

Comments and Criticism

Commentary on science teachers and the dissection debate: Perspectives on animal dissection and alternatives

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In the April 2012 issue of *International Journal of Environmental & Science Education*, Oakley (2012a) claims that “an estimated 10-12 million animals per year are killed in North America — for a school science activity” (p. 254). This claim (also made in Oakley, 2009 and Oakley, 2012b), is based on a citation, not of a peer-reviewed study or an official report, but rather of a figure touted by animal rights activist Jonathan Balcombe (not credited in Oakley’s citation) in a quote, with no supporting information, from a 15 year old popular magazine article. Not only is the cited article dated and the number ranges unfounded, but it is unclear whether the figure includes organisms discussed in the article as typical for classroom dissection that are not killed expressly for the purpose of classroom dissection such as fetal pigs (opportunistically obtained from abattoirs where they would be considered offal and sent to landfills), dogs or cats (obtained from animal shelters and veterinary clinics after humane euthanasia), or various aquatic organisms (often salvaged from unavoidable by-catch in the commercial fishing industry). Oakley’s citation of Balcombe via Rosenberger (1998) as an authoritative source for a quantitative claim is inappropriate at best.

Furthermore, by drawing distinction between dissection and “humane science education practices” (Oakley, 2012a, p. 253), Oakley appears to imply that all dissection is inherently inhumane, and she concludes that “school-based dissections are *not* justified” (p. 264, italics for emphasis in the original). Her opinion, which is not shared by the majority of biology teachers nor the major life science education organizations, has been consistently communicated in other recent papers wherein she has expressed that the practice of dissection in education “needs to be critically reconsidered” (Oakley, 2009, p. 65) and that she seeks to “decentre the notion that dissection is the ‘best’ way students can learn” (Oakley, 2012b).

But is there a difference between what students can learn from dissection and what they can learn from the alternatives Oakley advocates? The research cited by Oakley supports her claim that some alternatives to dissection can and do work, perhaps even as well as and in some cases better than dissection, at achieving goals related to student knowledge of the general positions of anatomical features. Aside from the lack of ability with virtual alternatives to exemplify natural variation among individuals (e.g. anomalies, pathologies, various mutations, etc.), Oakley

does not consider, as many teachers no doubt do, that the goals of laboratory activities involving dissection often include development of students' skills and techniques that are important for participating in science programs and careers. For required general education courses focusing on basic content knowledge alone, teachers may well decide that alternatives to dissection are appropriate. But for many students, particularly those who choose to participate in university preparatory programs (such as Advanced Placement or International Baccalaureate) or in vocational programs in allied health or biotechnology, the acquisition of proper dissection skills is very valuable.

Oakley's own data reveal, and she admits, that teachers definitely do consider ethical questions in their pedagogical decisions, but she passes it off saying "Given the low ranking of ethical concerns, it would appear that teachers are not engaging very deeply with the ethical dilemma dissection presents" (Oakley 2012a p. 263). But just because other factors rank higher on teachers' lists of concerns regarding the teaching of animal biology does not necessarily mean that they have not thought seriously about the ethics involved. It seems likely that they may have considered the ethics and found a) the regulations around the ethical treatment of animals used for teaching and research to be very stringent and well thought out by a host of scientists and educators, and b) under these ethical regulations, dissection is the best method for achieving the objectives and intended outcomes of their curricula. If this is true, they may well rank ethical concerns below other factors after a great deal of thought on the issue. Indeed, the National Association of Biology Teachers (NABT, the largest professional organization of life science educators in the world) has considered classroom dissection numerous times and with much input from scientists and educators drawing on decades of deliberation and experience. In its current form, the NABT statement on the use of dissection in teaching reads, in part,

Classroom experiences that involve nonhuman animals range from observation to dissection. As with any instructional activity, the use of nonhuman animals in the biology classroom must have sound educational objectives. Any use of animals must convey substantive knowledge of biology and be appropriate for the classroom and for the age of the students.... The classroom teacher is responsible for determining what activities will be most effective in meeting the educational objectives of a class. NABT encourages teachers to be approachable and responsive to substantive student objections to dissection and to provide appropriate lessons for those students. At the same time, NABT urges teachers to be aware that alternatives to dissection have their limitations. NABT supports the use of these materials as adjuncts to the educational process but not as exclusive replacements for the use of actual organisms. (NABT, 2008.)

The NABT statement is accompanied by supporting documents including access to information on state and national regulations regarding the use of animals in education and research, congruent statements and extensive information from other professional organizations on the use and treatment of animals in laboratories, and links to peer-reviewed articles for teachers on engaging in ethical discussions about dissection (These resources are freely accessible: www.nabt.org/websites/institution/index.php?p=97). Perhaps science teachers have not been quite as superficial in their consideration of the ethics of dissection as Oakley asserts.

Alternatives to dissection certainly have their place, but dissection is warranted in many situations. Yes, teacher training and professional development programs should include exposure to a range of anatomical models, virtual and otherwise, whether as alternatives to dissection where appropriate or in conjunction with traditional dissection. And, yes, teachers ought to be informed of regulations around the use of animals and encouraged to consider the ethics of all of

their pedagogical practices. I admire scholars like Oakley who stand up for the rights of students, who advocate for animal welfare, and who advance awareness about ecological and other impacts of educational practices. I do hope, however, that this can be done without prejudice and based on well-documented sources of information. I would also hope that science educators who make pedagogical decisions in accordance with the objectives of their curricula, in line with the reasoned consensus of their professional organizations, and under the ethical regulations governing their practice, would not therefore be accused of acting inhumanely or unethically by people outside of their profession whose personal opinions or agendas run counter to widely acknowledged best practices.

References

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