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The Hidden Values: Ethics and the Use of Animals in Education

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I. Introduction

Animals have been harmfully used as an instrumental tool in education for a long time. This use is still widespread in many educational environments, and it is not exactly known how many animals are killed for this reason. The estimation varies between three to six millions animals per year[1], to more than ten million animals[2].

Fig.1. The classic frog dissection in a secondary school. Learning only anatomy?

There are several fields in education in which animals could be used in order to demonstrate already known phenomena and teach different types of skills to students (fig. 1) [3]. The use here is considered to be harmful to animals, where pain, stress or body damage is inflicted on the animals[4]. The reference to "harmful" here is important. There are non-harmful ways of using animals for educational purposes, such as observing them in nature and the use of naturally dead or clinically sacrificed animals, for instance. There is also a difference between the use of the term vivisection in education and in research. The first one is the "transfer of existing knowledge from one (the teacher or instructor) to another (the student)"[5], while the other, in opposition, is the search for not yet known information through more specific methodologies and practices.

Animals can be harmfully used in education in different ways, and for different aims. Jonathan Balcombe says that in fields such as physiology, psychology,

[1] Hepner, L.A., *Animals in Education: The facts, issues and implications*. Albuquerque: Richmond Publishers, 1994. Pg. 25.
[2] Balcombe, J., *Education by Extermination*. Baltimore: The Animals Agenda, 5 (1994) 14. Pg. 22.
[3] Picture from http://www.edgerton.k12.wi.us/ms/fahey_page.htm
[4] Balcombe, J., *The Use of Animals in Higher Education*. Washington: Humane Society Press, 2000. Pg. 1.
[5] Ibid., Pg. 2.

pharmacology and zoology[6], the use of animals is very common. But it is also possible to find this use in fields like surgery and anatomy, for instance. In general, they can be used live for the study of physiological and/or psychological phenomena, or dead for the study of anatomy and/or pathology. The teaching of surgical procedures and other hand skills can be applied to either dead or live animals, depending on the aims of the study. Some of the procedures can require post-intervention studies, such as recovering from surgical procedures, disturbance of behavior, infection development, host resistance, drugs effects, etc. Some others uses require the killing of the animal involved - which can be done in several ways: the administering (intravenous or intramuscular) of a high doses of anesthetics or lethal substances such as pento/phenobarbitone, exposure to lethal gases, cervical dislocation, decapitation, and so on. It is common that students witness these "life-taking" procedures, not only by observing them, but also by directly participating in them.

In this way, by making this “life-taking” activity mandatory, students can be psychologically harmed when it comes to their ethical and/or religious beliefs. The ethical message of dissection/vivisection[7] through these practices can be transmitted in subtle ways, and can educate people in a different manner through what is known as the ‘hidden curriculum’. Now it could be argued that the victims are not only animals, but students as well. In this research paper we will examine ethical and pedagogical aspects of dissection/vivisection that will hopefully shed some light on this issue.

Overview of the Chapters

In chapter one, we will have a historical overview of the use of dead and living animals and humans in the European scenario, especially during the Renaissance period, together with the influence of the Church and the scientific view on this use. We will also review the first reactions against this use, mainly in England.

[6] Ibid., Pg. 53.
[7] Dissection is a term used to refer to the study of a dead body (killed or not for the aimed purposes), and vivisection (literally meaning “cutting while alive”) signifies any exploitative or painful procedure performed on an living animal for supposed experimental research and educational purposes.

In chapter two, some ethical models are offered that could give a basis for objecting to the harmful use of animals in education. Through them questions regarding the moral status of animals and nature are approached in order to give the issue of using animals as tools an ethical dimension. A critique on the stress of rationalistic processes in ethical thought is also offered by the eco-feminist approach, but not developed in all its aspects, as it would escape the scope of the present work.

And finally in chapter three, the conflicts this use can promote are exposed under an educational and philosophical view. The teaching of (*hidden* or *not-hidden*) values in education is briefly approached, and different aspects related to types of power relations (such as gender-linked, for instance) are pointed out as important in the analysis of this educational process.

I. A Brief History of Dissection and Vivisection:

From Galen to Claude Bernard

The history of the use of animals in education has a strong relation to the beginning of the experimental use of animals as models of human anatomy, physiology and psychology, followed by human disease models in more modern times – issues that would require a completely different approach.

The detailed history of the use of animals in education and the circumstances in which this use was conceived in the history of humanity is not very clear. For centuries animals have been used as educational tools for teaching purposes. It was discovered that in 1550 BC registers of human anatomical studies in Egypt existed[8]. I will focus on this specific part of the history of dissection and vivisection in Europe. The main reason for this being: the European culture, with its concepts and values, came to expansion after the late fifteenth century and since this period large parts of the world have come to embody (passively or actively) many aspects of this culture.

Attempts were made to describe internal human anatomy in Europe (250 AC) in the Alexandrian Ptolomaic medical school in which human dissection was a common practice. But with the scandals involving vivisection of criminals and the rise of Christianity in the fourth century, these practices became less common[9].

Human and animal bodies were treated differently in Europe and the latter "formed the material of vivisectional experiments and demonstrations from the fifteenth century to the present"[10]. Not only criminals that were condemned to death were dissected in order to better understand our anatomical features, but also a great number of animal species. It seems that the practice of dissection was introduced in education, especially medical, during the twelfth and thirteenth centuries, and the public dissection of human corpses became a common practice by the fourteenth century[11].

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[8] Fadali, M.A., *Animal Experimentation: a Harvest of Shame*. Los Angeles: Hidden Spring Press, 1996. Pg. 3.
[9] Hepner, L.A., *Animals in Education: The facts, issues and implications*. Albuquerque: Richmond Publishers, 1994. Pg. 19.
[10] French, R., *Dissection and Vivisection in the European Renaissance.* Hants: Ashgate Publishers, 1999. Pg. 1.
[11] Hepner, L.A., *Animals in Education: The facts, issues and implications*. Albuquerque: Richmond Publishers, 1994. Pg. 19.

1.2. Animals, Humans and Scalpels

The use of dead bodies for teaching purposes in Europe started with the dissection of animals. From these dissections, and extrapolations, much of our internal anatomy started to gain shape. It was in the medical "school" of Salerno, in Italy, that systematic dissection of animals for teaching started in the twelfth century[12]. The Church made little objections against the dissection or vivisection of animals because the church claimed that animals do not have an immortal soul [13,14]. However, moralizing arguments and debates soon began on the "practices [of human and animal dissection], like medieval medicine," and how they "damaged the moral dignity of the practitioner"[15].

In the academic environment the use of animals represented a more acceptable way of obtaining knowledge (also because it was more convenient and easy to obtain and use animals than human bodies). Once it had been established that there was a similarity between the human and the animal body the use of animals became a common practice. This similarity between the animal and the human bodies was argued by many pre-Renaissance anatomists, like Galen (AD 129-c.200), Gabriele de Zerbi (1445-1505) and Berengario da Capri (1460-1530) [16]. Such an *anatomical rationalization* rests on the assumption that humans are also animals. This conclusion is, in some way, based on the Aristotle philosophy, when he affirms that humans are rational animals. This capacity of reason, directly connected with Plato's discussion about the soul, the Christian concept of soul's immortality and the allegorical concept of nature and its elements (especially in the twelfth century) defined the differences between human and animal. It also provided a theoretical justification of animal dissection and vivisection.

At the other hand, the Church had a strong influence regarding the use of dead human bodies for dissection in European history. In the early thirteenth century, with Innocent III, the Church started giving consent to carrying out dissection for reasons such

[12] French, R., *Dissection and Vivisection in the European Renaissance.* Hants: Ashgate Publishers, 1999. Pg. 14.
[13] Marshall, P., *Nature's Web.* London, England. Simon & Schuster, 1992. Pg. 189.
[14] Gruen, L., Animals. In: Singer, P. (Ed.) *A Companion to Ethics*. Oxford: Blackwell, 1991. Pg. 344.
[15] French, R., *Dissection and Vivisection in the European Renaissance.* Hants: Ashgate Publishers, 1999. Pg. 12.
[16] Ibid,. Pg. 123.

as “embalming, discovery of cause of death, both forensic and medical, and anatomical learning”[17]. When human dissection material was scarce, animals were a good resource for studies - easy to obtain, “similar to human beings in anatomy” and with the advantage that they could be cut and studied alive – or in other words vivisected. Indeed, going back to the pre-Renaissance period, Galen demonstrated the mechanism of control of the voice by exposing the laryngeal nerves of a pig by vivisecting the animal (fig.2)[18]. The vivisection of animals was important in the studies of the ontogeny of the embryo, lung motion and most importantly - the beating heart[19].

Fig.2. Galen demonstrating in public a pig vivisection.

Obviously, reasons for dissecting the human body were needed; otherwise only by dissecting animals we could not obtain the necessary knowledge about human anatomy. In the fifteenth century, anatomist Gabriele de Zerbi, Galen’s follower in his anatomical discoveries, believed that the human body was the most perfect and complex amongst animals. Zerbi stated that the human body was “the measure of that of other animals”. According to the medical historian Roger French, it was natural to compare animals in a scale of perfection, where the man is, not surprisingly, on the top[20]. The debate about the relation between body and soul here is also pertinent, as Zerbi said: “Nature quite correctly gave the ape a ridiculous body because it had a ridiculous soul”[21]. This view he inherited from Galen, which was curiously disrespectful of this animal. A Christian justification for human dissection was that by dissecting and knowing about our nature,

[17] Ibid., Pg. 11.
[18] Picture from the archives of History of Medicine In: http://wwwihm.nlm.nih.gov/
[19] French, R., *Dissection and Vivisection in the European Renaissance.* Hants: Ashgate Publishers, 1999. Pg. 193.
[20] Ibid., Pg. 126.
[21] Ibid., Pg. 126.

man could learn more about what is considered the image of God (*Imago Dei*). The Galenic rules of dissection were: "secure a human body if possible, but if not possible then choose an animal as much like man as possible, beginning with apes and descending through dogs, horses, lions and ruminants". According to Roger French, the view represented by these rules are "consistent with the Christian view of man as the highest of animals", and with Aristotle's philosophy, regarding the hierarchy found in nature, in which man possess the higher degree of soul and form[22].

As we can see in the Renaissance the taboo about the use of the human body was in some way overcome, and the use of dead criminal's bodies started to be a common practice amongst the anatomists of that time. The differences between human and animal anatomy also became clearer. Then, problems about identifying and naming structures and organs below the human skin arose[23]. The Flemish anatomist Andreas Vesalius (1514-1564) was famous for contradicting Galen's teachings, accusing him of basing his knowledge only on animal dissections. The study of human anatomy based on human dissections enabled him to compile his notorious manuscript on human anatomy entitled *De Fabrica*[24], published in 1543 (fig.3)[25]. Vesalius corrected more than 200 mistakes documented by Galen, who had been applying anatomical data obtained from animal dissections and vivisections to the anatomy of humans[26] by the predominant use of apes[27]. According to Vesalius, Galen's supposed discoveries of human anatomy were based only on animal anatomy. He believed that Galen had never dissected a human body. In this sense, the teaching and knowledge about the anatomy of humans had to be examined "in the light of the dissected human body"[28].

Robert Sharpe, physician and medical historian, says that the dogmatic style of Galen, plus the reluctance coming from the Church in allowing the dissection of human cadavers were responsible for the enshrinement of Galen's errors in medical teaching for

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[22] Ibid., Pg. 126.
[23] Ibid., Pg. 162.
[24] The complete name of Vesalius' work is *De Humani Corporis Fabrica Libri Septem.*
[25] Picture from the archives of History of Medicine In: http://wwwihm.nlm.nih.gov/
[26] Hepner, L.A., *Animals in Education: The facts, issues and implications*. Albuquerque: Richmond Publishers, 1994. Pg. 19.
[27] French, R., *Dissection and Vivisection in the European Renaissance.* Hants: Ashgate Publishers, 1999. Pg. 126.
[28] French, R., *Dissection and Vivisection in the European Renaissance.* Hants: Ashgate Publishers, 1999. Pg. 168.

a long time[29]. "Galen's mistakes perpetuated fundamental errors for nearly fifteen hundred years until Vesalius, the sixteenth century anatomist (…) began to dispel Galen's authority"[30]. Sharpe considers the pre-Renaissance as a period of stagnation in the study of human anatomy. Galen's discoveries about human anatomy were accepted without being called to question for a long time[31]. Loys Vassé, three years before Vesalius published his work, said that those who question or refused the knowledge from their teachers "demonstrate a great sign of impiety and an ungrateful soul"[32]. Vesalius also had the same opinion at this time regarding being "heretical" in the criticism against Galen's work. After starting to discover Galen's errors, he faced the intransigence of many anatomists when he published his work contradicting Galen's findings[33]. But this criticism against Galen came from others also. Around 20 years before Vesalius published his book, *The Structure of Human Body*, the Swiss physician Paracelsus (c.1490-1541) shocked his colleagues when he burned Galen's works in public. He claimed that it was based on lies, and criticized his colleagues by saying that by following Galen's work, they were acting as "professors of falsehood"[34].

It is important to say that in the Middle Ages, the relationship between pupils and teachers was based on a "father and son" kind of relationship - a heritage from the Hippocratic tradition. And thus the physicians of the European Renaissance were included in this Hippocratic-Galenic tradition – which Vesalius was accused of breaking. This heresy was taking place at the same time as the religion changes in the Reformation. The attack against Vesalius was lead by anatomists like the Italian Arcangelo Piccolomini, but mostly by the Parisian Jacobus Sylvius (1478-1555). Sylvius, referring to Vesalius, asked the majesty of Caesar to "suppress this monster of ignorance, ingratitude and arrogance, this most pernicious exemplar of impiety, lest his poisonous

[29] Sharpe, R., *The Cruel Deception: the use of animals in medical research.* Northamptonshire: Thorsons Publishers, 1988. Pg. 146.
[30] *Galen.* In: http://www.med.virginia.edu/hs-library/historical/antiqua/galen.htm
[31] Ibid.
[32] French, R., *Dissection and Vivisection in the European Renaissance.* Hants: Ashgate Publishers, 1999. Pg. 177.
[33] Ibid., Pg. 177.
[34] Sharpe, R., *The Cruel Deception: the use of animals in medical research.* Northamptonshire: Thorsons Publishers, 1988. Pg. 147.

breath infect the rest of Europe"[35]. Sylvius believed in Galen's founding, arguing that at his time the human body was perfect, and the differences observed now were result of some kind of natural degeneration of the human body – due to luxury and diet. This view was not absurd at his time, considering that at one stage the belief taught by the Church was that the world was only a few thousand years old, and coming to an end very shortly. Vesalius was initially sentenced to death by the Inquisition, accused of "body snatching", and afterwards commuted to a pilgrimage to Jerusalem. He died on the way back in 1564[36].

Vesalius also used animals as models for human anatomy regarding the study of eyes, tongues, the larynx and kidneys according to the Italian anatomist Bartolommeo Eustachio (c.1500-1574), who adopted a more moderated position[37]. Vesalius was also famous for vivisecting animals without anesthesia:

> *He recommended that after training on dead animals, students should proceed to living animals in order to investigate the action and use of the parts. It was his custom to explain the precise point to be observed to his audience before a public dissection of a living animal so that the students could concentrate on the cries of the animal. He particularly recommended performing a vivisection on a pregnant sow or bitch: 'it is better to choose a sow on account of the voice. For a dog, after being bound for some time, no matter what you do to it, finally neither barks or howls, and so you are sometimes unable to observe the loss of weakening of the voice'*[38].

Figure 4, an illustrated initial of Vesalius's work *De Fabrica,* shows three small humans (*putti*), one pulling the dog upwards with a rope, another pulling the dog's back legs downwards and the third swings a club in order to kill the dog for dissection. The pig on the bottom of the figure, a woodcut by Vesalius, is related more to Galen's work with pigs, as Vesalius was renowned for using mostly dogs in his experiments[39]. In figure 5[40],

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[35] French, R., *Dissection and Vivisection in the European Renaissance.* Hants: Ashgate Publishers, 1999. Pg. 179.
[36] Marshall, P., *Nature's Web.* London: Simon & Schuster, 1992. Pg. 170.
[37] French, R., *Dissection and Vivisection in the European Renaissance.* Hants: Ashgate Publishers, 1999. Pg. 184.
[38] Marshall, P., *Nature's Web.* London: Simon & Schuster, 1992. Pg. 170.
[39] Picture from French, R., *Dissection and Vivisection in the European Renaissance.* Hants: Ashgate Publishers, 1999. Pg. 195.
[40] Picture from the archives of History of Medicine In: http://wwwihm.nlm.nih.gov/

we can see the *putti* carrying a vivisection in a tied pig, starting an incision where the pig's vocal cords are located – a famous Galen's experiment.

The main problem with the vivisection of these animals was the noises and struggles emitted by them[41]. The Italian anatomist Realdo Colombo (c.1515-1559), Vesalius's successor as teacher at Padua, lead the systematization of vivisection. He argued the "medical utility of exposing the living heart and arteries, claiming that more will be learned about the pulse in a day in this way than in many months of feeling the arteries in a whole living body or in more months reading Galen"[42]. He also demonstrated Galen's experiment in controlling the voice by compressing the laryngeal nerves on many occasions, but this time using dogs. He claimed that when vivisecting pregnant bitches, "even the 'crucified and unhappy dog' is in some rhetorical sense happy in offering a spectacle of very beautiful things"[43]. Descriptions of vivisectional procedures in animals could fill pages and pages from different anatomists and physiologists in different periods of our history.

Fig.4. On the top, another illustrated initial from Vesalius' work *De Fabrica*. Below, Vesalius' woodcut representing a pig prepared for vivisection.

One thing was becoming more and more clear for anatomists: they should restart the study of the human body, through human dissection[44]. It is no accident that we have two distinguished disciplines nowadays – human and animal anatomy.

The practices and ideas of some important physiologists equally contributed to the justification of vivisection. One of the most important is the work of William Harvey (1578-1657), considered the father of physiology. Harvey's biggest interest was in the blood circulation and in the heart motion. Through extensive vivisection of animals, he

[41] French, R., *Dissection and Vivisection in the European Renaissance*. Hants: Ashgate Publishers, 1999. Pg. 194.
[42] Ibid., Pg. 182.
[43] Ibid., Pg. 209.
[44] Ibid., Pg. 168.

could finally disagree with Galen's findings about the hearth motion, and confirm the systole and diastole theory of Realdo Colombo (1515-1559). In the seventeenth century, after the discovery of the blood circulation by Harvey, vivisection for teaching became routine in European universities[45]. In the nineteenth century the Frenchman Claude Bernard (1813-1878) was an important name in the field of physiological studies. He described the true physiologist as someone that did not hear the cry of animals nor see the flowing of their blood, but instead only pursuing his idea and perceiving "organisms concealing problems which he intends to solve"[46]. Bernard was supposed to have established vivisection as a method [47].

Roger French studied the thesis that the anatomists of that time "were building up anatomical knowledge for some purposes separated from direct medical or surgical use"[48]. The knowledge about anatomy was a virtue, which helped to elaborate theories of knowledge at that time. "The *purposes* of the anatomists were closely tied up with contemporary thought on the acquisition and assessment of knowledge", says French[49]. Dissection, vivisection and anatomical knowledge, especially when displayed in the public anatomies, was good advertising copy for the anatomical rationality of academic medicine[50]. In a contextualized approach, medical knowledge in Europe developed by interacting with some other components of society like religion and law, which helped in shaping and establishing medical practices such as dissection and vivisection[51].

Questions about the ethics of animal experimentation were rare before the seventeenth century[52]. Knowing for the sake of knowing, the lack of ethical considerations about men's actions and several other cultural and philosophical circumstances based these practices in a way that values from that time continue to be

[45] French, R., *Dissection and Vivisection in the European Renaissance.* Hants: Ashgate Publishers, 1999. Pg. 250.
[46] Sharpe, R., *The Cruel Deception: the use of animals in medical research.* Northamptonshire: Thorsons Publishers, 1988. Pg. 164.
[47] Ibid., 165.
[48] French, R., *Dissection and Vivisection in the European Renaissance.* Hants: Ashgate Publishers, 1999. Pg. 2.
[49] Ibid., Pg. 2.
[50] Ibid., Pg. 81.
[51] Ibid., Pg. 2.
[52] Ibid., Pg. 2.

transmitted in today's society, especially through education in biological and medical fields.

1.3. The First Reactions Against Vivisection

By the end of the seventeenth century objections to dissection and vivisection had started due to the emerging "scientific revolution". "It is only occasionally from the earlier period that we hear of such objections"[53]. These objections started because of the potential negative effect that it could have on people who performed these practices and also due to rising public compassion for the animals involved in the practices. The desensitizing effect of dissection and vivisection on the experimenter started to be raised, especially by the Church in this period [54].

The public's opposition to vivisection had strongly commenced by the beginning of the nineteenth century mainly in England. The use of animals in lectures and the details revealed by these experiments conducted by the French physiologists François Magendie (1783-1855) (the father of experimental physiology in France) and Moritz Schiff (1823-1896) were strongly condemned by a part of the British society. According to Hilda Kean in her study about the animal-rights movement in Britain from the 1800's onwards, "thousands of creatures had died in vain just to illustrate the substance of Magendie's lectures"[55]. According to Kean, the growing practice of vivisection in Great Britain was influenced by the studies regarding to similarities between species, and the dissemination of the studies of Claude Bernard (1813-1878) in physiology. At that time, most vivisection

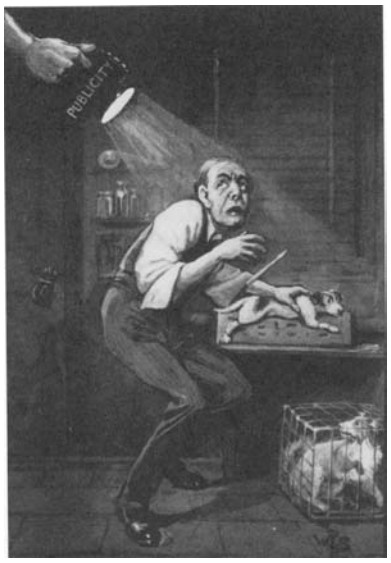

Fig.6. *Shedding light on professional cruelty.*

[53] Kean, H., *Animal rights: political and social change in Britain since 1800*. London: Reaktion Books, 1998. Pg. 10.
[54] French, R., *Dissection and Vivisection in the European Renaissance.* Hants: Ashgate Publishers, 1999. Pg. 12.
[55] Kean, H., *Animal rights: political and social change in Britain since 1800*. London: Reaktion Books, 1998. Pg. 96.

practices were held out of public sight (fig. 6)[56]. Dogs and cats were collected in the street at night, some of them pets. "The mythologyzing of family pets in popular narratives played a further part in creating a climate of opinion receptionist to anti-vivisection ideas"[57].

In 1874, Norwich (UK) was scene for vociferous protest against the experimental use of dogs, during the meeting of the British Medical Association, especially against the experiments performed by the French physiologist Eugene Magnan. During the meeting, the president of the Royal College of Surgeons from Ireland released a dog as protest. According to Jane Smith, this protest appears to be "one of the events leading to the passage of Britain's 1876 Cruelty to Animals Act, the world's first legislation designed specifically to protect laboratory animals"[58].

A famous case regarding the objection of using animals in educational experiments was the *brown dog* case. The brown dog was a terrier killed for educational purposes at the University College in Battersea, London, described in Louise Lind af Hageby's polemic book *The Shambles of Science*, at the beginning of the twentieth century. A statue was erected in memory of this dog in 1906, which was attacked numerous times by medical students[59]. The inscription on the statue was considered by some as provocative and offensive to the University College and the Middlesex Hospital:

> *In memory of the Brown Terrier Dog Done to Death in the Laboratories of University College in February, 1903, after having endured Vivisection extending over more than Two Months and having been handed over from one Vivisector to Another Till Death came to his Release. Also in Memory of the 232 dogs Vivisected at the same place during the year of 1902. Men and women of England, how long shall these Things Be?*[60]

[56] Picture from Kean, H., *Animal rights: political and social change in Britain since 1800*. London: Reaktion Books, 1998. Pg. 104.
[57] Ibid., Pg. 98.
[58] Smith, J., *Dissecting Values in the Classroom*. New Scientist, 134 (May 1992) 1820. Pg. 32.
[59] Kean, H., *Animal rights: political and social change in Britain since 1800*. London: Reaktion Books, 1998. Pg. 152.
[60] Ibid., Pg. 153.

Nationally, the memorial rose a highly controversial issue. Suffragettes, trade unionists and members of the labour movement came together in the struggle against vivisection (fig. 7)[61]. The brown dog case contributed to the rapid growth in the movement of animal experiment oppositionists by drawing more people to the debate on vivisection. In a demonstration against its removal in 1911, 3000 people gathered in the centre of London. After five years of notoriety the brown dog memorial was removed, "but the memory of the incident lived on and a replacement statue was erected in 1985"[62].

Fig.7. *The Brown Dog in the Procession, from an issue of The Anti-Vivisection Review, 1909-10.*

[61] Picture from Kean, H., *Animal rights: political and social change in Britain since 1800*. London: Reaktion Books, 1998. Pg. 155.
[62] Smith, J., *Dissecting Values in the Classroom.* New Scientist, (1820)134. May 1992. Pg. 32.

II. Ethical Objections to the Harmful Use of Animals in Education

When we say that animals are tools, we are revolving around the question regarding the (instrumental) status of animals in relation to humans. More and more students are objecting the practices of dissection and vivisection[63]. Students can object to using animals in education due to a concern regarding the moral status of them, recognizing some kind of value in an animal's life, and caring for and respecting that life deeply. Some of the more common arguments in cases of student objections are that animals deserve respect as living beings, and therefore should *not* be considered as tools for educational purposes. Other students could question animal practices due to the fact that an animal is a wrong model, for instance, when applied to education on human medicine or psychology. The religious beliefs also play an important role in these objections. Some religions are grounded on a deep respect for life and this practice goes against this fundamental basis.

This chapter, however, will focus on some ethical models that make the practice of vivisection and dissection ethically questionable or wrong. I will consider two main schools of thought in animal ethics, namely the *utilitarian theory* and the *rights theory*, that serve as a basis for objection. What is important to remark is that the use of animals in scientific education will be considered here as a consequence of a Western thought, consolidated initially in Europe (as seen in the first chapter) and today widely spread. Under this approach, these two schools or models could be considered as the major representatives in ethical discussion on the use of animals. But as we shall see later, they also present problems, and another model will be analyzed as a possible alternative to the above mentioned models. In a few words, models based on concepts such as justice and autonomy, for instance, might not reflect a shared ethical viewpoint on such an issue. As an alternative - the critique offered by the *eco-feminist* tradition in ethics, also known as *ethics of care*, is chosen. This critique, as we will see in more detail afterwards, comes not only against the two models already cited, but also against some main basis of traditional philosophy and, of course, our relationship with animals.

[63] Hepner, L.A., *Animals in Education*: *The facts, issues and implications*. Albuquerque: Richmond Publishers, 1994. Pg. 187.

There are, nonetheless, cases where the ethics are linked or based on religious principles, and where the reasons for the respect of animal life are closely linked to traditional beliefs and worldviews. There could be many ethical arguments in these cases and are certainly not of less importance. In this framework it is hard to define exactly the ethical boundaries between these links, but they will be dealt with later on in the next chapter regarding the role of the ethical education in a pluralistic society where objections to animal use can be raised.

2.1 Expanding the Circle

Do animals have an intrinsic worth, or only an instrumental value as a means of human survival? Are we free individuals, with a moral right to act as we want, based on what is good for us or in our best interest? Does man have a higher ethical value than animals, or should man be seen merely as another part of nature that has no right to claim any greater value or consideration than the other parts? To what extent is moral consideration applicable to animals? Who is inside our sphere of morality which conducts our acts and ethics? How are we to extend the moral boundaries to animals?

These questions have been the target of many animal ethics theories. It is a fact that in today's society we are excluded from nature and nature is excluded from us in our process of moral decision making. The challenge of animal ethics[64] is to expand this circle of morality where only some types of *Homo sapiens* are included. This *anthropocentric* exclusivity and superiority, arbitrarily delineated, represents an old model, if not an old paradigm. James Hart considers the effort of trying to exalt the human superiority over other animals as arrogant. "If humans had not arrogated to themselves a status transcending that of one member-species of the ecosystem and if they had lived within their proper natural limits, mindful of the inherent value of the other species and members, then the responsibility for others would not be an issue"[65], he says.

[64] Environmental ethics theories also face the same challenge, but we will keep the attention to the role of animals in our moral consideration tradition.
[65] Hart, J., Transcendental Phenomenology and the Eco-Community. In Steeves, H.P. (Ed.), *Animal Others – On Ethics, Ontology and Animal Life*. New York: State University of New York Press, 1999. Pg. 180.

But the concept of inherent or intrinsic value is not so simple and easy to understand[66]. As we will see later on, when dealing with animal ethics theories, these concepts are argued by all the tendencies, through different arguments.

Why animals and nature are excluded from our moral circle is a simple question with many answers. But the main reason rests in the fact that the weight we give to differences usually is greater than the weight we give to similarities. The roots and origins of this process of differentiation send us back some centuries in the history of mankind, with the influence of religious and scientific thought. Regarding animals, for instance, it can be argued that there are some basic characteristics that makes humans more valuable than animals, such as self-awareness, capability of dealing with complex concepts, developed system of communication, ability to act with responsibility, etc. In general, many traditional systems of thought have been used to affirm and justify *Homo sapiens* position as the one at the top of the pyramid of moral consideration.

The diagram below (fig. 8) shows us how we could see today's extensions of our moral boundaries in relation to other living creatures and ecosystems. In this model, human beings are seen as separated from animals and nature. Even among the human beings, we can see some intra-specific boundaries regarding moral consideration. In the grey area we could identify excluded groups, such as homosexuals, immigrants, women, ethnic and indigenous groups, old people, etc. These boundaries sometimes are not so well defined, and many tones of grey could be represented. The boundaries between animals and nature are also not very solidly represented. Though animals and nature are together, some animals are more close to humans than others. We can see that in some cases the effort has been made to include some animals in the human circle – such as great apes, for instance[67]. Also in the diagram, we can see that as we move to the right, less moral consideration is found and attributed.

[66] Bos, V.B., Intrinsic value and species-specific behavior. In Dol, M. e.a. (Eds.), *Recognizing the Intrinsic Value of Animals*. Beyond Animal Welfare (Animals in Philosophy and Science), Assen: Van Gorcum, 1999. Pg. 54.

[67] For more information on this issue, see the book by Singer, P. & Cavalieri, P., *The Great Ape Project.* New York : St. Martin Press, 1993.

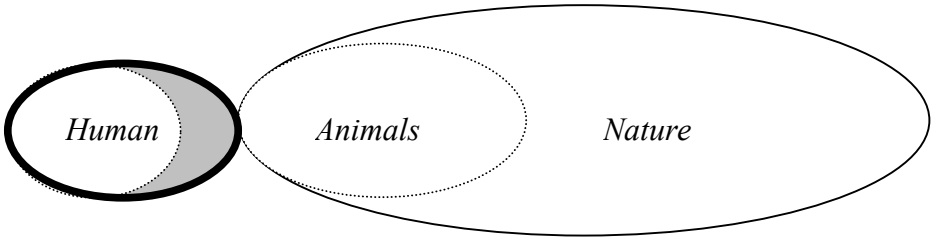

Fig. 8. *Models of the predominant circles of moral consideration in the relation humans/animals/nature.*

Expanding the circle may involve the search for a common denominator among these three elements in the case of a monistic approach[68]. Other theories could defend a pluralistic position, where different principles would be applied to different relations and circumstances[69], and some theories would embrace only other species, based on some objective characteristic or intrinsic value. The diagrams below (fig. 9) shows, in a simplistic way, how these expansions could take place.

In A, we can see the three elements considered in one moral system, defined by Callicott as *univocal* or *monist*[70]. According to him, this position is "traceable to David Hume and Adam Smith's theory of moral sentiments, grounded in evolutionary biology by Charles Darwin, and latterly extended to the environment by Aldo Leopold"[71]. The adopted moral common denominator here, trespassing on all elements in the sphere, could be principles like altruism, care and/or respect for the integrity/complexity of life.

In B a pluralistic view is sketched. Different moral principles would guide our behavior and actions according to what kind of relation is in play. For instance, among humans we would apply the Kantian principle; in our relation to animals -an utilitarian approach; and to nature -a stewardship approach. As a background common to all the

[68] For more details about his approach, see the article by Callicott, J.B., The Case Against Moral Pluralism. In Brennan, A. (Ed.), *The Ethics of the Environment*. Aldershot: Darthmouth Publishing Company, 1995.
[69] For more details about the pluralistic approach, see Stone's works *Earth and Other Ethics: The Case for Moral Pluralism*. New York : Harper & How, 1987;
and Moral Pluralism and the Course of Environmental Ethics. In Brennan, A. (Ed.), *The Ethics of the Environment*. Aldershot: Darthmouth Publishing Company, 1995.
[70] Callicott, J.B., The Case Against Moral Pluralism. In Brennan, A. (Ed.), *The Ethics of the Environment*. Dartmouth Publishing Company, 1995. Pg. 527.
[71] Ibid., Pg. 530.

relations, the principle of non-maleficence or respect for integrity of life could be used. Stone supports this view also based on his criticism against moral monism. This implies that the "ethicist's task is put forward and defend a single overarching principle (or coherent body of principles), such as utilitarianism's 'greatest good for the greatest number' or Kant's categorical imperative, and to demonstrate how it (the one correct view point) guides us through all moral dilemmas to the one right solution"[72].

In C other animal species share with humans the moral consideration, based on different principles. The boundaries between this common sphere and that of the rest of animals outside this circle are not well defined. This line in the utilitarian theory, for instance, is drawn according to the capacity to feel pain or pleasure[73] – concepts that becomes unclear when we start to consider "lower" animals in the evolutionary scale. But it is a consensus that this capacity is found in higher animals, such as mammals and most of vertebrates. Most of these animals have a developed nervous system[74], and behavioral studies have shown that many of them have a complex communication system, are susceptible to emotions[75] and are self-aware[76]. Our relation to nature is based on other principles, already cited above.

A.

[72] Stone, C., Moral Pluralism and the Course of Environmental Ethics. In Brennan, A. (Ed.), *The Ethics of the Environment*. Dartmouth Publishing Company, 1995. Pg. 515.
[73] See Singer, P., *Animal Liberation*. New York: Avon Books, 1990. Pgs. 9-15.
[74] For more on this topic, see the articles by Van de Grind, W., The neuronal basis of conscious experiences in the animal kingdom. In *Symposium: the Science and Philosophy of Pain*, Ghent, 7-8 December, 2000; and Broom, D.M., The evolution of pain. In *Symposium: The Science and Philosophy of Pain*, Ghent, 7-8 December, 2000.
[75] About animal emotions, see "When elephants weep", by Jeffrey Masson and Suzan McCarthy; and "The expression of the emotions in man and animals", by Charles Darwin.
[76] For more information on this topic, see Singer, P., *Animal Liberation*. New York: Avon Books, 1990; Hindley, M.P., 'Minding animals': the role of animals in children's mental development. In Dolins, F. (Ed.), *Attitudes to Animals*. Cambridge: Cambridge University Press, 1999; and Dolins, F.L., A look back in the mirror: perspectives on animals and ethics. In Dolins, F. (Ed.), *Attitudes to Animals*. Cambridge: Cambridge University Press, 1999.

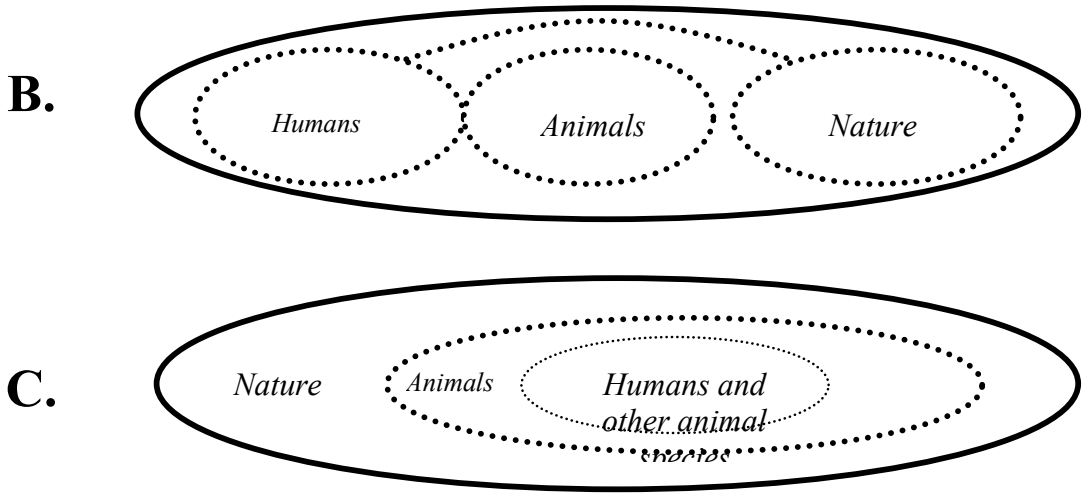

Fig. 9. *Expanding the circle: three models. In A, the univocal or monist model; in B, the pluralist model and in C, the animal centred model.*

2.2 Intrinsic Value in Animals

The discussion about the *objectiveness* of the intrinsic value of animals is lengthy, and it also dives deeper into the debate among environmental ethicists when defending the expansion of this value to nature as well. Some authors defend this value subjectively: animals, and any other living creature or (say) landscape, only have value when mediated by the human person. Without this mediation, there is no intrinsic value in nature. Thus, all values we attribute to nature are *given*, and therefore are anthropogenic[77]. "To ask about values in nature is, then, to form a misleading question, for values are only in people, created by their decisions" [78], starts Holmes Rolston III. But he strongly criticizes this common statement, and will argue that nature is, at least, a carrier of value, and that some values arise in association with nature, in our relationships

[77] Van der Tuuk points that it is important not to confuse the term *anthropogenic* with *anthopocentric*. The former means that the value is generated by human beings, while the last one means that human interests are considered more valuable than that of animals. In this sense, we could say that all anthropocentric values are anthropogenic, but not all anthropogenic values are anthropocentric. See: Van der Tuuk, E., Intrinsic value & the struggle against anthropocentrism. In Dol, M. e.a. (Eds.), *Recognizing the Intrinsic Value of Animals*. Beyond Animal Welfare (Animals in Philosophy and Science), Assen: Van Gorcum. 1999. Pg. 32.

[78] Rolston III, H., *Philosophy gone wild. Essays in Environmental Ethics*. New York: Prometheus Books, 1986. Pg. 74.

with nature, "founded on physical and biological properties"[79]. Facts and values, according to this author, inseparably "co-evolve" and, instead of value-in-itself, they become *value-in-togetherness*. And he points out that "careful scientists now realize that they always bear some relationship beyond that of passive observers to whatever they seek to know"[80].

Robert Elliot says, in this way, that "anything which has the property of being a complex living thing is intrinsically valuable, which is to say that there is a moral reason for preserving it for its own sake independently of whatever uses it serves"[81]. The "complex living thing" cited by Elliot is closely related to Rolston III's "physical and biological properties". Van den Bos criticizes this definition of intrinsic value based on certain objective characteristics. According to him, the value appears as property of a two-sided relationship "in terms of meanings or interests"[82].

Coming back to animals, Rutgers & Heeger, when revolving the question about the basis for their moral consideration, say that the recognition of the animal's "value of their own" can lead to three different interpretations: *inherent value*, *intrinsic value* and *inherent worth*. *Inherent value* can not be a basis for the moral consideration of rights, because "moral consideration is not entirely dependent on the fact that someone or something enjoys appreciation"[83]. Through this *aesthetic* approach, it could be that pictures of landscapes could inspire admiration or wonderment, and intensively farmed pigs might not. The concept of *intrinsic value* is directly based on the fact that animals can experience suffering and have interests or desires frustrated[84]. The authors remark that this interpretation is only applicable to "higher" animals - conscious and sentient. For example, only in cases where suffering is involved. Genetic manipulation, cloning, removing of body parts and administration of growth enhancers are some examples listed

[79] Ibid., Pg. 75.
[80] Ibid., Pg. 75.
[81] Elliot, R., Environmental Ethics. In Singer, P. (Ed.), *A Companion to Ethics*. Oxford, UK. Blackwell, 1991. Pg. 292.
[82] Bos, V.B., Intrinsic value and species-specific behavior. In Dol, M. e.a. (Eds.), *Recognizing the Intrinsic Value of Animals*. Beyond Animal Welfare (Animals in Philosophy and Science), Assen: Van Gorcum, 1999, Pg. 53.
[83] Rutgers, B. & Heeger, R., Inherent worth and respect for animal integrity. In Dol, M. e.a. (Eds.), *Recognizing the Intrinsic Value of Animals*. Beyond Animal Welfare (Animals in Philosophy and Science), Assen: Van Gorcum, 1999. Pg. 42.
[84] Ibid., Pg. 43.

by the authors in which no objection could be raised[85]. Recognizing that animals have a "good of their own" and "interests of their own" should guide the normative criteria for respecting animals. The first is based on the fact that animals have characteristic purposes and ends, are self-oriented and pursue the fulfillment of their own needs; and the term 'interest' in the second affirmation is a consequence of the first, in the sense that "something can be beneficial or detrimental to them". Here, described, is the claim of the term *inherent worth*: "the animal's intactness and its species-specific capacities and functions constitute a value towards which an attitude of moral respect is appropriate"[86]. This should be the criterion, according to the authors, that would give a basis for the moral consideration of animals, but only if we are aware of the biological and ecological network we are inserted into. It depends on whether this claim has to do with our "fundamental attitude towards life and the world". And here, the link with biocentric philosophy is emphasized -although a moderated one, where the worth could be balanced in order to justify some harm to animals. According to them, "the integrity of the animal should not be violated unless the infringement can be justified in good moral grounds"[87].

2.3 The Utilitarian or Consequentialist Theory

Animals have interests and can experience pain.

The Australian philosopher Peter Singer first consolidated the utilitarian theory applied to the animal liberation movement, with his famous book *Animal Liberation*. Since then, this theory has been defended and improved by many other authors, and widely used in questioning the use of animals in many aspects. Before Singer came into the utilitarian arena, Jeremy Bentham (1748-1832) also touched the issue although without developing deeper the philosophy of animal liberation. The main concern of utilitarianism is based on the satisfaction of desires (pleasure) that a being can experience.

[85] The authors here seems to use the utilitarian concept as a basis for their critiques against the concept to intrinsic value. The same critique would not be applied to the deontological theory.
[86] Rutgers, B. & Heeger, R., Inherent worth and respect for animal integrity. In Dol, M. e.a. (Eds.), *Recognizing the Intrinsic Value of Animals*. Beyond Animal Welfare (Animals in Philosophy and Science), Assen: Van Gorcum, 1999. Pg. 44.
[87] Ibid., Pg. 50.

The utilitarian theory is not applied entirely to its original meaning in the work of Singer, who uses a more consequentialist approach. The concept of equality, for instance, is not worked into the theory of John Stuart Mill (1806-1873), even though Singer used it as a starting point. In Singer's words:

> *Consequentialists start not with moral rules but with goals. They assess actions by the extent to which they further these goals. The best known (...) consequentialist theory is utilitarian (...) The consequences of an action vary according to the circumstances in which it is performed. Hence a utilitarian can never properly be accused of a lack of realism, or of a rigid adherence to ideals in defiance of practical experience. The utilitarian will judge lying bad in some circumstances and good in others, depending on its consequences*[88].

Singer's approach to animal ethics does not appeal to give rights to animals. Instead, he defends his theory based on the principle of equality, explained as follows: "suffering should be counted equally with the like suffering – insofar as rough comparisons can be made – of any other being"[89]. A minimal principle of equality – in the sense that it does not attribute equal treatment to all beings considered in some action - is proposed by Singer as the principle of *equal consideration of interests*, which states that we should give "equal weight in our moral deliberations to the like interests of all those affected by our actions"[90].

To explain men's dominion over other non-human animals, Singer adopts in his theory the concept of *speciecism*, originally from Richard Ryder[91], which is defined as arbitrary attribution of weight to the interests of members of a chosen species when there is a conflict between these interests with interests of other species. In his own words, speciecism is "a prejudice or attitude of bias in favor of the interests of members of one's own species and against those of members of other species"[92].

According to him, the basis of this concept is theoretically the same as racism and sexism – interests are downplayed depending from what sex or race it is coming. Another

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[88] Singer, P., *Practical Ethics*. 2nd Edition. Cambridge: Cambridge University Press, 1993. Pg. 3.
[89] Singer, P., *Animal Liberation*. New York: Avon Books, 1990. Pg. 8.
[90] Singer, P., *Practical Ethics*. 2nd Edition. Cambridge: Cambridge University Press, 1993. Pg. 19.
[91] For more information on Ryder's theory, see Ryder, R., *Animal Revolution: Changing Attitudes Towards Speciecism*. Oxford: Blackwell, 1989.
[92] Singer, P., *Animal Liberation*. New York: Avon Books, 1990. Pg. 6.

similarity between these forms of discrimination rest on the fact that they are deeply rooted in today's society and even deeper if we think about our relation to animals.

The theory in its body of argumentation uses the fact that animals, especially the vertebrates, share with us the capacity of feeling pain and pleasure, a highly developed nervous system and can also show a complex system of communication. Jeremy Bentham stated 200 years ago - cited *ad nauseum* in many works due to the pertinence of his argument - about animals: "(…) the question is not Can they *reason*? nor Can they *talk*? but, Can they *suffer*?"[93]. Indeed, as we will see later on, the capacity of reason should not be the characteristic that determines our ethical consideration to other animals. Important also to remark is that, regarding the possession of reason in animals, one can question the premise that only human beings are capable of reasoning. The evidence of reasoning in many animals does not mean that they reason in the same way as us, but that they also need this characteristic as an evolutionary adaptation for survival. The same is true for the expression of emotions . For both features there is a strong link with the possession of a complex nervous system, as well as a complex system of communication.

Sônia Felipe, a Brazilian philosopher, published an article, "*Sacrificing the Other: introduction to the ethical thought about the use of animals in the University of Santa Catarina's teaching labs"*. In her article she says that appeal to reason as a basis for the ethical thought and application could affect even members of our own species, once this capacity does not appear in a clear and absolute form between humans, "nor even in the same individual in all his/her moments"[94]. Reason is not a linear characteristic between humans – this feature seems to vary between us, from zero to an unknown predominance (can we act 100% in accordance to reason?). Appealing to Kant when dealing with babies, severe mentally handicapped people or terminal patients shows the same problem:

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[93] Bentham, J., Introduction to the Principles of Moral and Legislation. 1789. In *The Utilitarians*. New York: Dolphin Books, 1961. Pg. 380.

[94] Felipe, S., O sacrifício do outro: Introdução à reflexão ética sobre o uso de animais nos laboratórios de ensino da UFSC. In *Revista Virtual do Centro de Filosofia e Ciências Humanas*, number 3, 1999. (http://www.cfh.ufsc.br/~imprimat) Read: "O apelo à razão como fonte inspiradora de ética não reduz o número dos seres que devem ser contemplados com o respeito ético, justamente porque a racionalidade não aparece de modo claro e absoluto em nossa espécie, nem em cada um dos indivíduos, nem em um mesmo indivíduo em todos os seus momentos".

How can we have duties to those beings? The lack of reasonability, and therefore, the capacity for responsibility, seems to be what exclude them, in some way, from our sphere of moral consideration.

By rejecting the characteristic of reason as the one defining what is in philosophy understood by *person*, Singer expands this concept to beings capable to situate themselves in a time period (history), sentiency and self-awareness. Once the *person* in his theory is defined, he works on the boundaries of the concept of equality among persons. As the title of his article *All Animals are Equal* proposes, non-human animals are brought inside the basic concept of equality. But the *equality* defined by Singer does not deny differences in characteristics and treatments among those embraced by this concept, but claims for equal consideration of interests. In this way, conferring equality to all animals does not mean conferring the right to vote for dogs nor the right to abortion for men. As Singer points out:

> *The extension of the basic principle of equality from one group to another does not imply that we must treat both groups in exactly the same way, or grant exactly the same rights to both groups. Whether we should do so will depend on the nature of the members of the two groups*[95].

In the present work's issue, namely the use of animals in education, some of the objections based in this theory could be as follows: What has more weight: our right to learn by taking one animal's life, or the animal's right to life and freedom? Would I do the same practice with an orphaned human with severe and irreversible brain damage or an orphaned baby? Should I consider the consequences for the animal, in terms of suffering?

There are some critiques about the utilitarian approach. They will not be pursued because they revolve around many questions and open space for a long and already existing debate, and because it is not the objective of this work to present all the theories in its details and controversies in the philosophical arena. One of them is focused more in the basis of utilitarianism. Luc Ferry expresses the original concept of utilitarianism in philosophy in the classical way: "an action is good when it tends to generate the greatest sum of happiness for the greatest possible number of persons affected by this action. It is

[95] Singer, P., All Animals Are Equal. In Sterba, J. (Ed.), *Earth Ethics: Environmental Ethics, Animal Rights and Practical Applications*. New Jersey: Prentice Hall, 1995. Pg. 39.

bad when it tends otherwise"[96]. The problem with this "guideline" is that it can allows the sacrifice of one to the happiness of others. This critique can be found in one of Regan's reactions against utilitarianism, but Singer can handle this criticism once his approach, despite utilitarian, takes into consideration others aspects such as suffering, action's necessity and consequences.

2.4 The Deontological or Rights Theory

Animals are subjects-of-life.

This theory is based on the principle of the intrinsic value of animal life. The main representative of this theory is the American philosopher Tom Regan, author of *The Case for Animal Rights*. This theory follows what we could define as a deontological approach. This definition does not forbid animal righters to refer to natural characteristics and evidences founded in animals in order to give more weight and consistence to their theory. The main difference between the theory of rights and the utilitarian is that this theory recognizes a value behind the animal's interests and needs[97]. The recognition of the intrinsic (or inherent) value of animal life is the central point of this theory, and we are "morally obligated to treat them in ways that respects this value"[98]. Here, the human being is not anymore the only possessor of intrinsic value - this concept is extended to other living creatures, including animals[99].

The deontological respect for animals "will focus in some qualities inherently present in animals" – the animal's telos, basic needs, etc. – which will serve as base for the right of animals. The inherence of the value is *objective*, and not subjective (or attributed) – it means that the value belongs to the animal in itself [100], as already

[96] Ferry, L., *The New Ecological Order*. Chicago: University of Chicago Press, 1992. Pg. 26.
[97] Van der Tuuk, E., Intrinsic value & the struggle against anthropocentrism. In Dol, M. e.a. (Eds.), *Recognizing the Intrinsic Value of Animals*. Beyond Animal Welfare (Animals in Philosophy and Science), Assen: Van Gorcum, 1999. Pg. 34.
[98] Rowlands, M., *Animal Rights: A Philosophical Defence*. Palgrave, 1998. Pg. 88.
[99] This extension is not a feature of the animal rights theory. Many other schools of thought defend the same movement towards not only living creatures, but to natural ecosystems as well. Some tendencies in ecophilosophy and ecofeminist theories are examples of these schools.
[100] Van der Tuuk, E., Intrinsic value & the struggle against anthropocentrism. In Dol, M. e.a. (Eds.), *Recognizing the Intrinsic Value of Animals*. Beyond Animal Welfare (Animals in Philosophy and Science), Assen: Van Gorcum, 1999. Pg. 31.

discussed before. And this inherent value is present only in beings recognized as subject-of-a-life: "Being a subject-of-a-life is a *sufficient* condition for having inherent value, not a *necessary* one"[101].

The criteria for being a subject-of-a-life are described by Regan as the capacity for memory and perception; the possession of desires, beliefs and preferences; the ability to act intentionally in order to fulfil their desires or goals; sentiency and emotional life; sense of location in time and the possession of individual experiential welfare, which should be taken as independent of utility or the interests of others. "To be the subject-of-a-life, in the sense in which this expression will be used, involves more than merely being alive and more than merely being conscious"[102]. He brings inside this criteria all normal member of mammalian species, many species of birds, reptiles, amphibians and, maybe, fishes[103]. But his theory is more applicable to mammalians. Regan believes that basically all mentally normal mammals of a year or more are subjects-of-a-life and thus have inherent value, which allows them to have rights[104]. As Mark Rowlands marks:

> *The question whether birds, reptiles, amphibians and fish satisfy the subject-of-a-life criterion is, ultimately, and empirical one; but if it should turn out that they do, then Regan's case can easily be extended to include them. It is primarily to avoid any controversial, or at least questionable, empirical assumptions that Regan restricts his arguments to mammals*[105].

The Kantian principle of end-in-oneself is applied here to mammals, and not as a mere means to the best consequence as in the utilitarian theory[106].

The attribution and justification of rights to animals is one of the main challenges faced by Regan. His concept of rights theory differs from John Rawls' theory, in the sense that it is not a contractualist approach. "Regan criticizes contractarianism since, in theory, it could make morality into a highly selective club, and exclude members on the basis of gender, race, religion, or any other arbitrary factor. For Regan, even Rawls'

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[101] Rowlands, M., *Animal Rights: A Philosophical Defence*. London: Palgrave, 1998. Pg. 89.
[102] Regan, T., *The Case for Animal Rights*. California: University of California Press, 1983. Pg. 243.
[103] Rowlands, M., *Animal Rights: A Philosophical Defence*. London: Palgrave, 1998. Pg. 88.
[104] Gruen, L., Animals. In : Singer, P. (Ed.), *A Companion to Ethics*. Oxford: Blackwell, 1991. Pg. 346.
[105] Rowlands, M., *Animal Rights: A Philosophical Defence*. London: Palgrave, 1998. Pg. 88.
[106] Marshall, P., *Nature's Web.* London: Simon & Schuster, 1992. Pg. 433.

contractarianism excludes people who do not have a sense of justice"[107]. But the language of rights, when applied to animals, is "confused and vague", and can be rhetoric. The rights concept, in the Lockean sense, is a set of "artificial conventions created by humans for their own interests"[108].

> *The theory of rights has a long-established tradition in the political culture of the West, and has been slowly extended to encompass a widening circle of individuals. Locke, in the seventeenth century was the first to claim that the notion of 'natural' rights to life, liberty and property was self-evident to all rational beings, but these were limited at first to rational, property-owning European males*[109].

This criticism towards the rights approach will be examined more closely in the feminist approach. But both Singer's and Regan's conclusion, despite using different approaches, condemns many practices in our relation to animals, which threats the position of animals as a "worthy of respect in and of itself"[110].

Some of the student's objections based on this theory, as also proposed in the utilitarian theory, could be as follows: Should I deny the intrinsic value of the animal in order to carry on the practice for my own benefit? Is this a moral practice? Should animals be treated merely as means to ends? Are animals possessors of rights?

Other problems regarding deontological approaches, besides the already cited problem with the rights approach, will be pointed very briefly. In the biocentric equality approach, some authors defend the same value for any living organism involved. The work and ideas of Albert Schweitzer can be used as an example of this approach. In his famous book *Reference for Life*[111], we can find a fragment that corroborates this idea:

> *The will-to-live is everywhere present, even as in me. If I am a thinking being, I must regard life other than my own with equal reverence, for I shall know that it longs for fullness and development as deeply as I do myself. Therefore, I see that evil is what annihilates, hampers, or hinders life*[112].

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[107] The Internet Enciclopedia of Philosophy. *Animal Rights*. In http://www.utm.edu/research/iep/a/animalri.htm
[108] Marshall, P., *Nature's Web.* London: Simon & Schuster, 1992. Pg. 433.
[109] Ibid., Pg. 432.
[110] Ibid., Pg. 433.
[111] For more information on Schweitzer's work, see Schweitzer, A. & Fuller, R.H., *Reverence for Life*. London: SPCK, 1970.
[112] International Albert Schweitzer Foundation. *Reverence for Life*. In http://www.schweitzer.org/english/aseref.htm

All forms of life are, then, taken as equally valuable. Paul Taylor also uses the same approach in his book *Respect for Nature*, although not as in Schweitzer's vague fashion. Taylor defines principles and rules of conduct which humans should have in order to "accept the biocentric outlook and take the attitude of respect for nature"[113].

The biocentric equality approach can present problems regarding inter-specific justice, when there are human interests conflicting with the equal value of any other being or ecosystem.

Individualist approaches can also conflict with collectivist approaches[114] - the former is unable to ascribe value to species or ecosystems, according to some authors. Some deontological approaches, using hierarchical models, can be accused of anthropocentrism, when the characteristics for ascribing values are based on human qualities. The hierarchical-based biocentric approach by Louis Lombardi[115], for instance, when defending the values of individuals based on their capacities, can be target of this critique. In Lombardi's approach, we can find grades of values according to the beings considered. Plants would have less value than some non-human animals, which present a more developed sensitive capacity. And humans, as beings able of self-consciousness and reflectiveness, would have more value in this scale.

2.5 The Critique

As said in the beginning of this chapter and in the sections above, both the tradition in animal ethics, namely the *consequentialist* and the *deontological* theories (considered here together as animal liberation theories), present its problems. But as an alternative, considered here more consistent in some aspects and which will be examined in the following chapter, the care or feminist theory can present a more touching view of the issue when dealing with the issue of education itself. This touching view is sharply conducted through a critique on some basic concepts not only observed in the animal liberation theories, but in traditional philosophy itself.

[113] Taylor, P., *Respect for Nature*. New Jersey: Princeton University Press, 1989. Pg. 169.
[114] This criticism is also founded against the utilitarian approach, and it is one of the main basis of the debate between some animal rights and environmental theorists.
[115] For more information on Lombardi's theory, see Lombardi, L., *Inherent Worth, Respect, and Rights*. Environmental Ethics, vol 5. 1983.

As we could see before, both theories use the human reference for providing justifications of right or respect to animals. Autonomy and justice are seen, though a feminist perspective, as a consequence of theories over-stressing the role of reason in the process of morality, as we shall see later in more detail. The theories also see the interspecific oppression as a result of a human-centred perspective, while the feminist contextualizes this perspective also into a male-centred one.

Brian Luke sees a kind of patriarchal legacy on some animal liberation theories, "leading to a distrust of emotion and an overemphasis on cold reason as the source of animal liberationism"[116]. He argues that both Singer's utilitarian theory and Regan's rights approach are developed under a patriarchal framework, where emotions are subordinated to reason, retaining the rationalistic paradigm. We can see this more clearly in a Singer's fragment:

> *The portrayal of those who protest against cruelty to animals as sentimental, emotional "animal-lovers" has had the effect of excluding the entire issue of our treatment of nonhumans from serious political and moral discussion.(...) Nowhere in this book, however, do I appeal to the reader's emotions where they cannot be supported by reason*[117].

The downplay of emotion by the overrate of reason, is seen as a gender nature issue by eco-feminists, as we will see later on. By denying emotions, authors gain respectability in the academic environment, as the approach is taken as more reliable and convenient.

Luke recognizes that Regan considers the "motivational primacy of emotion"[118] in some of his works. But in Regan's famous book, *The Case for Animal Rights*, Luke directs the same critique, saying that there is no concrete reference to feelings or experiences, and "is structured as an extended exposition on logical consistency"[119].

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[116] Luke, B., Taming Ourselves or Going Feral? Toward a Nonpatriarchal Metaethic of Animal Liberation. In Adams, C. & Donovan, J. (Eds.), *Animals and Women: Feminist Theoretical Explorations*. Durham: Duke University Press, 1995. Pg. 291.
[117] Singer, P., *Animal Liberation*. New York: Avon Books, 1990. Pg. iii.
[118] Luke, B., Taming Ourselves or Going Feral? Toward a Nonpatriarchal Metaethic of Animal Liberation. In Adams, C. & Donovan, J. (Eds.), *Animals and Women: Feminist Theoretical Explorations*. Durham: Duke University Press, 1995. Pg. 292.
[119] Ibid., Pg. 293.

Once reason plays the main role in such traditional animal liberation theories[120], it is not surprising that the following characteristics of these theories are built in the logic of this ground and will again reflect gender-conflictive issues. As Luke says, "to be 'rational' the rules of conduct must follow from the first principle through logical deduction, and the first principles must be established without reference to feelings or traditions"[121]. Luke works on some others patriarchal aspects of Singer's and Regan's theories, like the "delineation of 'irrational classes', the perception of ethical discussion as a battle and the willingness to impose controls"[122].

Using Thomas Hobbes' theory as an analogy, Luke says that both animal liberation theories under critique seems to treat humans as naturally antisocial toward animals: "if we are motivationally disposed to support animal exploitation, then we need to be prodded toward animal liberation by a rational elite"[123]. When saying that animal liberation is a process of *taming* ourselves, he sharply says:

> *So long as we remain committed to animal liberation, yet also see the direct sympathetic responsiveness of individual humans to animal suffering as undependable, we will be drawn toward authoritarian structures that promise this taming, through the domination of emotion by reason, selfishness by patriarchal ethics, and people by political authorities and their philosophical advisors.*[124]

Another critique about the animal liberation theory is that the concept of rights is also overemphasized. Here the critique is more pointed to Regan, once Singer "refuses to enter into a semantic conflict on the notion of rights"[125]. Singer himself gives us the reason:

> *Although Bentham speaks of "rights" (...) the argument is really about equality rather than about rights. Indeed, in a different passage, Bentham describes "natural rights" as "nonsense" and "natural and imprescriptable rights" as "nonsense upon stilts". He talked of moral rights as a shorthand way of referring to protections that people and*

[120] Perhaps in different levels, both Singer and Regan's theory are strongly based in reason to give structure to their arguments.
[121] Luke, B., Taming Ourselves or Going Feral? Toward a Nonpatriarchal Metaethic of Animal Liberation. In Adams, C. & Donovan, J. (Eds.), *Animals and Women: Feminist Theoretical Explorations*. Durham: Duke University Press, 1995. Pg. 295.
[122] Ibid., Pg. 300.
[123] Ibid., Pg. 301.
[124] Ibid., Pg. 302.
[125] Ferry, L., *The New Ecological Order*. Chicago: The University of Chicago Press, 1992. Pg. 30.

> *animals morally ought to have; but the real weight of the moral argument does not rest on the assertion of the existence of the right (...). In this way we can argue for equality for animals without getting embroiled in philosophical controversies about the ultimate nature of rights* [126].

Since the middle of the eighties, many feminists started to question whether the rights theory can be taken as an adequate basis for animal ethics. Developed in the seventeenth and eighteenth century, during the Age of Reason, the rights theory is fulfilled with rationalistic thought. The emphasis is also focused on rational, autonomous and independent agents living together in a community[127]. The right-holders are far from sharing characteristics with animals, and at that time, "women, slaves and propertyless were excluded from the category of personhood and therefore had no rights"[128]. And in the addressing of rights to animals, animal liberation theory argues that animals are similar to humans in many aspects. As Josephine Donovan and Carol Adams remark,

> *Here the first difficulty in the concept of animal rights becomes apparent: it requires an assumption of similarity between humans and animals, eliding the differences. In reality, animals are only with considerable strain appropriable to Cartesian man* [129].

Connected to this is the problem of the ontology of the rights theory's discourse when applied to animals, as it does not recognize the difference and the interdependence between different beings. This ontology, also recognized by Donovan and Adams, presupposes a "society of equal autonomous agents, who require little support from others, who need only that their space be protected from other's intrusions"[130].

Another issue raised by feminists is that the animal liberation theories, by dismissing particular contexts and histories, "tends to be abstract and formalistic, favoring rules that are universalizable and judgements that are quantifiable"[131].

2.6. Eco-Feminism

[126] Singer, P., *Practical Ethics*. 2nd Edition. Cambridge: Cambridge University Press, 1993. Pg. 8.
[127] Donovan, J. & Adams, C.J. (Eds.), *Beyond Animal Rights: A Feminist Caring Ethic for the Treatment of Animals*. New York: Continuum, 1996. Pg. 14.
[128] Ibid., Pg. 14.
[129] Ibid., Pg. 14.
[130] Ibid., Pg. 15.
[131] Ibid., Pg. 15.

Ecofeminism can be identified as part of a *deeper* or more radical approach not only to the link between animal and human interaction, but also to the environment. It appears in history in the late 60's and 70's "as a response to the perception that women and nature have been mutually associated and devaluated in Western culture"[132]. As Charlene Spretnak says:

> *Ecofeminism grew out of a radical, or cultural, feminism (...) which holds that identifying the dynamics – largely fear and resentment - behind the dominance of male over female is the key to comprehending every expression of patriarchal culture with its hierarchical, militaristic, mechanistic, industrialist forms* [133].

Carolyn Merchant points the prehistorical aspect of the emerging patriarchal culture, and the scientific revolution of the seventeenth century. The scientific revolution reduced the image of a organic and nurturing earth to a mechanistic model, controlled and repaired from the outside. "The Earth", says Merchant, "is to be dominated by male-developed and [male]–controlled technology, science and industry"[134].

Mary Mellor says that "what is contentious in ecofeminism is the way in which the relationship between women and nature is represented". She continues by saying that "it is not women's identity with *nature* either as biology or ecology that should form the basis of ecofeminism, but instead a material analysis of the way in which male domination is created and sustained"[135].

We can use many of the arguments, as some philosophers have been doing, to explore why animals and nature are set aside of our moral realm, linking this to "male values" in ethical thought. Grimshaw says, when reffering to these male-values, that "many forms of aggression and destruction are closely linked to the nature of 'masculinity' and the male psyche"[136]. To Karen Warren, "it is the notion of reason that

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[132] Merchant, C., Ecofeminism and Feminist Theory. In Diamond, I. & Orenstein, G.F. (Eds.), *Reweaving the World: The Emergence of Ecofeminism*. San Francisco: Sierra Club Books, 1990. Pg. 101.
[133] Spretnak, C., Ecofeminism: Our Roots and Flowering. In Diamond, I. & Orenstein, G.F. (Eds.), *Reweaving the World: The Emergence of Ecofeminism*. San Francisco: Sierra Club Books, 1990. Pg. 5.
[134] Merchant, C., Ecofeminism and Feminist Theory. In Diamond, I. & Orenstein, G.F. (Eds.,) *Reweaving the World: The Emergence of Ecofeminism*. San Francisco: Sierra Club Books, 1990. Pg. 101.
[135] Meller, M., *Feminism And Environmental Ethics: A Materialist Perspective*. In http://www.arbld.unimelb.edu.au/envjust/papers/allpapers/mellor/home.htm
[136] Grimshaw, J., *The idea of a female ethic*. In Singer, P. (Ed.), *A Companion to Ethics*. Oxford: Blackwell, 1991. Pg. 492.

has been the hallmark of humaneness and that has accounted for the superiority of humans over nonhuman animals and nature"[137].

Kant's moral theory, for instance, is criticized in this way. According to him, moral theory "should arise not out from the concrete circumstances of any given society, but out of the requirements of reason"[138]. Morality, then, is not about emotions and feelings, as clearly stressed by Kant's theory, but only about rationality. Before Kant, Aristotle, by applying the term "living tool" to slaves, also gave a strong emphasis to the capacity of reason - slaves are inferior because they lack this capacity. "Naming the slave a tool enables the master to ignore and/or deny the slave's experience of slavery. It enables him to objectify the slave, to be objective about slavery"[139]. This line of thought could be applied to the relations we, as humans, have with nature and animals. Indeed, Aristotle applied this same relation between master/slave in the relation between man/woman, because according to him, women were not as able of reasoning as men were.

2.6.1. Contextualizing the Exclusion

Economical, political, cultural and social circumstances are analyzed by ecofeminists in order to see how these moral boundaries were outlined. Tronto, in her book *Moral Boundaries*, is especially interested in exploring why women are excluded by these boundaries. As Jean Grimshaw pointed out, "if ethical concerns and priorities arise from different forms of social life, then those which have emerged from a social system in which women have so often been subordinate to men must be suspect"[140]. According to Joan Tronto, "boundaries are human constructions, they are not natural. Insofar as boundaries are constructed, we can think of them in many ways, and we can

[137] Warren, K., *Ecofeminist Philosophy: Western Perspective on What It Is and Why It Matters*. Oxford: Rowman & Littlefield Publishers, 2000. Pg. 101.
[138] Tronto, J.C., *Moral Boundaries: A Political Argument for an Ethic of Care*. London: Routledge, 1993. Pg. 9.
[139] Collard, A. & Contrucci, J., *The Rape of the Wild: Man's Violence Against Animals and the Earth*. Bloomington: Indiana University Press, 1989. Pg. 58
[140] Grimshaw, J., *The idea of a female ethic*. In Singer, P. (Ed.), *A Companion to Ethics*. Oxford: Blackwell, 1991. Pg. 498.

also think about how they might be changed"[141]. These boundaries and basis are strongly attacked by these feminist philosophers, when revolving the circumstances in which the concept of morality was developed.

In *Moral Boundaries*, Tronto explains how women were tied to the household environment, and how this had a strong impact on their exclusion from the morality life, analyzing three main boundaries responsible for this exclusion. The transitory period found in the eighteenth century, caused mainly by economical changes, with social influences, helped in the growth of the public sphere. "As economic life became separated from the household, the spheres of domesticity and production separated. The family became a more private sphere"[142], says Tronto. This shift had consequences in the institutional, social and intellectual arenas. The women now, not belonging to a version of *Homo economicus*[143], and outside the world of politics and morals, became tied to the private sphere. Even though with the time women were occupying and demanding public spaces, and facing all the problems in moving out from the private sphere, "these demands had to be contained and were contained by arguing that women naturally belonged within the household"[144]. To Merchant, "dominant society's perception that women are limited by being closer to nature because of their ability to bear children" tied women to the household environment, "decreasing their mobility, and inhibiting their ability to remain in the work force"[145]. The household was, then, a space for caring activities, for locating moral sentiments.

> *The reverse side of the tale about the increasingly calculating quality of men's public lives as the eighteenth century progressed is the rethinking of the household. As moral sentiments of the pure kind were increasingly displaced from moral life by moral thinkers who believed that moral life has to be (at least in part) weighed and measured, these pure sentiments were increasingly located within the private household. There, they were attached to the pre-eminent guardians of the household, women* [146].

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[141] Tronto, J.C., *Moral Boundaries: A Political Argument for an Ethic of Care*. London: Routledge, 1993. Pg. 11.
[142] Ibid., Pg. 34.
[143] Ibid., Pg. 35.
[144] Ibid., Pg. 54.
[145] Merchant, C., Ecofeminism and Feminist Theory. In Diamond, I. & Orenstein, G.F. (Eds.), *Reweaving the World: The emergence of Ecofeminism*. San Francisco: Sierra Club Books, 1990. Pg. 102.
[146] Tronto, J.C., *Moral Boundaries: A Political Argument for an Ethic of Care*. London: Routledge, 1993. Pg. 55.

In this way, sentiments like sympathy, benevolence and humanity were mostly found inside this private sphere. Indeed, some moralists began to see this sphere as an "antidote to the vanity, corruption, and self-interest from the public world"[147].

As a result of these historical circumstances, women became increasingly identified with emotions, while men became identified with rationality. According to Tronto, "it was a small leap (…) for Kant to exclude women and to ensconce men within the possibility of fully and true moral life"[148].

Following this path, boundaries in morality started to be built in philosophy. Western culture (and certain non-Western cultures) holds certain ('male') attributes and properties (reason, abstract thought, mind, culture, and production) above others (i.e. 'female' ones: emotion, concrete thought, the body, nature, reproduction).

2.6.2. Ethics of Care

The link between patriarchy and animal abuse is approached by eco-feminists in the same line of thought required in analyzing the gender-linked abuse: questioning the boundaries and basis of the traditional concept of morality. Based on these critiques, already seen before, the ethics of care theory argues that we should *care* for animals. The care here is indeed recognized as an emotional expression of one being towards the other, but it goes further than this. Care, under this theory, is taken as a human value, a "moral attitude that aims to provide response to the others request for help, whatever their relation may be"[149]. The ethics of care "is a type of virtue ethic that is basically concerned about the affective orientation and moral commitment of one who cares"[150]. In care ethics, the concern is more focused with relationships between persons, and that the ultimate relationship a caring one. The moral obligation is based on a natural sympathy humans feel for others (including animals and things), which arises whit the experience of being cared for or caring for others.

[147] Ibid., Pg. 55.
[148] Ibid., Pg. 56.
[149] Gastmans, C., Unpublished course notes *Ethics of care*. Katholieke Universiteit Leuven. Academic year 2000-2001.
[150] Jecker N.S. & Reich, W.T. Contemporary ethics of care. In Reich, W.T. (Ed.), *Encyclopedia of Bioethics*. New York: Simon & Schuster MacMillan, 1995. Pg. 341

The care theory has a more integral and personalistic perspective on the being and on its relational aspects. It recognizes the care virtue as an important element in the human person, helping in the development of the person as a whole. In the relation to animals, whether or not they are possessors of right, we often do care about them. And here the ethics of care play the role of strengthening our interconnected web of relationships with them, and also with nature. "This requires, first of all, that I recognize them, that I look and see the other creatures that make up the body of the earth, that I look and listen and find the earth. I think that the appropriate moral attitude is humility and care", says Rita Manning[151].

> *So rather than focusing exclusively on logic and considerations of formal consistency, we might better remember our feeling connections to animals, while challenging ourselves and others to overthrow the unnatural obstacles to the further development of these feelings. This process of reconnecting with animals is essentially concrete, involving relations with healthy, free animals, as well as direct perceptions of the abuses suffered by animals on farms and in laboratories*[152].

Objections to animal use in education could be brought up under this perspective of care. Some objections that might fit in this perspective are: I don't feel like causing harm to any animal. I feel bad with the idea of having to kill animals in my education. I care about the animal's well being, so I shouldn't take part in any dissection or vivisection practice.

[151] Manning, R., Caring for Animals. In Donovan, J. & Adams, C.J. (Eds.), *Beyond Animal Rights: A Feminist Caring Ethic for the Treatment of Animals*. New York: Continuum, 1996. Pg. 122.
[152] Luke, B., Taming Ourselves or Going Feral? Toward a Nonpatriarchal Metaethic of Animal Liberation. In Adams, C. & Donovan, J. (Eds.), *Animals and Women: Feminist Theoretical Explorations*. Durham: Duke University Press, 1995. Pg. 312.

III. Teaching Ethics

In the previous chapter we had the opportunity to see some of the possible ethical grounds for conscientiously objecting the use of animals in education. In this chapter we will contextualize how education can impose and teach values that goes against a respectful human/non-human animal relationship, like the ones proposed by the models approached in the previous chapter. This potential and existing conflict between a traditional kind of education and some societal (or individual) values could be understood under the light of many, diverse approaches, bringing up different aspects in order to have a more broad view of how these conflicts are situated in the school environment. But under the scope of this present work, some key-aspects will be considered, regarding the teaching of traditional values, hidden values and anthropocentric values through educational practices.

3.1. Teaching Tradition

> *How can values be integrated into education in a diverse, pluralistic democracy? With so many differences in values, how can citizens in a democracy find unity in the midst of pluralism? If it is true, as it appears to be, that schools and universities generally stopped making moral education an integral part of their curricula (...) because of the lack of a cultural consensus and the increase in religious and ethical differences, is it possible to include concerns for values in new ways, which admit the conflicts and disagreements, but confront them and seek to transcend them?*[153]

These questions raised by Robert Merikangas have been addressed in different ways and approached by many people interested in educational issues and interested in how education today could contribute to the teaching of values and ethics. Indeed, education is already playing an important role in this process, but new approaches are now being requested in order to meet today's richness in cultural and religious beliefs and values. "The teacher student relationship which is socially approved in some cultural

[153] Merikangas, R., *Values and Education in a Democracy: Resources for Conversations*. In http://www.wam.umd.edu/~bobmerik/value.htm

contexts may be inimical to any style of discovery learning in science", says David Layton[154].

To C.A. Bowers, "the classroom can be best understood as an ecology of cultural patterns"[155]. But he remarks that professors who tend to see only what their own cultural background allows usually miss the recognition of the classroom's heterogeneity.

> *Few teachers understand the most critical aspects of cultural transmission in the classroom, particularly how language encodes earlier thought processes, the way in which most of the particular culture learned is taken for granted, and how cultural assumptions underlie the structures of knowledge that constitute the subject areas of the curriculum*[156].

Ideally, education should fit into different realities, dealing with different beliefs and perspectives. One of the questions regarding this topic is whether education should avoid conflicts regarding traditional values and behaviors. We can argue that one of the roles of education is, through positive conflict stimulus, to create a space of debate and interaction. This could open a space to a rich environment where the knowledge about society's own traditions and values are been explored continuously. This environment could, for instance, stand as a ground for questioning whether humans should use animals for their own benefit: a common behavior in many traditions. Some authors say that the issue of dissection/vivisection, for instance, could be used as a starting point to discuss values presented in some of our traditional behavior. As Douglas Allchin says: "the dissection issue emerges during a more general discussion of how people use animals: for example, as pets, food, or subjects in medical or consumer research"[157].

And it is in the searching for a common and rich ground for discussion that some authors propose the debate surrounding different Western paradigms and traditions. "The curricula of secondary schools and universities from China to Brazil and from Tanzania to Canada include standard biology, physics and chemistry along with indigenous culture

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[154] Layton, D., Revaluing Science Education. In Tomlinson, P. & Quinton, M. (Eds.), *Values Across the Curriculum*. London: The Falmer Press, 1986. Pg. 168.
[155] Bowers, C.A., *Education, Cultural Myths and the Ecological Crisis: Toward Deep Changes*. New York: State University of New York Press, 1993. Pg. 117.
[156] Ibid., Pg. 119.
[157] Allchin, D., *Dissecting Classroom Ethics: Teaching Philosophy in Science*. Arlington: The Science Teacher, Jan. 1991. Pg. 46.

studies"[158]. Environmentalist J. B. Callicott explains in these words the fact that Western culture can be breathed everywhere by everyone. He expresses the transcultural aspect of this tradition as it follows:

> *Machines, no matter in what cultural context they may be found and no matter in what traditional agendas they may be employed to serve, are microcosm of the Newtonian macrocosm. They embody the modern scientific paradigm, and constantly, remorselessly reiterate and validate it*[159].

And how about science education? How is it today related to ethics? This question regards not only the teaching of philosophical thinking and morality with students, but also to today's education, in its foundations and basis. We can not say that science education today is not teaching ethics, simply because there are no "ethics" courses specified in the curriculum. "Because explicit recognition is rarely given to value outcomes in science education it does not follow that values are not being transmitted and learnt. Curriculum, pedagogy and evaluation represented three powerful, and often mutually reinforcing, message systems from which students 'pick up' values"[160], says David Layton regarding this transmission of values.

Thus, by seeing education as a norm-bearing and norm-constrained social practice, education already becomes filled with values and morality. To talk about *neutrality* in education, as in science, is becoming a hard task for professionals in education. Layton says: "like oil and water, science and values are commonly supposed not to mix"[161]. This view of a value-free science has an important impact on science education. And in escaping this increasing outdated discourse, the adoption and teaching of ethical models and morality brings up challenges for ethicists and educators, and one of them is to discuss whether we should define how ethics and morality should be approached in science education. To some authors, the fact that "students often show a poorly developed ethical framework reinforces the need to include ethics in the school

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[158] Callicott, J.B., *Earth's Insight: A Survey of Ecological Ethics from the Mediterranean Basin to the Australian Outback*. California: University of California Press, 1994. Pg. 187.
[159] Ibid., Pg. 188.
[160] Layton, D., Revaluing Science Education. In Tomlinson, P. & Quinton, M. (Eds.), *Values Across the Curriculum*. London: The Falmer Press, 1986. Pg. 161.
[161] Layton, D., Revaluing Science Education. In Tomlinson, P. & Quinton, M. (Eds.), *Values Across the Curriculum*. London: The Falmer Press, 1986. Pg. 160.

curriculum. Values education is an important field that needs attention for a civil society"[162].

In this running for an ethical education, the distinction between mere opinions and a well-developed point of view must be made. This can be one perspective to be adopted when teaching ethics – a possible general foundation for ethics in education[163]. This foundation could avoid the half-sighted and negative sense that ethics is something *only* personal, and then, without a broader meaning or reach. This leads to a kind of relativism where the ethical extension from the personal to the social sphere becomes difficult.

But the moving from a personal view to a broader sense of ethics also has limitations according to some authors. One step further and then we find ourselves in the debate about a common basis for a global ethic. This debate goes deep into the argument of which basis this global ethic should be founded on, and presents one common challenge: integration of all worldviews and beliefs in an (say, *minimal*) ethical, common denominator or criteria. Sissela Bok, in her book *Common Values*, explains this common denominator as it follows:

> *A limited set of values so down-to-earth and so commonplace as to be most easily recognized across societal and other boundaries. To the extent that they are acknowledged as common and respected as such, they can provide a basis from which to undertake the dialogue and collaboration now needed. But they must also be so clear-cut as to offer standards for critiquing abuses - including those perpetuated either in the name of universalist political, religious, or moral doctrines or in that of ethnic, religious, political, or other diversity*[164].

The debate here can be linked with the issue of dissection and vivisection once it can be argued that a general principle or rule should be outlined in the educational practices in order to prevent unethical treatment of non-human animals. As seen in the previous chapter, both Singer and Regan's theory presents this universalizable character.

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[162] Balcombe, J., *The Use of Animals in Higher Education*. Washington: Humane Society Press, 2000. Pg. 20.
[163] Allchin, D., *Dissecting Classroom Ethics: Teaching Philosophy in Science*. Arlington: The Science Teacher, Jan. 1991. Pg. 46.
[164] Bok, S., *Common Values*. Columbia: University of Missouri Press, 1995. Pg. 1.

3.2. Conflicts in Education: Hidden Values

Ethics in education has a strong relevance in all fields of study. In science education, for instance, the ethical debate has an important function in the shaping of the future scientist. Douglas Allchin says that educators should prepare "students to integrate values and scientific knowledge by helping them develop a sound ethical platform from which to make decisions. In this way we nurture both morally sensitive scientists and scientifically literate humanists"[165].

The ethical questions involved in this issue are not simple. They start from a macro-reality, where we find science resting on its paradigms and truths, and moves towards the micro-reality of students, shaping out thoughts and behaviors. This individual process of changing is the keystone in education, especially when we think about ethics as one of the most important "actors" in this process. And it is in the micro-level that most of conflicts arise.

Education is trying to maintain a kind of social and cultural continuity with the past while adapting to an increasing pace of change. This link with the past in essential to give a historical body to education, and to situate knowledge in our present reality. But in this historical body, where education should manifest a contextualized knowledge, there are also the expressions of old-fashioned remains of the past – like those coming from an anthropocentric perception of the world. These remains could be depicted in many ways, but usually they manifest themselves as values. As Michael Apple points out, "the structuring of knowledge and symbol in our educational institutions is intimately related to the principles of social and cultural control in a society"[166]. Richard Pring reinforces: "the educational activities promoted by any society are intimately connected with what that society believes to be a valuable form of life". Pring's point is that "to educate someone does logically entail the introduction to a valued form of life but that what counts as a valued form of life is essentially a matter of moral debate"[167].

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[165] Allchin, D., *Dissecting Classroom Ethics: Teaching Philosophy in Science*. Arlington: The Science Teacher, Jan. 1991. Pg 44.
[166] Apple, M.A., *Ideology and Curriculum*. London: Routledge & Kegan Paul, 1979. Pg. 2.
[167] Pring, R., Aims, Problems and Curriculum Contexts. In Tomlinson, P. & Quinton, M. (Eds.), *Values Across the Curriculum*. London: The Falmer Press, 1986. Pg. 182.

And these aspects are important to bring up in the debate. Through them we start to have an idea of how the conflictive situations in education can come out. In this way, a conflict can arise in the *meeting* of these values transmitted actively or passively by some educational practices, with the individual's body of values. The word "meeting" is emphasized because it suggests an active process. It suggests that the individual or group of individuals in some way perceive the values expressed by the educational process. And it is the perception of these values, sometimes very well hidden and subtle, that actually can open space for the conflict and, ideally, a debate. The concept of *hidden curriculum* is crucial by this point. Michael Apple defines *hidden curriculum* as the "tacit teaching to students of norms, values and dispositions that goes on simply by their living and coping with the institutional expectations and routines of schools day in and day out for a number of years"[168].

Colin Marsh explains Seddon's concept about *hidden curriculum*:

> *The hidden curriculum involves the learning of attitudes, norms, beliefs, values and assumptions often expressed as rules, rituals and regulations. They are rarely questioned and are just taken for granted. The judgement about whether a hidden curriculum is positive or negative depends on the value stance of the person concerned.*[169]

The hidden curriculum has the potential to unleash conflicts amongst students, but the existence of conflicts in education does not need to be necessarily taken as a negative aspect. Once identified, and if managed in a proper way, it can be responsible for the enhancement of ethical reasoning skills and changes in the student's and, perhaps, professor's mind. In this way, the teaching of hidden elements in the curriculum can be brought into the spotlight in a positive way, leaving behind its implicit existence. David Layton says that one of the necessary aspects for a "revaluation" process in science education is indeed the achievement of a "greater awareness of what values are in fact being transmitted as part of the hidden curriculum of present day science teaching"[170].

The negative aspect of the expression of values (via *hidden curriculum*) by specific educational practices can happen in one of two ways. One of them is when the

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[168] Apple, M.A., *Ideology and Curriculum*. London: Routledge & Kegan Paul, 1979. Pg. 14.
[169] Marsh, C.J., *Key Concepts for Understanding Curriculum I*. London: The Falmer Press, 1992. Pg. 20.
[170] Layton, D., Revaluing Science Education. In Tomlinson, P. & Quinton, M. (Eds.), *Values Across the Curriculum*. London: The Falmer Press, 1986. Pg. 174.

conflict is not clear, i.e., when the values emanating from it appear to be subtle or innocent like. Gender values could be transmitted like this in the educational arena. Here, taking society as an educational space, *media* plays an important role in the perpetuation of gender values by promoting stereotypes and the vulgarity of the female body, for instance. The other way is when the educational environment offers no openness or space for the conflict, even when both sides recognize the conflict. These insufficiencies are evidenciated in teaching in a *passive* or *active* way. It can be *passive* when education does not bring conflicting elements into society to start discussions about values and ethics. The link between media and sexism, already cited before, can be used here as an example. And it can be *active* when education explicitly refuses debates when conflicts are perceived inside the school environment, especially when didactic practices are involved. In this case, students who, for instance, have objections about using animals during their education, due to ethical or religious beliefs, sometimes can face a whole body of resistance when exposing their opinions in the school environment.

Layton illustrates how values are learnt in science education. He uses, among others, the example of the Kellner-Solvay cell to yield sodium hydroxide and chlorine, often used in chemistry courses to teach the electrolysis of brine. The principles are well illustrated in this example, but the space for examining the impact that such learning tools have on an environment (like liberation of mercury on the ecosystem) is not explored. The "objective scientific fact" is what matters here, according to him. "The particular selection of knowledge ('acts') which is included in the curriculum is reflective of this value position", says Layton, when the approach used in the curriculum avoids or plays down different perspectives about the same issue at focus. There is also a difficulty in recognizing students' opinions and views as worthwhile and valid. We see this disinterest in the teaching of science when we find almost no room for the debate regarding *take-for-granted* concepts. Layton says that the influential Association for Science Education, by the words of a Canadian commentator, recognizes that science teachers "continue to allow students to learn most of their attitude and values through the 'hidden' (…) curriculum"[171].

[171] Layton, D., Revaluing Science Education. In Tomlinson, P. & Quinton, M. (Eds.), *Values Across the Curriculum*. London: The Falmer Press, 1986. Pg. 160.

"The re-engagement with values, what might be termed 'the revaluing of science education', could clearly produce some tension between different purposes of science teaching"[172]. And Layton remarks that this revaluing can have different shapes and senses. One of them is to bring up the internal and constitutive scientific values as objectives in science education. Layton gives some examples of these constitutive values: "longing to know and to understand, questioning of all things, search for data and their meaning, demand for verification, respect for logic, consideration of premises and consideration of consequences"[173]. The objectives also should embrace *curiosity* and *open-mindedness* as well, plus a *willingness to suspend judgement*, in Layton's opinion. The other sense is to bring the values transmitted as part of the hidden curriculum to the classroom. Other authors share the same opinion. Marsh, for instance, calls us for a reflection on whether we could incorporate the hidden curriculum, by revealing it, into a "taught curriculum"[174]. Layton says that it is possible that turning values explicit may require some changes in the teaching practice.

The first step towards this "revaluation" process in science education is to change the perception of the educational environment as value-free places. Layton calls attention that the practices of tendentiousness and indoctrination must be avoided by professors, pointing out some professor's roles proposed by another study: "help students to avoid becoming set in their ideas before adequately exploring alternatives; help students to see other points of view and alternative explanations; seek understanding consensus rather than the making of ill-considered decisions or totally suppressing minority views."[175]

3.3. Teaching Values by Killing

In education, there is a set of *taken-for-granted* body of assumptions that we should accept. These assumptions are built little by little as we advance in our schooling process. The relevance of aspects of early stages of education is important for us to understand the mechanisms we have already developed in order to accept the process of

[172] Ibid., Pg. 173.
[173] Ibid., Pg. 173.
[174] Marsh, C.J., *Key Concepts for Understanding Curriculum I.* London: The Falmer Press, 1992. Pg. 23.
[175] Layton, D., Revaluing Science Education. In Tomlinson, P. & Quinton, M. (Eds.), *Values Across the Curriculum*. London: The Falmer Press, 1986. Pg. 175.

knowledge seeking more readily and easily. These aspects are also important to bring up once education should be taken as a whole process, thus allowing the link with tertiary education. In this line of thought, the study of C.A. Bowers about how anthropocentric values are embodied in educational processes throughout textbooks in primary and secondary school are important for us to consider. He points out that the dualism between man and nature in textbooks is very common, especially when one deals with nature.

> *The sense of separation that leads to thinking in terms of "our environment", to experimenting with animals in order to advance our knowledge and life expectancy, and to fouling the environment with toxic wastes and chemical interventions (...) cannot be traced back to a single cause, like the biblical account of creation or Francis Bacon's injunction to learn secrets of nature in order to better control it for human purposes*[176].

In the fragment above, our relation to animals is taken as part of an ecological crisis faced by today's society. And in our society we can find many varying opinions about the use of animals in general,

> *From those who believe the use of animals is acceptable to teach biology, and solve problems including disease and genetic defects in humans to those who believe animals warrant the same standards we apply to people and should not be used for any research that may improve human welfare*[177].

According to Jane Smith, "students seem increasingly worried by the use of animals in the classroom"[178], and that it is more common that even whole classes of students refuses to take part in experiments on animals. "Some of these students are refusing to conduct dissections on moral grounds"[179]. Here, physiologist and teacher F.B.

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[176] Bowers, C.A., *Education, Cultural Myths and the Ecological Crisis: Toward Deep Changes*. New York: State University of New York Press, 1993. Pg. 123.
[177] Macer, D.R.J., Asada, Y., Tsuzuki, M., Akiyama, S. & Macer, N.Y., *Bioethics in High Schools in Australia, Japan & New Zealand*. Eubios Ethics Institute, 1996. In http://www.biol.tsukuba.ac.jp/~macer/BHS.html
[178] Smith, J., *Dissecting Values in the Classroom*. New Scientist, 134 (May 1992) 1820. Pg. 31.
[179] Kinzie, M.B., *The Effects of an Interactive Dissection Simulation on the Performance and Achievement of High School Biology Students*. Journal of Research in Science Teaching 8 (1993) 30. Pg. 989.

Orlans calls attention to the cultural, ethical, religious and social aspects that influences students against "handling dead material and taking life"[180].

The roots of these beliefs and opinions are many, and the main problem arises when these opinions are sharing the same space in the classroom or laboratory, when students are required to take part in this "rite of passage"[181].

The conflicts presented here are challenging for the education concerned with the student's ethical thinking skills. In the case of universities, professionals that will interact with society afterwards should be ready to deal with ethical conflicts not by ignoring them. And by teaching students to ignore ethical conflicts, education is doing nothing but contributing to the shaping of this kind of "ignorant" professional and, above all, human being.

Analyzing the gender of the majority of students who object to the use of animals, we can find a consistent difference of opinions between male and female students about this use, and perhaps make a link to the lack of participation of women involved in the scientific arena.

According to the American psychologist Theo Capaldo, 76% of all calls and inquiries to a national "Dissection Hotline" regarding conscientious objection to dissection came from females[182]. In a survey carried out at a Brazilian university, with 250 students from 6 different courses, a difference regarding the desire to adopt alternative methods to animal use in education was observed between sexes: women tended to choose more for these methods (58.2%) than men (38.2%). The preference for the traditional method is also observed: 61.8% of the males that were surveyed tended to have a preference for the animal use and females 41.8% [183]. Surveys with students showed that "attitudes about dissection are strongly and clearly expressed with more girls

[180] Orlans, F.B., *Should Students Harm or Destroy Animal Life?* The American Biology Teacher, 1 (January 1988) 50. Pg. 10.
[181] Chambers, S., *Debate: Should Students Dissect Frogs?* NEA Today, 3 (February, 1992) 13. Pg. 39.
[182] Animal Voice, *Animals in Laboratories*. South Africa: Animal Voice, Winter 2001. Pg. 9.
[183] Tréz, T., *The Use of Vertebrates as an Educational Resource at Universidade Federal de Santa Catarina: Views, Alternatives and the Ethical Education* (unpublished). Florianópolis: Thesis presented for the degree of Bsc. in Biological Sciences, 2000. Pgs. 45-46.

feeling negatively about dissection than boys"[184], and that undergraduate women felt that they could learn more without the practice of using animals[185].

A factsheet by Ethical Science & Education Coalition (ESEC), says that "girls who are forced to dissect – or who experience difficulties in implementing alternatives to dissection – may reject the possibility of further study in biology despite any interest". Some testimonies from American female students from different states in America stated: "I never took another class in biology [after dissection]", "I just felt that if I wasn't involved in science I wouldn't have to [dissect]", "I know I would never [pursue] a career that require dissection", "I was going to school to be a vet and [in] the 1st class (biology) I had to dissect a lot of things… in the future I would have [had] to dissect a cat and that was where I said 'no way' I can't do this anymore", and so on.

At a Brazilian Network for Humane Education website, another testimony reinforces the weight dissection has on select women out from science fields: "I never tried biology because, despite my enormous will, I knew that I would never be able to kill animals"[186]. The physiologist F.B. Orlans says that

> *(...) we must recognize that (...) some students have been turned off from an interest in biology because of their offense at having to dissect a dead animal. Many students don't like it. Some students believe dissection is irrelevant to their education and unnecessarily destructive* [187].

In the article *Learning the Scientist's Role*, Dorian Solot and Arnold Arluke analyze the *macho attitude* found in students in science classes, when in the classroom, the stereotypical gender behavior is retained regarding the expression of emotions towards the animal used. Most of the male students strongly refuse to show a caring or sentimental relation with the animal to be dissected. These attitudes, according to them, were confirmed through the comments expressed by the students. For example, in one of

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[184] Lock, R. & Millett, K., *Using animals in education and research: student experience, knowledge and implications for teaching in the National Science Curriculum*. School Science Review, 74 (1992) 266, Pg. 122.
[185] Lord, T. & Moses, R., *College Students' Opinion About Animal Dissections*. Journal of College Science Teaching, 5 (1994) 23, 1994. Pg. 270.
[186] Read: "nunca tentei biologia pois apesar da vontade enorme eu sabia que não teria coragem de matar animais para serem abertos ou abrí-los ainda vivos". In http://www.geocities.com/redeniche/estudantes.htm
[187] Orlans, F.B., *Should Students Harm or Destroy Animal Life?* The American Biology Teacher, 1 (January 1988) 50. Pg. 10.

the passages, when a girl announced "we opened it up and it looks disgusting!", her male partner followed her with "it looks awesome!"[188], and many other comments are given.

And linked to this, we can observe that the exploring of emotions in students usually has no room in traditional education. Jonathan Balcombe says that few students claim to have taken courses where the aim was to help students to understand their feelings, or "how to nurture strong, loving-relationships with others"[189].

In science education, where students are exposed and (ideally) interact with complex forms of life and ecosystems, the role of emotions, if not disapproved and discouraged, plays a secondary function. This is because the *learning scientist* should keep an objective view of the *phenomena* observed. Howard Birnie says that

> *Traditionally, science education has emphasized the cognitive domain – particularly knowledge, comprehension, and application. (...) Science, after all, is a dynamic enterprise constructed by people who have emotions, morals, and biases; people who develop attitudes and values; and people who often make decisions based not only on what they know, but what they feel* [190].

Birnie goes further proposing five possible reasons why most educators have ignored the affective domain in education. Here are some of them: "entering the world of personal values is seen as indoctrination or brainwashing; our methods (…) have been ineffective in reaching affective goals; (…) we believe that behavior is the only thing that really matters in education; that affect is an unfit subject for scientific study"[191].

Environmental educator Zoe Weil, defending an ecofeminist approach to education, criticizes this monistic view dominated by rational thought. She, instead, proposes an ecofeminist approach, where the student is considered as a whole.

> *I ascribe to the feminist belief that emotions, intuitions, rational thinking, and spiritual insight are all important sources of knowledge and should all be respected and honored for their validity, power, and truthfulness. As a feminist, I reject the patriarchal view that rational thought is the only*

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[188] Solot, D. & Arluke, A., *Learning the Scientist's Role*. Journal of Contemporary Ethnography, 1 (April 1997) 26. Pg. 42.
[189] Balcombe, J., *The Use of Animals in Higher Education*. Washington: Humane Society Press, 2000. Pg. 21.
[190] Birnie, H.H., *Identifying Affective Goals in Science Education*. The Science Teacher, December, 1978. Pg. 29.
[191] Ibid., Pg. 29.

> *basis for knowledge and morality, and I advocate a pedagogy that acknowledges and supports the education of the whole person.*[192]

In her article, *ecofeminist education*, she amazingly explains how she works with students on issues such as environment and animal rights, pointing out also how gender-related aspects affects different positions regarding opinions of the problems she raises. She works in a way that opens room for the development of student's intellectual, emotional and spiritual potentialities.

Weil speaks about the difficulties faced by young animal righter students, in feeling alone in their convictions and being target of prejudices coming from their colleagues. "Their love of and respect for animals leads them to confront the reality of extreme animal cruelty and suffering that most others neither concern themselves with nor even acknowledge"[193].

And this point is important for us, it is common that students objecting to the use of animals are usually confronted with difficult situations in the educational environment. Resistance, intimidation, ridicule or harassment can be met by students objecting to dissection/vivisection[194]. Their views and feelings about animals are refuted sometimes with values stressing the objectivist and impersonal posture one should have when facing this (conflictive) situation. Collard and Contrucci says that few students have the "courage and integrity" to question their teachers about the morality of using animals.

> *They know that being "squeamish", "emotional", "uncooperative", and critical would jeopardize their careers. Yet, most likely, most of these students have already lost the ability to connect in kinship with animals long before entering professional training establishments. As undergraduates, they refined what they had begun to learn in school, that is, to suppress feelings for animals in the laboratory/classroom while loving their pets at home. When those students finish professional training, their ability to compartmentalize is complete* [195].

As a biology student describes when he questioned in class the necessity of killing a healthy dog for physiological studies at a Brazilian university:

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[192] Weil, Z., Ecofeminist Education: Adolescence, Activism and Spirituality. In Adams, C.J. (Ed.), *Ecofeminism and the Sacred*. New York: Continuum, 1993. Pg. 312.
[193] Ibid., Pg. 315.
[194] Balcombe, J., *Education by Extermination*. Baltimore: The Animals Agenda, 5 (1994) 14. Pg. 24.
[195] Collard, A.M. & Contrucci, J., *Rape of the Wild: Man's Violence Against Animals and the Earth*. Bloomington: Indiana University Press, 1989. Pg. 68.

> *In the end [the professor] invited those students interested in the experiment to attend, and those with problems, to stay at home. Out of thirty students, only four were intending to show up to the class (...) The professor showed difficulty in dealing with the issue, because I think it was the first time he was confronted with a bunch of students questioning a practice so normal till that day. And I still remember his words (...) and was something like this: "If you want to be scientists, you have to know how to properly distinguish and choose between rational thinking and emotional feelings"* [196].

As we can see, professors are not used to dealing with situations such as the above-mentioned one, what makes the discussion more turned to reaching a simple "agreement" than debating the many problems the experiment in case can address.

The same student reports that in the same practice, one semester before this debate took place, the dog regained consciousness and started to howl. One of the present students started to cry and many were leaving the lab shocked, while another professor was asking them to stay to observe a manageable physiological situation: "we can apply more anesthesia"[197].

In both accounts we can see how the rejection of student's emotions are set aside from the scientific education. And is not only the *behavior expectation* that is at stake here, but also the inherent value of the objective and non-personal scientific view of knowledge assessment, more clear in the first account. Scientists in this context are challenged and associated with the almost inhuman task of splitting their whole integrity in detachable personal worlds – the rational and the emotional.

And in this point we can see how education can carry and transmit, through some questionable practices, a whole body of values coming not only from the practice in itself, but also from the justification of it. In clarifying some of these values, Prof. Nedim Buyukmihci points out that

> *Students, even at the professional level, lose a degree of sensitivity for nonhuman life when forced to harm or kill it under these circumstances. We know from human studies that many people tend to obey authority*

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[196] Tréz, T.A., *Conscientious objection and replacement of animal use in Brazilian education*. Speech during the 1st *Inter*NICHE Conference, 21-22 February 2001.
[197] Tréz, T.A., Personal report (unpublished). In Pedersen, H., *Humane Education: Animals and Alternatives in Laboratory Classes. Aspects, Attitudes and Implications*. Master's Degree Studies in Educational Management and Administration – Stockholm University, November 2000. Pg. 56.

> *figures even when being asked to do something the person finds morally objectionable*[198].

This process of desensitization can make students more callous toward animals and, by extension, toward other humans[199]. The process can be interpreted as the diminution of suffering by familiarity. As Andrée Collard and Joyce Contrucci describes:

> *As one physician of my acquaintance put it, her class was that 'work' on animals was necessary 'to teach us desensitization', meaning the detachment necessary to 'avoid being overwhelmed by the horror of certain things'. Another physician described the animal experiments she had to perform as part of her training as 'profligate, non-creative, redundant, time-wasting, life-wasting, dehumanizing'. Yet, she did them. She convinced herself that she was silly for feeling upset since no one else seemed to be bothered. Certainly, no one objected* [200].

The respect for the professor's authority here is important to analyze, when Buyukmihci talks about *forced to harm*. This respect is something cultivated in us since our early experiences in school. Gregory Smith, explaining Durkheim's view about this aspect of the relation student/professor, says that "by being exposed to a variety of adults whose authority is tied not to personal characteristics but to their role within bureaucratic structures (…) children will come to associate that authority with society, the ultimate reference point for their moral decisions and actions"[201]. Smith says that the professor works as the children's first "boss", and that by "learning or not learning the work habits desired by this authoritative but impersonal adult, children develop patterns that will influence their performance in institutional settings throughout the remainder of their lives"[202].

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[198] Buyukmihci, N., *The Issue of Dissection*. In www.avar.org
[199] Balcombe, J., *The Use of Animals in Higher Education*. Washington: Humane Society Press, 2000. Pg. 15.
[200] Collard, A.M. & Contrucci, J., *Rape of the Wild: Man's Violence Against Animals and the Earth*. Bloomington: Indiana University Press, 1989. Pg. 67.
[201] Smith, G., *Education and the Environment: learning to live with limits*. New York: State University of New York Press, 1992. Pg. 64.
[202] Ibid., Pg. 65.

IV. Conclusion

People are increasingly questioning today's human/animal relationship, where animals are present in our daily lives as mere products and objects, subjected to the human will and power. This questioning moves people towards alternative ways of living, which creates a more harmonized relationship with animals and nature and escapes from the traditional and dominant anthropocentric perspective.

This search for a different way to relate to animals is expressed also in the main subject of this work, namely in the search for an ethical and humane education, in which new approaches and methods of teaching would be applied to replace what can be considered as a practical expression of anthropocentric values in the classroom.

But the harmful use of animals in education is still a rule rather than exception in many universities throughout the world. This method is applied on a large scale worldwide, and indeed we do not have a clear idea in terms of the quantity of animal life used for educational purposes. In this context, students coming from different backgrounds are supposed to perform different kinds of experiments on animals in order to attain "success" (good scores) in their courses. But as we can see, the problem arises when students show objections to these practices. The objections can be based in many grounds: ethical, pedagogical, technical, religious, spiritual, emotional, humane, scientific, etc. How can education cope with this? Should education provide a way-out from these conflicts? And if yes, how?

Here is an important point to be considered: the victims of dissection/vivisection are not only different species of animals. Another fundamental aspect of education is in play here: the respect for the student's integrity and dignity. Despite the fatal and direct consequences of this method to animals, the harm caused to students is not commonly considered. Indeed, students objecting the practice are many times taken as the problem. But as we could see, especially in the final chapter, students can be hindered by this practice. It is not only by voluntary or involuntarily passing through the experience of dissection/vivisection that they can be hindered, but also by facing the sometimes heavy reaction of the surrounding academic environment once the objections to this practice are expressed. And this makes education assume one of its most questionable roles, which:

that of teaching towards alienation. The message is clear sometimes: it is better to adapt than to face the consequences.

Many times, the use of animals exposes the student to contradictions, like that of *kill to save*, or *disrespect to respect*. This brings forth the decision of carrying on with the practice and ignoring her/his ethical principles and/or emotional conditions. As Jane Goodall points:

> *This type of education subjects the young people of our society to a kind of brainwashing that starts in school and is intensified, in all but a few pioneering colleges and universities, throughout higher sciences education courses. By and large, students are given the implicit message that it is ethically acceptable to perpetuate, in the name of science, a variety of unpleasant procedures against animals. They are encouraged to suppress any empathy they may feel for their subjects, and persuaded that animal pain and feelings are of a different nature from our own, and that there is little value in animal life* [203].

By being forced onto this path, there is a process of turning personally unacceptable practices into socially acceptable ones: the process of personal desensitization. In a very interesting article, Arnold Arluke and Frederic Hafferty interviewed medical students regarding their expectations of, and experiences in a physiology laboratory where dogs were anaesthetised and surgically manipulated before being killed. The authors show that these students develop mechanisms to neutralize the moral dirty work of this practice, by learning absolutions and permitting denials of responsibility and wrongdoing. In their own words:

> *Although dog lab is but a brief experience in the students' larger medical education, it can serve as a powerful reminder that technical skills can be sharpened only by quelling or suspending moral doubts. Although it is true that many students report some ethical uneasiness about their impending lab, they are not strongly encouraged by instructors or peers to express or examine these concerns. (...) They learn that is acceptable, indeed even necessary, to suspend asking 'tough' questions in order to get on with their 'real' learning, which they do with a sense of excitement and awe rather than moral trepidation* [204].

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[203] Goodall, J., Foreword. In Balcombe, J. *The Use of Animals in Higher Education.* Washington: Humane Society Press, 2000. Pg. vii.

[204] Arluke, A. & Hafferty, F., *From Apprehension to Fascination with "Dog Lab": The Use of Absolutions by Medical Students.* Journal of Contemporary Ethnography, 2 (July 1996) 25. Pg. 223.

Many perspectives can be used to approach the issue of harmful use of animals in education: ethical, educational, psychological, technical, environmental, economical, spiritual and so on. Despite the fact that some of them were not approached in the present work, they could be used to reinforce the claim that these practices are not only unnecessary, but also represent a dangerous way of accessing knowledge. This "old-school" way of teaching students can manipulate them sub-consciously into a broad range of values and behaviours such as: *blind respect for authority*, *scientificism (or scientism)*, *anthropocentrism and speciecism*, *desensitization*, *disrespect for animal life, macho attitude* and so on.

The hidden curriculum of dissection and vivisection indeed "teaches more than cutting technique, anatomy, and biology – it transmits to students some of the defining attitudes of 'bench' science"[205]. Dorian Solot and Arnold Arluke say that, through the redefinition of the animal's nature in the student's mind, there is a reduction of identification between the student and the animal. Following this strategy, education is socializing students "to reproduce the perspective of modern Western science and the kind of human-animal relationship it implies"[206]. The lesson here is clear: scientist have the power to control biology and life "as long as animals can be assigned to their proper place as 'organic machines'" during the practices[207].

The gender-linked issue is also important to call attention. The gender gap in science is great and it is becoming more clear that enforced dissection/vivisection results in the "loss of strong, capable, bright and compassionate people in the sciences. Then every route possible to engage and retain women in science should and must be made"[208]. Making dissection/vivisection optional, or abolishing it, is considered here to be one of the routes that corroborate this anti-sexist proposal. Arnold Arluke agrees that "educators should be working to maintain girls' interest in science, not squelch it" and points out:

> *Our findings suggest that the activity risks imparting to students a callous attitude towards animals, nature, and the natural world, and it may*

[205] Solot, D. & Arluke, A., *Learning the Scientist's Role*. Journal of Contemporary Ethnography, 1 (April 1997) 26. Pg. 30.
[206] Ibid., Pg. 30.
[207] Ibid., Pg. 47.
[208] Animal Voice. *Animals in Laboratories*. South Africa: Animal Voice, Winter 2001. Pg. 9

> *dissuade some students, especially girls, from pursuing any type of science. (...) Women are still underrepresented among scientists* [209].

The very word "*use*" of animals, when referring to dissection/ vivisection, can not be dissociated from an instrumental view that it implies by itself. Not only the position of men as master of animals and nature is stressed in this context, but the disposable character of non-human life. It is not surprising that universities refer to their animals available to use as a *stock*, and use terms as *demand*, *production* and *consumption* of animals. Under this analysis, serious environmental ethics concerns can already be brought up.

In this present work the ethical and educational perspectives were approached with some important points, perhaps enough to conclude that dissection/vivisection should be, at least, optional for students objecting to this use. In a few words: the option for an educational process, that jeopardizes the different ethical or religious values of a student, should be the student's own choice. But as was observed, there are large steps to be taken in order to make the educational environment open to these objections. "Conscientious objection should not be seen as rebelliousness aimed at disrupting a teacher's effort to teach, but rather, respected as evidence of concern and reflection"[210]. And regarding conscientious objection, the definition of a conscientious belief is presented by the High Court of Australia:

> *...conscientious belief is an individual's inward conviction of what is morally right or morally wrong, and it is a conviction that is genuinely held after some process of thinking about the subject. It represents a conclusion that is uninfluenced by any consideration of personal advantage or disadvantage either to oneself or others, and perhaps when put to the test should be ordinarily combined with a willingness to act according to the particular conviction reached although this may involve personal discomfort or suffering or material loss.* [211]

Important to note is that by turning the practice of dissection/vivisection optional, it does not means that the ethical debate surrounding the moral status of animals and

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[209] Arluke, A., *Learning the Scientist's Role*. Journal of Contemporary Ethnography, 1 (April 1997) 26. Pg. 50.
[210] Balcombe, J., *The Use of Animals in Higher Education*. Washington: Humane Society Press, 2000. Pg. 81.
[211] Working Party Report: Conscientious Objection in Teaching and Assessment. Melbourne: University of Melbourne. November, 1998. In http://wwwadmin.murdoch.edu.au/admin/cttees/ac/1998/nov/attach/supagattach1.html

nature is solved, or should be skipped. Adopting an opting-out system might not be enough, once the objections coming from students against dissection/vivisection is commonly more than a matter of human choice, but a "violation of the right of animals"[212]. And with the growing of interest and attention to the animal rights movement, students and educators are increasingly weighing "the value of animals' lives against the learning to be gained from dissection"[213].

The conclusion here is that the debate about this issue should be stimulated in the educational environment. "Dissections should not be conducted in the absence of ethical discussion about the origins of the animals and the moral implications of using them", and students should be fully involved in the processes of ethical decision making in the classroom, as suggests Jonathan Balcombe[214]. The fact, as Lock and Milett points out, is that educators rarely engage students in discussions about why organisms are used, the educational benefits of this use and the moral issues involved[215].

Some of the bases for this ethical debate were analyzed in the second chapter of this work. All the models presented could be very well adopted in order to defend the total abolition of this practice from education. Balcombe would state that "the dissected animal is consigned to the ethical wasteland, and the exercise delivers a subliminal message to students: animals are not worthy of moral consideration"[216].

A final comment regards the availability of alternatives in order to make the harmful use of animals in education an optional practice, if not to abolish it, and the successfulness and efficiency where these alternatives have been applied. This variety of alternatives goes not only "from videotapes and anatomical models to more sophisticated computer-based and IVD-based simulations"[217], but can be encountered in the adoption

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[212] Downie, R. & Meadows, J., *Experience with a dissection opt-out scheme in university level biology*. Journal of Biological Education, 3 (1995) 29. Pg. 188.
[213] Strauss, R.T. & Kinzie, M.B., *Hi-Tech Alternatives to Dissection*. The American Biology Teacher, 3 (March 1991) 53. Pg. 154.
[214] Ibid., Pg. 82.
[215] Lock, R. & Millet, K., *Using animals in education and research: student experience, knowledge and implications for teaching in the National Science Curriculum*. School Science Review, 266 (1992) 74, 1992. Pg. 115.
[216] Balcombe, J., *Animals and Values in Education: can we dissect one without rejecting the other?* Washington: HSUS News, Fall 1997. Pg. 14.
[217] Strauss, R.T. & Kinzie, M.B., *Student Achievement & Attitudes in a Pilot Study Comparing an Interactive Videodisc Simulation to Conventional Dissection*. The American Biology Teacher, 7 (October 1994) 56. Pg. 398.

of different methodologies and approaches in education[218]. Conducting harmful experiments that could be fully replaced by alternatives methods turns the use of animals even more unethical. Some authors says that by the fact that killing or harming animals can be distressing for the people involved, alternatives methods can avoid considerable psychological stress for all the parties concerned[219]. Nonetheless, "can we justify the sacrifice of the lives of countless small mammals for the sole purpose of helping [for instance] biology students to learn already well established facts?"[220]. The conclusion of this work is clearly negative to this question, by the already exposed reasons. In the words professor George K. Russell, vivisection can not be justified on the simple basis of an experiential learning approach. "A greater concern should be given to the humane treatment of sentient creatures"[221].

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[218] For more information on alternatives: Zinko, U., Jukes, N., Gericke, C., *From Guinea Pig to Computer Mouse: Alternative Methods for a Humane Education*. London: Euroniche, 1997. And Balcombe, J., *The Use of Animals in Higher Education*. Washington: Humane Society Press, 2000.
[219] Hardt, L., Anderson, D.C., Zasloff, R., *Alternatives to the Use of Live Animals in Veterinary School Curricula*. Humane Innovations and Alternatives, vol. 7, 1993. Pg. 499.
[220] Downie, R. & Meadows, J., *Experience with a dissection opt-out scheme in university level biology*. Journal of Biological Education, 3 (1995) 29. Pg. 192.
[221] Russell, G.K. Reverence for Life: An Ethic for High School Biology Curricula. In Mayer, W.V., Neil, D.H., Orlans, F.B., Russell, G.K., *Perspectives on the Educational Use of Animals*. New York: The Myrin Institute, 36, 1980. Pg. 19.

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