



DO WE NEED TO TRAIN TEACHERS AND STUDENTS TO CARE ABOUT OTHER LIVING BEINGS?

Catina Feresin* and Snježana Močinić*,

*Department of Educational Sciences, University of Pula (Croatia)
catina.feresin@libero.it n.mocinic@net.hr

ABSTRACT

The aim of the present work is to show that early learning at school about animal welfare can help the future generation to respect our planet and to care about other living beings. This educational process should start at the level of primary school to create a significant imprinting in students who are very young. First of all, it would be necessary to integrate primary school guidelines with additional ones that teach students to respect our species and others. Secondly, I do hope that Croatia may become leader in teaching students the respect toward animals. It would also be desirable that the Croatian Ministry of Education presents brand new guidelines which should include: firstly teachers' training on the topic and, secondly, students' training by means of their own teachers. This is a complex project, but at the same time extremely motivating.

Keywords: *teaching animal welfare, primary school, sustainability, animal rights*

INTRODUCTION

At times, when middle age approaches and we take stock of our life, we feel drawn to browsing picture books to see ourselves and rediscover beloved faces and places we had forgotten, but which now appear as vivid as if memories had never faded away. In perusing photographs from the past, we may happen upon images that now stir up our emotions: a chained dog, a frightened circus pony we are riding, smiling at the photographer *du jour*; stray cats and dogs we pet for a moment on our way home. How could it be that we are only now paying attention to these creatures? Why did we take for granted that a dog should stay chained? What made it so “obvious” that a pony should be the bizarre backdrop to memorialise a trip to the circus through pictures?

If after World War II it was common practice to abandon a dog or cat on the side of the road, have fun with circus animals, or keep dogs on their chain, everything has changed today. We speak of animal rights and welfare, vegan and vegetarian choices and anti-speciesist philosophy. Nowadays, photographs such as those we mentioned before make it to the news for the wrong reasons. What does this all mean? That we perhaps were once cruel children and have now become compassionate adults?

It is irrefutable that something very important has changed during the period in which our generation has come of age (we are talking about 50-somethings): human awareness of the pain and fear experienced by the other non-human species has evolved and, as a result, empathy toward other loving creatures has grown.

As Barbero, Cattelan and Sagradora (2011) argue: “In our contemporary society, non-human sentient beings are almost always considered akin to objects: to be used, to be eaten, to be scrapped or to have some fun with; one hardly considers that, precisely because they are sentient beings, animals share with us humans the ability to suffer. The awareness that suffering cannot be confined to watertight compartments, namely prime (humans) and lesser (non-humans) pain inevitably leads to more responsible and informed choices.”

We deeply share Barbero *et al*'s opinion, and believe that no animals must suffer because of us. Indeed, who has determined that suffering can be ranked? Humans, of course, because the exploitation of animals has been a source of profit for centuries. Non-human species have been and are still treated like slaves to be employed only and exclusively for mere economic profit. In a beautiful book by Patterson, animals are compared to the exploited, tortured and often mutilated people who lived in concentration camps, places that Holocaust history has rightly portrayed like slaughterhouses (Patterson, 2003). The author quotes philosopher Adorno, to whom is attributed the conviction that: “Auschwitz begins whenever someone looks at a slaughterhouse and thinks: they are only animals.”

The awareness of the emotional association between human and animal suffering is something we experience spontaneously, but which should also be systematically nurtured through education at school. Students who are instilled



with this awareness since an early age will be able to feel compassion for animals, see them as “individuals”, rather than just objects to be exploited and enslaved.

The new generation has at its disposal a plethora of information about the conditions in which animals live in many countries worldwide. If used correctly, this information inevitably leads to greater care and attention towards non-human living beings and, therefore, to greater respect for the difficult fate of our planet. It is therefore necessary to work systematically with young people to enable them to effectively filter out the huge amount of information to which they are exposed through social networks and other mass media, and to integrate it to books, lectures and class discussions.

The purpose of this work is to show that, through learning and school education, the next generation can learn to respect our planet and, more specifically, show greater care and attention towards other living beings. This educational process should start already at elementary school level, in order to engender a significant imprint in very young students. The educational process may then continue throughout the years of secondary education and, perhaps, college too, with the support of a few targeted courses (Andrzejewski, 2007; Johnson, 2015). In this article, we propose to concentrate solely on primary education.

First, it would be appropriate to complement the national guidelines for personalized study plans with further suggestions aimed to teach respect for other animal species. Second, we hope that Croatia will become a European leader in educating teachers first and students later about respect for other creatures. Third, we propose a project that first includes training teachers on this topic, and eventually moves to training students through the teachers’ filters: it is a complex project, and, for this reason, particularly engaging too.

FIRST PART OF THE PROJECT: TRAINING TEACHERS

It is our hope that, in addition to being a scientific article, this work also serves as the basis of training for teachers who, as educators, feel the need to be informed and, as a second step, be adequately prepared on this thorny, yet delicate theme. All mass media, just like books, scientific articles or various training courses organized by animal welfare organizations can become valuable tools to help teachers hone awareness of the pain and fear that many domestic and wild animals are forced to experience worldwide because of us.

Without exposure to information, most of us, (and not just teachers), are clueless about what is carried out in research labs, slaughterhouses, during secular and religious festivals, in groups of adults and sometimes, regrettably, of adolescents or even children who mutilate animals for sheer fun.

In this section of our article, we want to propose three main steps teachers may find useful to train themselves prior to teaching students:

1-understand that suffering caused to animals by man is as old as *Homo Sapiens*;

2-become aware of the suffering caused today to animals by man, through the use of web sites, technical articles and books on the topic, while also studying the similarity between human and animal emotions through the reading of articles and books written by researchers from disciplines such as ethology and animal psychology;

3-ascertain the futility and inadequacy of the animal model as the main method of pre-clinical research for medicines, cosmetics and home cleaning supplies.

1-Understand that suffering caused to animals by man is as old as Homo Sapiens

The first education and training step for teachers is to understand that the exploitation of animals is as old as the history of our species.

As Diamond posits in two wonderful books, when a species becomes dominant it exterminates other species;

Therefore, since prehistory, *Homo Sapiens* began to exterminate many species of animals, bringing them to extinction. The mythical dodo in the Mauritius Islands, the moa of New Zealand, the Australian mega fauna, the mammoth and the



woolly rhinoceros are classic examples (Diamond, 1991; Diamond, 1997). It seems that other human species, such as *Homo Ergaster* and *Homo Neanderthalensis* had begun exploiting land resources, burning hectares of woods and, then, hunt animals on the run, thus breaking the equilibrium in our planet's ecosystem that had existed for millions of years.

We do not know with certainty what diet the prehistoric *Homo sapiens* followed; in all probability, the prehistoric animal archaeological findings show that man was mainly a collector and, at times, added to his diet animal protein from raw meat yielded by prey that were already dead (for instance, often killed by other predators), or by preys hunted by *Homo sapiens* himself (Harari, 2011). Later, with the advent of farming, the intake of animal proteins became more significant, as man's relationship with animals grew more complex, since the latter were often used as objects of worship (Morris, 2011).

Food cooking was, undoubtedly, a very important innovation. As Harari wrote "... Fire not only changed the chemistry of foods, but also its biology. Cooking meant killing germs and parasites that infested food. In addition, once cooked, fruits, nuts, insects and even carcasses were easier to chew and digest. The advent of cooking allowed humans to eat a greater variety of foods, to devote less time to eating and to get by with smaller teeth and shorter intestines. Some researchers believe that there is a direct link between the advent of cooking, the shortening of the intestinal tract and the growth of the human brain. Since long intestines and big brains are both strong energy consumers, it would be rather difficult to have both. By shortening intestines and reducing energy consumption, cooking unintentionally paved the way to the development of larger brains, such as those of *Homo Neanderthalensis* and *Sapiens*. (Gibbons, 2007, quoted in Harari, 2011)."

As Diamond underscores (1997): "The West Asian area known as the Fertile Crescent was of fundamental importance in the history of mankind. All this was made possible, from time to time, by the increase in population density, storage of food surplus and rise of a class of specialists who were not dedicated to food production; in turn, this was achieved by agriculture and livestock ... The Fertile Crescent was also characterized by an abundance of species of large animals: sheep were originally from the central areas, pigs from the North, goats from eastern hills (Mount Zagros) and oxen from Anatolia. All these areas were sufficiently close to one another to allow the exchange of animals among peoples. Thanks to the availability of flora and fauna, peoples of the Fertile Crescent could have at their disposal a complete package for intensive food production. Cereals were a source of carbohydrates; legumes and animal of proteins; flax yielded fibres and vegetable fat, thanks to its seeds that contain 40% of oil... In a nutshell, the Fertile Crescent provided more resources than hunting and gathering."

From this moment, with the growth of food *surplus* and concentration of the human population, animal husbandry, or, more precisely, the exploitation of animals solely for the benefit of humans, was born. Domesticated and bred animals, while receiving protection and food by man, began to be exploited in a systematic way, since they were source of meat, milk, wool and could be used to move about and for towing purposes. Although in historical times some philosophers and historians spoke against the exploitation of animals, this convenient and profitable practice remained a staple of human history (Li Causi & Pomelli, 2015). As Harari underscores: "... not all agricultural societies were cruel to animals; ... we know that shepherds and farmers had affection towards their animals and took great care of them. However, it is difficult to deny that for the great majority of domesticated animals, the Agricultural Revolution was a scourge. Their "success" in an evolutionary sense came at a very high price. The rare wild rhino on the brink of extinction is much more *fulfilled* than the calf, which spends its short life in a tiny box, getting fat in order to yield tasty chops. The numerical success of calves is small consolation compared to the suffering that the species has to bear individually. " (Harari, 2011)

There is no doubt that the living conditions of animals deteriorated dramatically since the end of World War II, just as the pace of intensive animal farming accelerated in many Western countries (Harary, 2011; Safran Foer, 2010). From that moment, "...animals ceased to be seen as living creatures that could feel pain and suffering, and they began to be treated like machines. Today, these animals are often mass-produced in facilities that look like factories, and their bodies are shaped according to industrial needs. They spend their entire lives as cogs in a giant production chain, where the length and quality of life is determined by the logic of profit and loss. Even when the industry bothers to keep them alive, reasonably healthy and well fed, it has no intrinsic interest in the animals' social and psychological needs (Harary, 2011)."

As this article progresses, we will see how this kind animal husbandry is leading to daring consequences for the balance of the Earth's ecosystem. Other factors such as the use of animal skin and fur for purely aesthetic and economic



purposes, mass entertainment in zoos, aquariums and circuses, which already existed in the past, have grown exponentially. Unfortunately, in recent decades, the same process of use of animals for fun and financial reasons, which has long been in place in Western countries, is occurring in developing countries as well.

2-Become aware of the suffering caused today to animals by man, through the use of web sites, technical articles and books on the topic, while also studying the similarity between human and animal emotions through the reading of articles and books written by researchers from disciplines such as Ethology and animal psychology

The second information step for teachers is to become aware of the suffering caused today by man to animals. Many animal rights sites (*i.e.*, all websites listed in the bibliography) are a great emotional springboard to start learning about the situation in which millions of animals live on a daily basis. The images and videos are so cruel that it is impossible to remain indifferent and devoid of pity: dogs boiled alive in big pots (China and South Korea); chickens that live so close to each other that they cannot even move, and, hence, their beaks are removed to prevent mutual pecking; rabbits that live their entire short lives locked in tiny cages and unable to jump; fish of all species cruelly harpooned and left to die of suffocation; thousands of cows locked in huge barns and used as milk machines; dogs beaten or hanged; cats burned alive; small foxes crucified; pigs forced to live their entire lives in cages; baby lambs and goats separated from their mothers and slaughtered to become food to feast on at parties; cows, pigs, calves and horses slaughtered every day, often without being stunned before death; small monkeys (generally, *rhesus macaques*) transported in cages by air to scientific laboratories worldwide. Not to mention brothels where dogs are abused, water parks where animals are used, rodeos, dog fights, dog and horse races, illegal import of puppies and other animals (including animals in danger of extinction) in various European Union countries. To say nothing of bullfighting, animals exported from Europe to other countries to be slaughtered in a very cruel manner (*halal*), fur animals bred to be killed by electrocution and stripped of their fur to the bone (including foxes and raccoon dogs in China), use of live animals (such as pigs) as “objects” useful in the training of medical students or in the military environment, use of numerous species for pre-clinical research of new drug substances (particularly, mice, rats and monkeys), the recent trend of trapping turtles, fishes and geckos in plastic key rings with little water, where they suffocate in a matter of few days. There many more bloody examples: one only needs to visit animal rights Internet sites or social networks to find them.

By visiting these websites and viewing videos online, teachers see clearly and perceive emotionally the reality hidden behind fake images of smiling animals from fairy tales, cartoons or television advertising. Educators have finally a clear perception of other brutalized living beings which express their sorrow and terrible fear through “non-verbal” clues, and which, although silent, can speak to our emotions with a very clear voice.

In this regard, Animal Equality (see the website list below) has produced a video which denounces the cruelty of lamb slaughtering perpetrated at Easter time. As underscored by psychologist and psychotherapist Annamaria Manzoni on <http://salvaunagnello.com/il-parere-degli-esperti/>: “The words that stigmatize the killing of lambs as unacceptable cruelty, an obscenity among others that involve the killing of any animal, are fleeting and, at times, a mere literary exercise that strikes a few chords and eventually turns into nothing more than passing disturbance: but, images don’t, images hit with the strength of evidence: they do not lie and do not keep silent. For this reason videos, “un-viewable” for the violence they portray, but to be viewed as ethical duty, slam reality into your face, tell what happens where animals are slaughtered, which is the quintessence of evil: totally defenceless, myths by definition, innocent by definition, animals are taken away from their mothers, are forced to travel in terrifying conditions, are weighed, hung by their legs, and killed with a knife that cuts their throat, a knife that should ideally be, though is not always sharp, and, as a result, the agony continues: terrified bleating, blood everywhere, groans and shrieks. And then the screams of those who perform these terrifying acts, men themselves brutalized by their own labour.”

The true training step for teachers is to read books and scientific articles referring to the emotional and cognitive processes experienced by various animal species. Modern evolutionary psychology tells us, in fact, that the emotional and social needs of all animals (even those we breed) are very similar to those of humans. Ethologist and primatologist Frans De Wall published several books in which he argues that empathy and solidarity are feelings that humans share with other species, and that these feelings are essential to establish new relationships (De Wall, 1989; De Wall, 2016). Moreover, it has long been known that the brain structure of many social animals on which perception of primary and secondary emotions is based is the same as humans (*e.g.*, limbic system and specific neo-cortical connections). According to Harary (Harary, 2011): “Most of the people who produce and consume eggs, milk and meat, rarely stop to think about the fate of chickens, cows or pigs whose meat and products they feed on. Those that do so argue in many

cases that, after all, animals differ very little from machines are devoid of feelings and emotions and unable to suffer. Ironically, the same scientific disciplines that brought to fruition milking and egg collection devices proved beyond reasonable doubt that mammals and birds possess a complex sensory and emotional structure. Not only do they feel physical pain, but can also suffer from emotional stress.” This is also suggested without the shadow of a doubt in the pioneering work of Harlow (Harlow, 1958; Harlow & Zimmermann, 1959) and in more recent articles related to the study of health, intelligence, primary and secondary emotions, feelings and consciousness of animals (Bekoff, 2009; Broom 2016; Cabanac, 2005; Dawkins, 2012 ; Mendl *et al.*, 2010; Proctor, 2012; Proctor *et al.*, 2013; Rowlands, 2010; Rowlands, 2016a; Stewart *et al.*, 2005; Westerath, 2014).

3-Ascertain the futility and inadequacy of the animal model as the main method of pre-clinical research for medicines, cosmetics and home cleaning supplies

Many people totally ignore the fact that many research institutes and universities worldwide receive substantial (public and private) funding to carry out pre-clinical testing on a variety of animals, as regards the future use of new drugs, cosmetics and home-cleaning products.

With respect to the latter two, many companies rely upon Guinea pigs and (in particular) rabbits to apply in their eyes and on their shaved skin new compounds that will become detergents of any kind and promise to make our homes spotless, or hair sprays, shampoos, creams, perfumes, deodorants, aftershaves and makeup we generally use for our cleaning routines or to beautify ourselves, without thinking of the suffering that lies behind everything.

Recently, India, the European Community and New Zealand have banned the testing, sale and amount of cosmetics tested on animals; however, many other countries around the world are still very far from reaching this goal. A trick commonly used to circumvent such laws is to write on the labels of various cosmetics and cleaning supplies: “finished product not tested on animals”, which conceals the fact that, indeed, the finished product may not have been tested on animals, though its individual components were. To solve this problem, the Italian National Anti-Vivisection League (LAV) produced a specific label that refers to the European law which, as already mentioned, prohibits the experimentation, sale and import of final products and components thereof. This law was revised in 2016 at the European level and currently prevents the import of components and finished products in the European Community. The problem, however, has not yet been solved in other non-EU countries.

If, on the one hand, pre-clinical animal testing on drugs continues unabated, the world of research itself is not immune from criticism from within; it is criticism that aimed to the use of the animal model as a first step to test hazardous substances. Such criticism denounces the fact that the animal model has never been submitted to a real validation process which today, however, is generally required for the approval of other methods of toxicological research employed as alternatives to the use of animals. Paradoxically, the results of pre-clinical research which relies on *in vivo* experiments are still used as the gold standard for the approval of new toxicological research methods that do not use animals.

As Cagno maintains (Cagno, 2008): “As far as animal models, their validity has never been demonstrated to be effective, because the results they provide are variable to the point that additional tests conducted on humans are always necessary. If we took animal models in toxicology as an example, we would realize that the overlap of results does not exceed, in the best of circumstances, 25%.”

We urge you to carefully read a recent paper published by Barra and Joffe. It is an extensive review that analyses systematically 77 medical publications issued in 2012, which rely on animal models. In the study, the two researchers took into account numerous articles recently published on three different high-impact journals; however, the experimental designs described and the interpretation of results were debatable (Barra & Joffe, 2014). Another older work includes a survey of 271 US and UK medical research (publicly funded) tasks carried out by using animal models, and, more specifically, rats, mice and primates. The results of this survey indicate that the majority of research analysed (87%) did not use randomization, and only in 59% of tasks hypothesis, aim of the study, as well as number and characteristics of animals used are explicitly declared (Kilkenni *et al.*, 2009).

As Cagno underscores: “Some scientists say that as regards the use of animal models, it is not just a methodological problem, but it is also the incorrect application of a biological model relating to a species in favour of another. In other words, the animals used in the research do not naturally develop most human diseases; therefore, the inability to



accurately recreate human diseases in other animals is a fundamental flaw in the use of animal testing. Animals are not humans in miniature. Despite attempts to genetically modify animals to mimic human physiology, genetic differences between any animals and humans are unalterable and inherent in the diversity of species. They remain an insurmountable obstacle to the use of animals to predict human outcomes.”

In his extraordinary work, Cagno continues: “I believe in evolution and not in creation, I believe that there is a biological link between each species, I believe that between one species and another there are differences in degree, but not gender, but I think just as strongly that the theoretical basis on which vivisection rests is wrong. Let's explore a few examples. The heart of a hamster, a cat and a human being performs the same function, but in different ways. If my heart beat with the frequency of that of a cat, I would be diagnosed with permanent tachycardia, namely, I would have a constant rate of around 150 beats per minute, and, therefore, be clinically ill. If I had the heart of a hamster, I'd have a heart rate of 450 beats per minute, a condition that makes it impossible for human beings to survive. If we analysed the condition of three people who have three different glucose (blood sugar) values, for example 40, 80 and 440, we could not deny that all three people share gender affinity, since they belong to the same species. However, we see a difference in degree, namely: the first person suffers from hypoglycaemia and is at risk of coma due to shortage of sugar in the blood stream, the second person has a normal glucose level, and the third has hyperglycaemia and is at risk of hyperglycaemic coma. If we took the first or the third person as our model of normalcy, we would end up with completely wrong data and, as a result, implement measures that could harm our second subject, who, instead, is actually the standard of our sampling pool. When we experiment on animals, we are in a similar condition: each species may be appropriate to carry out research about our species if we only consider qualitative aspects, but since in biology and medicine quantitative aspects are of enormous significance as well, to study how humans work by relying upon animals often leads to highly damaging results for our species ...Either we admit that science has understood nothing or almost nothing on the operation of complex biological systems, just like animals are, and, then, accept that research on animals can be a valuable tool, or, if we sing the praises of the extraordinary achievements we have obtained, we must also admit that we cannot continue to rely on an experimental model that does not take into account the grade differences between our species and others, including chimpanzees.”

Therefore, there is no perfect method to hypothesize the human clinical response to a drug, or to understand how the human body works; what currently exists is a combination of methods that are increasingly closer to representing the activities of entire systems that are part of the human body, among which we include: sophisticated tests that rely on human cells and tissues (also known as *in vitro* methods), imaging tests, and assays that rely on human volunteers who choose to participate in research (both basic and clinical research).

In conclusion, it is not correct to say that the only moral choice is between animal testing and giving up on the development of medicine and, therefore, new treatments for sick patients. What we need, instead, is to understand that the choice concerns the use of methods that use animal models or others that do not.

SECOND PART OF THE PROJECT: TEACHING STUDENTS OF PRIMARY SCHOOLS THE RESPECT FOR ANIMALS THROUGH THE FILTER OF TEACHERS

Undoubtedly, the books, articles and websites we mentioned in the first part of the article are suitable for teachers and, possibly, students close to adulthood, but not for elementary school students. The active presence and mediation of teachers is necessary as an educational filter, because images and content are too gory. Giving up altogether on instilling respect for animals to young students, however, would be a real shame. According to Isicat: “The teaching of animal rights is one of the most effective ways to open people's minds to the nature of all living beings and to convince people to question the way in which animals have been treated up to this point. This is especially true when it comes to the education of children (Isicat, 2013).”

As PETA has pointed out on its website two years ago (see: www.peta.org2015 in the websites list below): “Human beings have always created arbitrary barriers to exclude beings that are not like them, and, in this way, have justified wars, slavery, sexual violence and military conquests with the mistaken belief that those who are “different” feel no pain and are not worthy of moral consideration”. Teachers, instead, have the opportunity to educate students by telling them that all animals feel pain, fear or happiness, just like we do. To teach empathy and compassion towards animals helps not only the animals themselves, but also reduces the likelihood that children can become cruel adults, lacking empathy and compassion. Within this framework, education serves multiple purposes: to reduce the number of cases of animal abuse,



of bullying among children and teens, and, finally, the presence of offending adults, who tortured animals before inflicting pain to humans.

From a reading of the Environmental Guidelines for the Education for Sustainable Development, published three years ago in Italy, we surmise the importance that factors such as education, information and environmental communication have today. We now ask young people to conduct themselves and make ecologically sustainable choices, as well as to respect and preserve biodiversity in environmental systems. Undoubtedly, such behaviours "... are today of special importance in that, parallel to the aggravation of environmental issues and an awareness of the complexity of solutions, the need to inform the public on these issues and to raise awareness has materialized. Likewise, the growth of awareness and, more importantly, individual and collective responsibility has increased (Various Authors, 2014)."

Within the framework of this project, we propose the idea of integrating these guidelines by including the topic of education and respect towards animals, which is only indirectly dealt with in the guidelines.

In fact, some years ago in Italy (2013-2014 school year) a proposed ministerial decree entailed the introduction in primary schools, starting from the very first grades, courses in environmental education and related rights protection animals. The idea was to educate students to respect, protect and safeguard animals, thus transforming what had up to that point been left to individual teachers, into a real academic subject, complete with textbooks, materials training and specialized teachers. The Senate's agenda on this matter, indeed, indicated that:

"Given that Italians love animals, since almost a household in two includes pets, especially dogs and cats, but also small mammals which, altogether, are about fifteen million and are often considered true members of the family, the dissemination of adequate environmental culture cannot be decoupled from education, or the preparation of specific teaching plans; an integral part of a proper environmental culture is the protection of animal rights, understood as living and sentient beings, which must be granted not only the right to existence, but also the right not to be treated with cruelty or to be the subject of harmful behaviours. Already in the past years, various Italian schools introduced animal anthropology educational projects, with the aim of educating young people in the knowledge of and respect for animals. More in general, environmental education has a high ethical value and intends to nurture civil consciousness, providing the knowledge and respect of other living beings and nature, committing the Government to assessing the possibility of including the study of laws concerning animals in the academic program for next year, and entrusting teachers with specific training and experience. Legislative efforts are encapsulated in the provisions of Article 5 of Law no. 189 of 2004, against the mistreatment of animals. The government must now include subjects relating to environmental protection and the protection and animal rights in the curricula of elementary schools, first and foremost, and eventually of all education levels."

Unfortunately, this project was not implemented in Italy; however, some non-EU countries such as Great Britain and India have been already implementing partially structured interdisciplinary educational programs in their schools for some time. Croatia could include such measures in its Ministerial Guidelines.

As for Great Britain, awareness training is informed by *Helping Animals.com* and *TeachKind.org* (see the websites list below). Such training approaches suggest building interdisciplinary relationships among different subjects: for example, the issue of ethical behaviour towards animals is very important both for teachers, who teach students their native language, and religion teachers, while animal testing and vegetarianism are significant issues both for science and religion teachers. Education trips too can be extremely useful; for instance, a trip to the animal shelter of one's town can help students experience through their own eyes the sad life of animals that have been abandoned by their owners. Moreover, instead of tasking students with writing an essay on literature or fantasy themes, teachers can ask them to write a letter to be sent to the president of a local animal shelter, or, perhaps, to pet shops, asking them to ensure that rather than being sold, dogs and cats must be adopted from shelters. This would be an effective way to connect to one's community and try to solve a concrete, real-life problem. Another example of interdisciplinary educational process can be to arrange a visit to the Municipality of residence to collect the number of pets in the area recorded on local registers; in this way, teachers can introduce students to basic concepts of descriptive statistics (namely, frequencies and percentages) that are useful in math and science programs.

As for India, a NGO called I.D.A. has long been partnering with schools (see the websites below). The purpose I.D.A. is to educate the youngest generation to be compassionate and emphatic towards animals. For this reason, the Organization



has set up a special group called “Compassionate Kids’ Club”, in order to instil in young people both sensitivity for and interest towards the cause of animal welfare. The Organization's main objective is to plan courses and fun activities (non-fiction, poetry, posters, and drawings) with prizes to be awarded to the winners in certain age groups. Most of the activities are on-line (conducted through a parent’s email address), so that children can participate in competitions directly from home or during leisure time, involving families as well.

CONCLUSION:

We would like to conclude our work with one last point to develop in addition to those we have developed above:

4-Understand that the destruction of the Earth also means the destruction of our species

As argued by Barbero *et al.* (2011): “The habits proposed by the dominant dietary pattern have by now taken on features that are incompatible with our planet’s survival. To follow this model means to seriously jeopardize not only our health but also the environment around us and, above all, the world we will leave to future generations and, more directly, our children. First, it is important to stress that the current food model shares little or nothing with traditional elements. It is true that meat and animal products have accompanied human beings for centuries, though, in the past, they have never been used in such large quantities as they are now. The production of meat worldwide has increased considerably ... traditional animal husbandry techniques have been supplanted by genetic engineering and intensive animal farming: if once agriculture was integrated to animal husbandry, of which it used its by-products, (manure as fertilizer, for example), ... animals have now been driven away from pastures and live locked up in huge barns where they are fed on a diet of grains and oilseeds. The use of feed in intensive animal husbandry has extremely serious consequences. Today, vast tracts of land are devoted to monocultures for the production of grains and oilseeds for animal use..... Intensive animal husbandry harms the environment for other reasons as well. The feed used for feeding animals mostly comprises soy and corn, two crops that have been genetically modified. The reason lies in the type of crop that must meet the demands of a discrete market. Since the time of the agricultural revolution that preceded the Industrial Revolution, agriculture relied upon crop rotation in order to achieve better yields and, at the same time, allow the land to regenerate ... This basic technique, with appropriate modifications and improvement, favoured the evolution of agricultural production, at least until relatively recent times.

Today, however, agriculture, and, in particular farming activities intended to produce the most popular foods, has been moving in a new direction: monoculture has assumed great relevance, namely the commitment to the same piece of land for the cultivation of the same cereal or legume, year after year. This has contributed to the reduction of soil fertility, which farmers have attempted to remedy with the increasingly massive use of chemical fertilizers and, in recent times, through genetic engineering, which can yield extremely resistant and adaptable plants. With that risks, though? We already know what consequences the use of pesticides and chemical fertilizers is having: soil de-fertilization, extinction of many plant and animal species and decrease in quality, both in terms of organoleptic properties and nutritional values. We do not know in depth what problems biotechnology can engender, but we are aware that it bears much of the responsibility for the disappearance and mutation of different species of insects and plants in the US, where transgenic crops are most common...

We can add other serious damages to the list. Let’s start with water waste. To produce one kilogram of meat, 2,000 or 3,000 litres of water are needed for direct consumption by animals, and, above all, to cultivate the huge amounts of grains for them and, not a neglect-able fact, for the removal of manure from stables; however, to produce one kilogram of cereals for human consumption only one hundred litres of water are needed. Water reserves are at a further risk: the waste produced by the meat industry, mainly consisting of slurry yielded by the massive use of water for the disposal of *excreta*, seriously pollute groundwater ... Animal waste is highly polluting, not only because it is produced in large amounts, but mainly because it includes artificially administered antibiotics and hormones that are generally fed to animals, as well as numerous pathogenic microorganisms ... The slurry is poured in catchment areas, causing illness and death among countless plants and animals. The inability to dispose of such large amounts of excreta entails serious risks for humans and the environment, among which acid rain and water eutrophication stand out. Acid rain is characterized by the presence of ammonia released into the atmosphere by sewage. The first effect it has on forests and vegetation, in general, is fertilizing and, indeed, at first sight, forests become more luscious, especially in the undergrowth, only to meet a tragic fate at a later time, after losing fertility due to excessive acidity”... “Large portions of rainforest were cut down to produce vast pastures in some areas of our planet (Brazil, Bolivia and Argentina). The meat industry is responsible for

the destruction of rainforests as much as the timber industry is. Unfortunately, deforestation is among the main causes of the greenhouse effect. Common knowledge has it that warming of the Earth is due mainly to industry and vehicles, but the issue is not so simple. Fallen and burned trees and fires set to make way for pastures release to the atmosphere large amounts of carbon dioxide and methane, two of the most dangerous gases. It is not just the burning of trees and shrubs that release harmful gases; animals and intensive animal husbandry also make their contribution. Cattle alone produce more than 15% of the global methane emissions; if to this figure we add those produced by other farm animals, like pigs, the percentage are expected to rise significantly.”

In an article published three years ago on *Nature*, some researchers point out that the overall increase in *pro capita* income and urbanization has been changing nutrition habits across the globe, and, more specifically, traditional diets have been replaced by those featuring high-sugar and refined fats, oils and meats. Unless it is curbed, by 2050, this nutrition trend will be an important factor related to the increase in global emissions of greenhouse gases from agricultural food production and global deforestation (Tilman & Clark, 2014).

Unless there is radical change, intensive animal husbandry will result in more and more pollution, greater demand for energy and water, and, finally, in the break of a centuries-old equilibrium. Its rupture will only lead to the slow self-destruction of our species and others. We are afraid, unfortunately, that this breakdown will occur in the near future: at the time in which water resources begin to wane and a significant struggle for water (the so-called blue gold) materializes. It is known that water reserves in the world are rapidly depleting: 20% of groundwater is subject to intense exploitation: in 15 years, the Earth will face a decline of 40% of its fresh water reserve.

In addition to causing significant damage to the environment, “... the promotion of meat consumption and other animal foods passes through interviews and statements of nutritionists that illustrate the beneficial properties of these foods, and, therefore, recommend their consumption, in accordance to the logic that a complete and healthy diet should be varied and include all types of foods. According to this logic, then, the total exclusion from the diet of certain animal foods, as in veganism, as well as partial elimination, as in the lacto-ovo-vegetarian diet, would cause health deficiencies and damages (Barbero *et al.*, 2011).” On the contrary, recent scientific literature emphasizes the importance of avoiding meat and switching to a diet rich in fruits and vegetables. For example, in a paper published online in 2014, some researchers have shown that a diet based on fruits, vegetables and high in fibres can reduce many types of diseases related to inflammation, such as rheumatoid arthritis, cardiovascular problems, diabetes type 2 and some forms of cancer (Turner-McGrievy, Wirth, Shivappa, *et al.*, 2014). In their abstract presented at the American Heart Association conference two years ago, Lassale *et al.* (2015), point out that a diet rich in fruits and vegetables compared to a diet that relies upon animal products reduces the risk of dying of heart attack. More specifically, researchers assessed the diets of 450,000 European adults as part of a European longitudinal study on cancer and nutrition, and tracked the health of their experimental subjects for 12 years. The subjects who followed a diet rich in plant foods reduced their risk of dying of heart attack by 20% compared to those whose diet consisted mainly of meat, fish, dairy products and eggs. Researchers suggest that the transition to a plant-food model can increase the chances of survival.

The results of another study suggest that fried foods can increase the risk of heart disease by as much as 68 percent. Researchers tracked the diet of 15,300 doctors for three years. Those who ate fried foods up to three times a week saw an increase of 18% of the risk of getting sick. The risk increased in a measure commensurate with the frequency of consumption of fried foods according to this figure: 25 percent of increased risk, if fried foods are eaten up to 4-6 times a week, and 68 percent if these foods are eaten 7 times or more a week. The results of this study suggest that the healthiest diet should contain high amounts of fruits, vegetables, legumes and whole grains, and should limit foods high in saturated fat (Petroni, Gaziano, Djousse, 2015).

A study conducted by Orlich, Singh and Sabate (2015) posits that a vegetarian diet can reduce the risk of colorectal cancer: in particular, a group of vegetarians showed a decreased risk by 22% of developing colorectal cancers compared to the non-vegetarian group. More recently, research conducted by Allot and assistants (Allot *et al.*, 2016) suggests that saturated fats increase the aggressiveness of prostate cancer.

The aforementioned studies show that there are important ethical and other reasons, such as those related to the health of humans and the global equilibrium of our planet, that require us to cultivate the land by implementing more rational approaches, and fully eliminate the intensive exploitation of animals that consume huge amounts of water and energy resources. It is very important, therefore, to begin to systematically educate young minds to respect animals.



An immediate criticism to this educational proposal is that it is not profit-driven and that human activities are predominantly sustained by the rationale of economic profit. It is also true that profit depends on demand. In the five years, since 2012, the campaign carried out by Animal Equality (see websites below) in Italy has driven down the demand for the purchase of baby lambs and goats for the Easter feast. Perhaps, some readers may think that is a trivial result; it is not. The campaign focused, in particular, upon the mechanisms of compassion and empathy in relation to the pain and fear baby lambs and goats feel when they are prematurely removed from their mothers and sent to slaughterhouses to become the staple of Easter feasts. Until a few years ago, many adults would have bought baby lamb or goat to celebrate Easter; in just a few years, this habit has changed and if the demand falls drastically, so will ultimately the offer.

The ultimate goal of education and awareness, however, is not only to decrease the consumption of lamb and goat meat (because baby animals elicit compassion in humans); the ultimate goal must focus on the protection of all members of the animal and plant kingdom, in order to improve the quality of organic life on our planet. Global economic systems, multinational corporations and resource management which always gave priorities to short-term benefits for mankind also yielded an extreme human impact on equilibria existing for millions of years, and, often, our planet bears the burden of our insanity.

International politics is making and must continue to make urgent decisions against the super predator *Homo sapiens*, who for thousands of years has been going against the laws of nature, ceaselessly altering natural processes at the global level. First off, it is first necessary that all the governments of individual countries worldwide legislate in a specific direction to use renewable energy, creating a surge in the production of clean energy (*i.e.*, *Paris Agreement, Kigali Plan*). Second, as explained throughout this article, it is important to eliminate as soon as possible intensive animal husbandry which, in addition to aggravating hunger in the world, seriously jeopardizes the very survival of our planet, by producing an enormous amount of greenhouse gases. Unfortunately, as pointed out by the Italian National Agency for Animal Protection (ENPA, see websites below), no adequate measures have ever been taken against this problem.

We underline that too much legislating will undoubtedly go against the financial interests of many multinational corporations, but if we do not act in time, the consequences of our inaction will be inevitable: the destruction of the Earth's ecosystem and, in turn, the self-destruction of our species and other species inhabiting the planet.

Even small consumers like us, moreover, can make an important contribution by not eating meat and fish and not drinking milk and dairy products (or, at least, by limiting their consumption, for those who do not want to make a definite ethical choice), and by replacing animal proteins with vegetable ones. Each individual must learn not to waste and soil and, instead to recycle. Each of us should walk gently on the planet without leaving behind our negative imprint, metaphorically speaking. By now, the damage experienced by Earth over centuries is almost irreversible. To behave and make personal choices that are ecologically sustainable choices, as well as to respect and preserve biodiversity in environmental systems is a diktat which all of us must heed and for which it is worth a good fight.

It is evident that if animals are still farmed intensively (the dominant dietary pattern), there will never be prosperity for these creatures, nor for the survival of the Earth's ecosystem. We think that the educational work that teachers could carry out with elementary school children, and, later, with students at higher education levels, including in universities (Andrzejewski, 2007; Johnson, 2015), might be a possible, albeit partial, "solution" to control an economic process that has always aimed exclusively at profit, and that has polluted and continues to pollute our planet. Educating new generations to respecting animals is certainly only a small, though essential part of this goal, since today's children will be tomorrow's adults and, therefore, must be prepared to handle climate issues that may already be irreversible.

We think we can conclude this journey by answering the question posed in the title: "Is it necessary to educate teachers and students about the welfare of other living beings?" The answer is definitely yes.

REFERENCES

Articles and books:

1. Allott E.H., Arab L., Su L.J., *et al.*, (2016). Saturated fat intake and prostate cancer aggressiveness: results from the population-based North Carolina-Louisiana Prostate Cancer Project. *Prostate Cancer Prostatic Dis.* Published online September 6.
2. Andrzejewski, J., (2007). Teaching Animal Rights at the University: Philosophy and practice. In *TeachKind.org*
3. Various Authors, (2014). *Linee Guida Educazione ambientale per lo sviluppo sostenibile*, Italy. (There is not an English version of these Guidelines).
4. [Bara M.](#), [Joffe A.R.](#), (2014). The methodological quality of animal research in critical care: the public face of science. *Ann Intensive Care*, Jul 29; 4:26. <https://doi.org/10.1186/s13613-014-0026-8> ECollection 2014.
5. Barbero, E., Cattelan, A., Sagramora, A., (2011). Ragioni etiche. Vegetariani non basta? Ragioni ecologiche. Le nostre impronte sull'ambiente. Fame nel mondo. La catena alimentare. In *La cucina etica*. Edizioni Sonda, Casale Monferrato, (There is not an English version of this book).
6. Bekoff, M. and Pierce, J., (2009). *Wild Justice. The Moral Lives of Animals. The University of Chicago.* <https://doi.org/10.7208/chicago/9780226041667.001.0001>
7. Broom, Donald M., (2016). [Sentience and animal welfare: New thoughts and controversies](#) *Animal Sentience*, 057.
8. Cabanac, M., (2005). The experience of pleasure in animals. In McMillan FD, editor. *Mental health and well-being in animals*. Oxford, UK: Blackwell Publishing; p. 29–46. <https://doi.org/10.1002/9780470384947.ch3>
9. Cagno, S., (2008). L'antivivisezionismo scientifico è controproducente? *Liberazioni. Rivista di critica antispesista* (There is not an English version of this article).
10. Dawkins, M.S., (2012). *Why animals matter: animal consciousness, animal welfare, and human well-being*. Oxford, UK: Oxford University Press.
11. De Waal, F.B.M., (1989). *Peacemaking among Primates*, Harvard University Press, [ISBN 978-0674659216](#).
12. De Waal, F.B.M., (2016). *Are We Smart Enough to Know How Smart Animals Are?* [ISBN 978-0-393-24618-6](#).
13. Diamond, J. (1997). *Guns, Germs, and Steel. The Fates of Human Societies*. W.W. Norton & Company, New York, London.
14. Diamond, J., (1991). *The rise and fall of the third chimpanzee*. Radius Random Century Group, London.
15. Gibbons, A., (2007). Food for Thought: Did the first cooked Meals Help Fuel the Dramatic Evolutionary Expansion of the Human Brain? *Science*, 316, 5831, 1558-1560. <https://doi.org/10.1126/science.316.5831.1558>, PMID:17569838
16. Harari, Y. N. (2011). *From Animals into Gods: A brief History of Humankind*. Kinneret, Zmora-Bitan, Dvir, Israel.
17. Harlow, H., (1958). The nature of love. *American Psychologist*, 13, 673-685. <https://doi.org/10.1037/h0047884>
18. Harlow, H., Zimmermann, R., (1959). Affectional Responses in the Infant Monkey. *Science*, 130, 3373, 421-432. <https://doi.org/10.1126/science.130.3373.421>, PMID:13675765
19. [Kilkenny C.I.](#), [Parsons N.](#), [Kadyszewski E.](#), [Festing M.F.](#), [Cuthill I.C.](#), [Fry D.](#), [Hutton J.](#), [Altman D.G.](#), (2009). Survey of the quality of experimental design, statistical analysis and reporting of research using animals. *PLoS One* Nov 30; 4(11): e7824. Doi: 10.137.
20. Isacat B., (2013). *How to do Animal Rights* in: <http://www.animaethics.org.uk/How-to-Do-Animal-Rights-2013.pdf>
21. Johnson, J., (2015). The First Shared Online Curriculum Resources for Veterinary Undergraduate Learning and Teaching in Animal Welfare and Ethics in Australia and New Zealand, *Animals*, 5, 395-406. <https://doi.org/10.3390/ani5020362>, PMID:26479241 PMCid:PMC4494409
22. Lassale, C., Beulens, J., Van Y., (2015). A pro-vegetarian food pattern and cardiovascular mortality in the Epic study. Report presented at: *The Epidemiology and Prevention and Lifestyle and Cardiometabolic Health*, March 4, Baltimore, MD.
23. Li Causi, P., Pomelli, R., (2015). *L'anima degli animali. Aristotele, frammenti Stoici, Plutarco, Porfirio*. Einaudi Editore, Torino, (There is not an English version of this book).
24. Mendl, M., Burman, O.H.P., Paul E., (2010). An integrative and functional framework for the study of animal emotion and mood. *Proc R Soc Biol Sci*; 277, 1696, 2895–904. <https://doi.org/10.1098/rspb.2010.0303> PMID:20685706 PMCid:PMC2982018
25. Morris, J., (2011). *Investigating Animal burials. Ritual, mundane and beyond*. BAR British Series 535.
26. Orlich M.J., Singh P.N., Sabate J., (2015). Vegetarian dietary patterns and the risk of colorectal cancers. *JAMA Intern Med.* Published online on March 9. <https://doi.org/10.1001/jamainternmed.2015.59> PMCid:PMC4420687
27. Patterson, C. (2002). *Eternal Treblinka: Our Treatment of the Animals and the Holocaust*. Lantern Books, New

- York, [ISBN 978-1-930-05199-7](https://doi.org/10.1017/9781930051997).
28. Petrone, A.B., Gaziano, J.M., Djousse, L., (2015). Adherence to healthy lifestyle factors is associated with a lower risk of death among US male physicians with type 2 diabetes. Report presented at: *The Epidemiology and Prevention and Lifestyle and Cardiometabolic Health*, March 4, Baltimore, MD.
 29. Proctor H.S., (2012). Animal sentience: where are we and where are we heading? *Animalism* 2, 628–39. <https://doi.org/10.3390/ani2040628>
PMid:26487167 PMCID:PMC4494284
 30. Proctor H.S., Carder G., Cornish A.R., (2013). Searching for animal sentience: a systematic review of the scientific literature. *Animals*; 3, 882–906. <https://doi.org/10.3390/ani3030882>
PMid:26479539 PMCID:PMC4494450
 31. Rowlands, M., (2010). *The New Science of the Mind: From Extended Mind to Embodied Phenomenology* (Cambridge, MA: MIT Press). <https://doi.org/10.7551/mitpress/9780262014557.001.0001>
 32. Rowlands, M., (2016a). *Are animals persons?* *Animal Sentience* 2016.101.
 33. [Safran Foer](https://doi.org/10.1016/B978-0-13-035318-2.ch001), J., (2009). *Eating animals*. Little, Brown and Company, ISBN 0316069906.
 34. Stewart M., Webster J., Schaefer A., (2005). Infrared thermography as a non-invasive tool to study animal welfare. *Anim Welf*, 14, 319–25.
 35. TeachKind@peta.org • *TeachKind.org*, (2015). People for the Ethical Treatment of Animals, 501 Front St., Norfolk, VA 23510 757-622-7382.
 36. Tilman, D., Clark, M., (2014). Global diets link environmental sustainability and human health.
 37. *Nature*, 515, 518–522, Published online, 27 November 2014, doi: 10.1038/nature13959. <https://doi.org/10.1038/nature13959>
 38. Turner-McGrievy, G.M., Wirth, M.D., Shivappa, N., (2014). Randomization to plant-based dietary approaches leads to larger short-term improvements in Dietary Inflammatory Index scores and macronutrient intake compared to diets that contain meat. *Nutr Res*. Published online on December 2.
 39. Westerath H.S., Gygax L., Hillmann E., (2014). Are special feed and being brushed judged as positive by calves? *Appl Anim Behav Sci*; 156:12–21. <https://doi.org/10.1016/j.applanim.2014.04.003>

Websites list:

40. <http://salvaunagnello.com/il-parere-degli-esperti/>
41. <http://www.animalequality.it/>
42. <https://www.animalpetitions.org/>
43. <https://www.animalsasia.org/>
44. <https://www.aspca.org/>
45. <http://www.awf.org/>
46. <http://www.care2.com/>
47. <http://www.centerforfoodsafety.org/>
48. <http://www.ciwf.org.uk/>
49. <http://www.enpa.it>
50. <http://www.foe.org/>
51. <http://www.greenpeace.org/international/en/>
52. <http://www.grey2kusa.org/index.php>
53. <http://www.humanesociety.org/>
54. <http://www.idaindia.org/>
55. <https://www.ifaw.org/>
56. <http://www.idausa.org/>
57. <http://www.lav.it/>
58. <http://www.laverabestia.org/>
59. <http://www.LCAnimal.org/>
60. <http://www.lipu.it/>
61. <http://www.nelcuore.org/>
62. <http://www.oceanconservancy.org/>
63. <http://www.oipa.org/>
64. <http://www.peta.org/2015/>
65. <http://www.pcrm.org/>
66. <http://www.savejapandolphins.org/>
67. <http://www.savethechimps.org/>



68. <https://www.thepetitionsite.com/>
69. <http://www.veganwiz.com/>
70. <https://www.worldanimalprotection.us.org/>
71. <https://www.worldwildlife.org/>