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Dissection in Pre-college Education¹

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Summary

This paper discusses the educational and moral issues surrounding dissection of non-human animals in pre-college education. It argues that this exercise has no benefits to students that could possibly justify the purposeful killing of healthy animals.

Keywords: alternative, animal welfare, compassion, dissection, ethics, kindness, morality, non-human animal, science education, student rights

The issue of dissection in pre-college schools is of great moral significance. Millions of non-human animals (animals³) have their lives taken from them every year to the dissection trade⁴. Most of these animals appear to have been free-living (wild) and were removed from their native habitats, killed (often with no attention to prevention or alleviation of pain), and shipped to various institutions. This has been particularly the case with amphibians and reptiles⁵. In some cases, the decimation of the animals was so great that it led to serious insect problems, and a ban on capture and export had to be initiated⁶.

As a teacher, I am aware that there are basically two types of learning: the acquisition of conceptual knowledge or facts, and the acquisition of manual skills. At the primary and secondary school level, the former is of considerably greater importance. Furthermore, the former category lends itself particularly well to alternatives to the harming or killing of animals. Dissection at this level of school does not provide useful experience in manual dexterity.

The often-used excuse that the 'hands-on' experience of dissection is necessary for those wanting to become biologists or medical personnel simply is untrue. It flies in the face of logic to insist that dissection, at the high school level or below in particular, is somehow preparatory for the rigours of human or veterinary medical school. As one who did not dissect in high school, and who now is a veterinarian and has spent most of his career training doctors-to-be, I can unequivocally state that the experience of dissection, or similar exercise, is totally unnecessary for the biologically minded pre-college student.

Dissection of the dead bodies of animals at the high school level or below, appears to be a 'rite of passage' rather than a well thought out and scientifically proven method of teaching. There are no data to show that this method of teaching in any way improves the student's understanding of biology. The few studies which have been done have shown no difference between students who dissected and those who did not with respect to grasping the concepts and being able to apply them⁷.

Dissection often is defended by the statement that it fosters an understanding of *human*

1 The intent of this review is to demonstrate that killing animals is not necessary for teaching anatomy or instilling an interest in science. Although some of the references may be considered 'dated', they are still valid educationally. In addition to the lack of scientific credibility or necessity, there are strong moral arguments against subjecting non-consenting beings to harm and death; this subject is addressed in another manuscript ([Buyukmihci 2022-12-01](#)).

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3 Purely for the sake of convenience, I may refer to animals other than humans as "animals", recognising that all are animals of one kind or another; there is no intention to imply that any, even a human, is morally superior or intrinsically more valuable than another.

4 [Clifton 1990](#)

5 [Clifton 1990](#); [Clifton & Greanville 1989](#)

6 [Jayaraman 1987](#)

7 [Leib 1985](#); [McCollum 1988](#); [Strauss & Kinzie 1994](#)

anatomy. Using non-human animals, however, who have an anatomy different from humans – as well as from each other – cannot achieve this end. The use of human models and then application to the students themselves, where feasible, are more instructive for this. It has been shown, for example, that modelling the human body using clay resulted in a better grasp of the human body than did cat dissection for college-level students⁸. Interactive videodiscs were shown to be an effective method of teaching human anatomy to undergraduate college students⁹. There is no reason why similar methodology cannot be used in pre-college education.

There is nothing about the physical act of dissection which is of educational value. Only the information learned is of value. Some talk about feeling the 'texture' of organs or seeing the 'colour' of different tissues. This is patent nonsense, as can be appreciated if one considers for a moment about what dissection generally is in these situations: the cutting up of *preserved* tissues, tissues which have lost their natural colour and which no longer have their normal texture.

There also is the issue of the preservatives which are used in preparing the dead animals' bodies. Formalin, made from formaldehyde, is commonly used. This material is highly toxic and is carcinogenic (cancer producing). It is incomprehensible to subject children to this or any toxic materials for something which is not necessary. Having done research for several decades, using many different types of tissue fixatives, I am not aware of any which are not toxic. Whereas some companies rinse the bodies and place them in a *less* toxic material for delivery, some formaldehyde still is there and leaks into the less toxic solutions.

There are no defensible reasons why dissection at this level of school should be continued¹⁰. If the purpose of the exercise is to motivate the students to take an interest in science, there are other, far better and morally defensible methods. For example, there is a laboratory manual in physiology which uses the students themselves as subjects to learn basic physiology¹¹. There also have been developed a set of experiments in which the students learn fundamental biological principles using themselves as subjects¹². These methods can truly motivate a student, as opposed to the cutting up of largely healthy animals who were killed expressly for that purpose.

There are numerous alternatives which would give the student the foundation he or she needs to go on to other endeavours. Detailed photographs and drawings would suffice for basic information on the anatomy of various animals. There are lifelike models which could be used to enhance the lesson. The materials available are too numerous to list here individually.

Dissection is being removed from curricula worldwide. Until it is completely banned, however, whether to dissect should be the choice of the student¹³, with reservations as amplified later in this text. Some teachers attempt to force a student to dissect even when the student has indicated that he or she is sincerely opposed to this. Even conservative groups such as the National Association of Biology Teachers agree that ethical concerns of students need to be honoured¹⁴. To force students to do something morally objectionable or otherwise repugnant is counterproductive and provides for a poor educational experience¹⁵. Students, even at the professional level, lose a degree of sensitivity for non-human life when forced to harm or kill it under these circumstances¹⁶. We know from human studies that many people tend to obey authority figures even when being

8 [Motoike et al 2009](#); [Waters et al 2005](#)

9 [Guy et al 1992](#)

10 Gilmore [1991-04-01, 1991-05-01](#); [Orlans 1991](#)

11 [Russell 1978](#)

12 [Orlans 1974](#)

13 [Balcombe 1997](#)

14 [NABT 2019](#)

15 [Maki 1988](#)

16 [Maki 1988](#)

asked to do something the person finds morally objectionable¹⁷. Students in pre-college school are even more vulnerable¹⁸.

Some teachers simply will downgrade the student or tell them to take other courses. This is unconscionable behaviour for a teacher. The student has a right to the education and we do not have a right to impose our beliefs upon them, especially when those beliefs unavoidably involve the destruction of other living beings. As teachers, we accommodate students having special needs, such as the hearing impaired. Those who object to harming or killing of animals in the name of education have special needs, too. Theirs is no less important than others' and we should applaud them for their sensitivity and compassion.

Some argue that dissection should at least be available for those who want it, that we should not take the 'right' of dissection away from them. This is not compelling in the least if it involves purposeful killing. One must keep in mind that there always is a third, interested and *unwilling* participant forced into this scenario: the animal who is to have her or his life destroyed. By analogy, although it may be your right to smoke cigarettes and suffer the consequences, you have no right to do it in a manner which puts others at risk. There has to be substantial justification to take the life of an innocent animal, and this is utterly lacking in the case of pre-college dissection. Bodies of animals who have died of natural or accidental causes could be used and would be the perfect substitute when it can be shown conclusively that actual tissue is needed for a particular situation.

Dissection at the high school or lower level is biologically, pedagogically and morally indefensible. It is even being replaced or refined by effective and morally defensible methods of teaching anatomy in human and veterinary medical schools¹⁹.

Finally, for those of you who are facing this issue, you may find it intimidating to ask for an alternative or refuse to participate for fear of reprisal. Take heart, however, in the fact that there is nothing your teachers can do to you that is as bad as what they expect you to do to the animals.

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17 [Milgram 1974](#)

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