welfare.

The lessons were mostly given at Garda Zoological Park (Bussolengo, Italy). This zoological garden has already been a partner of Padua University in several training projects in the past years. It belongs to important zoological networks, such as WAZA (World Association of Zoos and Aquariums), and the researchers of this institution are carrying out several projects on animal welfare. The setting of the course gave students the opportunity to do practical experiences and to test the tools learned during the course directly on the animals managed in the zoo. Groups were organized to include people from different backgrounds in order to promote cross-pollination of expertise and points of view, for example, a more ecology-oriented perspective from biologists, and a more health-oriented one from veterinarians. Zoo animal species were chosen as a topic, because welfare assessment in these species poses several additional methodological problems, such as the scarcity of scientifically published work on the welfare of these species and because there is an urgent need to develop assessment skills in this field.

As a final test, students were requested to do a project work in groups: the assignment was to design a scientifically grounded and feasible protocol to monitor welfare in a species to be applied as an internal control in a zoological park. The aim was to make the students aware of the difficulties and complexity of designing a welfare assessment protocol, which is scientifically validated.

Each group had to devote its attention to one species in a single exhibit. They received a template and bibliography on the species maintained in the enclosures and were requested to include in the protocol, freely, the different tools presented during the course. As a final assessment, each group had to present their project work to a commission of experts. The commission was composed of the teachers, the scientific Director and researchers of Garda

Zoological Park, the scientific Director of Genoa Aquarium, and by academic representatives for international projects of Padua University.

Beyond classes, practical activities and group projects, students had the choice to join a workshop in South Africa. That experience was optional but complementary to the syllabus of the course. The workshop in South Africa was held by a local conservation organization (Conservation Guardians) in partnership with Padua University. The aim of the workshop was to introduce the students to an international frame of what is welfare in conservation activities and to highlight the importance of remaining open-minded about different cultures and different methodologies.

2.1. Contents of the course

The students were initially prompted to reflect critically on the general meaning of animal welfare (and its link with ethics) and on what the different parameters, traditionally found in the scientific literature to measure welfare, actually meant. Issues such as reliability, validity, standardization, and validation of the parameters, especially of behavioral ones, were discussed. Different parameters were described and their suitability and limitations in accordance with recent definitions of Welfare were discussed. Attention was focused on the importance of giving priority to animal based parameters as they were likely to be more representative of the perception an animal has of its own situation. Also, the need to assess multiple parameters and to use multiple methods in order to overcome the shortcomings of each was highlighted.

A brief outline of the quantitative and qualitative methods of behavior analysis was given. The pros and cons of the different sampling and recording rules were briefly discussed. The concept of working ethogram was introduced as was the importance of tailoring the working ethogram, the sampling and recording rules and the experimental design to the hypotheses to be tested. Hereafter, the students were asked to practice the two methods in conjunction with the others already exposed directly in front of the enclosures of the zoo. Simultaneously, students were confronted on ethical evaluation methodologies, using ethical matrices and decision making processes, and forced to do their experience in groups. Then they were asked to include the ethical tools in the designing of protocols for the project work.

2.2. Educational methodologies

Since the aim of the course was to introduce the use of different tools for animal welfare assessment and ethical evaluation, lecturers, who were also the ones who had designed the course, wanted to improve more practical skills than theoretical competencies. Moreover, considering the need to prompt a new way of thinking about animal welfare issues, lecturers decided to encourage critical thinking that many studies reported as a good strategy to promote transfer to novel domains of knowledge (De Boo & Knight, 2005; Halpern, 1998; Kosonen & Winne, 1995). They decided to promote critical thinking through the use of both direct and inquiry-based learning approach, considering the benefits of adopting more than one learning approach (Ku, et al., 2014). In every session, after a brief theoretical introduction, students were asked to use the methodology or the tools just introduced. For example, to introduce the use of welfare checklists, students listened to a short introduction and then visited a dairy farm and tried to complete an already developed checklist assessing cow welfare. During these experiences, students had the opportunity to share their different expertise: some of them, for example, had never visited a dairy farm before, while others were ordinarily working with those animals. The bottom-up approach was not always easily accepted by students, who were mainly familiar with traditional direct top-down learning approach. Students were pushed out of their *comfort zone*: sometimes during the activities, they communicated discomfort, but after completing the experience they were all satisfied.

The same approach was used also for ethical lessons where difficulties increase for the lack of familiarity with decision making analysis and discussion. After introducing the tools and concepts, a case study was submitted and the students, divided into groups, had to discuss the case. At the end of the session, each group had to discuss with the others. During these activities, the lecturers served as facilitators to encourage thought-exchange and to challenge participants to re-evaluate their reasoning (Ku et al., 2014).

Groups for the project-work were formed by the lecturers, carefully mixing different competencies and work experiences, considering that diversity in group composition could improve group learning (Curşeu & Pluut, 2013). Self-manage learning groups are commonly used in higher education. In this course team working was used to recreate a real life situation in which animal welfare should be assessed by a team of different professionals and because of the positive outcomes that working in a group can promote (Lizzio & Wilson, 2006).

3. Results

The course had a good response: 21 final students selected: 16 females and 5 males. The range of age was from 25 to 60 years, 19 of them had a degree and 2 of them had a school leaving certificate (awarded after five years of high-school). Among the 19 graduates, 12 students had a degree in veterinary sciences, 5 had different animal science degrees, 1 had two degrees in philosophy and psychology and 1 had a degree in mathematics.

A questionnaire was created for this pilot course and the results were analyzed using descriptive statistic. To investigate the influence of the course, the questionnaire includes an open question about the definition of animal welfare. In Figure 1 there is a summary of the concepts used by the students in the pre-test and post-test answers.
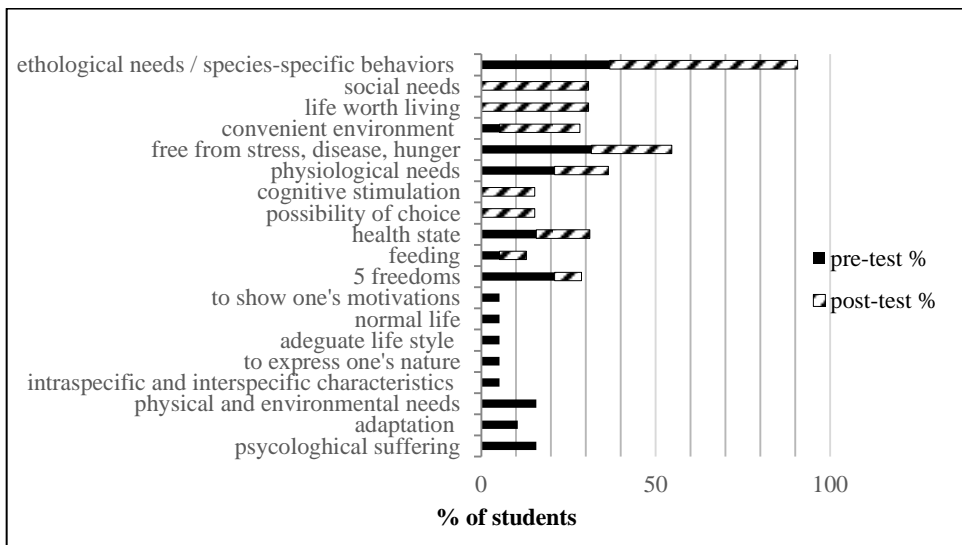

Figure 1. Concepts used by students to give a definition of "Animal Welfare" in pre-test and post-test.

Some concepts are present in both tests as "ethological needs/species-specific behaviors", "freedom from stress, disease and hunger", "health state" revealing that students had a previous idea of what welfare is. Some other concepts are used only in the post-test as "social needs", "life worth living", "cognitive stimulation", "possibility of choice". These concepts are more connected with a view that recognizes the mental complexity of animals and the need to include ethical evaluation and positive aspects into the assessment process. The pre-test vs post-test answer comparison shows a change of point of view or at least a deeper reflection on the topic.

Figure 2 shows answers given in pre-test and post-test to questions asking to enumerate 3 priority issues to be checked to assess animal welfare in a cattle shed. This graph highlights that some issues were listed both in the pre-test and post-test answers, even if with difference frequencies, such as checking "facilities and environment", and "behavioural individual issues" or "health and general sanitary checks". The need to monitor "presence and quality of the food" that was included in the list by almost 60% of the students in the pre-test dropped to less than 20% in the post-test. This means that controls on "food" after the course were not considered as important as before, maybe because, with a deeper knowledge of the complexity of welfare assessment, students realized that this issue is not enough to guarantee a good level of welfare. Interestingly, monitoring for the "use of space" and "access to food and nutritional status" highlighted that the students paid more attention to animal based indicators and the fact that more than 20% of students indicated in their post-test list monitoring for "behavioural social issues" confirmed, as in figure 1, a deeper awareness of the mental complexity in animals.
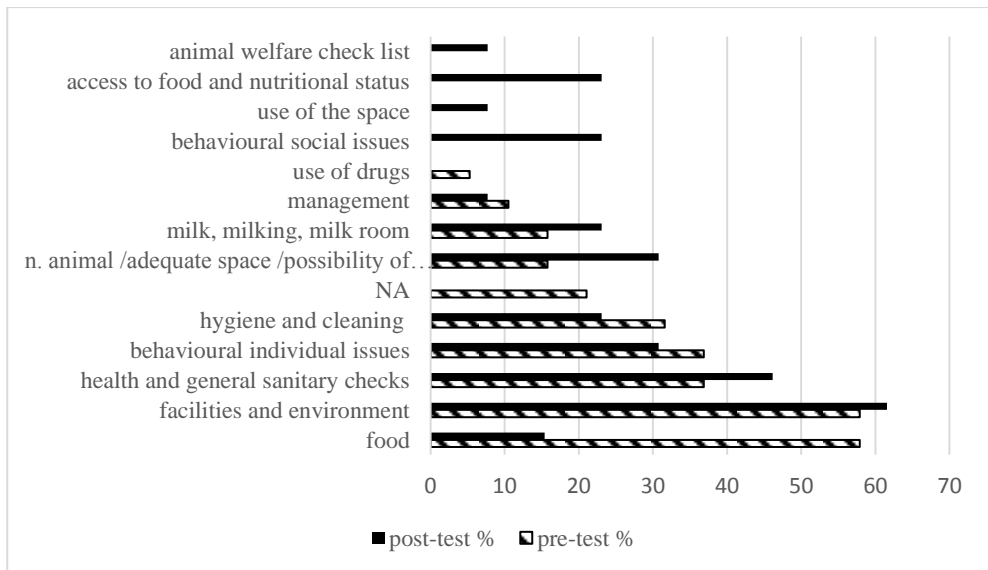

Figure 2. Percentage of students that have chosen priority checks to assess animal welfare in a cattleshed in pre-test and post-test.

Project works were introduced for the final assessment of the learning contents and methodology and for evaluating the effectiveness of the course and the ability of participants to work in teams. Examiners evaluated if students understood which tools were more suitable to be used in different contexts and how to use them in a coherent assessment. The final discussion also allowed the lecturers to assess the effectiveness of the

course itself. The discussion of the project works outlined that all groups recognized the importance of assessing different parameters and of including different methods with several time schedules for welfare assessment. All groups included checklists and quantitative behavioral assessment and gave priority to animal based indicators, integrated by some management and environmental indicators, when measuring direct animal outputs was not feasible. All groups made an attempt to quantify the costs in terms of time and human resources of the assessment protocol and focused on the importance of a better training of the staff involved in animal welfare assessment. Only some of them introduced the ethical tools, probably because of the difficulties in changing their mind and perspective on the role of ethics in this field and to their lack of familiarity with ethical evaluation methodologies. Students reported a range of difficulties in the construction and application of the Welfare Protocol, but they realized this is a realistic condition in which a team that works on animal welfare assessment could be asked to work in, so in the end, they were happy to have the opportunity to do this experience.

4. Conclusion

Authors detected a strong student interest in animal welfare assessment and ethical evaluation subject. Lecturers realized that students benefited not only from the range of lecturers and activities but also from interaction within the group because of the different work experience and background studies. Students said they had the opportunity to change some attitudes and approaches to everyday management of animals and their welfare. Methodologies and contents chosen by authors were proved to be adequate to achieve the aims of the course, even if improvements can be done especially to promote: 1) glossary learning, 2) reflections on reasons to assess animal welfare and the utility of such assessment in routine animal management, 3) a more balanced use of different tools and methodologies.

References

Broom, D. M. (2005). Animal welfare education: development and prospects. *Journal of Veterinary Medical Education*, *32*, 438–441.

Curşeu, P. L., & Pluut, H. (2013). Student groups as learning entities: the effect of group diversity and teamwork quality on groups' cognitive complexity. *Studies in Higher Education*, *38*(1), 87–103.

De Boo, J., & Knight, A. (2005). "Concepts in Animal Welfare'': A Syllabus in Animal Welfare Science and Ethics for Veterinary Schools. *Journal of Veterinary Medical Education*, *32*(4), 451-453.

Halpern, D. F. (1998). Teaching critical thinking for transfer across domains. *American Psychologist*, *53*(4), 449–455.

Kosonen, P., & Winne, P. H. (1995). Effects of teaching statistical laws on reasoning about everyday problems. *Journal of Educational Psychology*, *87*(1), 33–46.

Ku, K. Y. L., Ho, I. T., Hau, K.-T., & Lai, E. C. M. (2014). Integrating direct and inquiry-based instruction in the teaching of critical thinking: an intervention study. *Instructional Science*, *42*, 251–269.

Lizzio, A., & Wilson, K. (2006). Enhancing the effectiveness of self-managed learning groups: understanding students' choices and concerns. *Studies in Higher Education*, *31*(6), 689–703.