A question of intent: Application of the Knobe effect in teaching ethics

Charles N. Bertolami DDS, DMedSc | Cristián Opazo MSc | Malvin N. Janal PhD

1 Office of the Dean and Department of Oral & Maxillofacial Surgery, New York University College of Dentistry, New York, USA
2 Office of Academic Affairs, Educational Technology, New York University College of Dentistry, New York, USA
3 Department of Epidemiology and Health Promotion, New York University College of Dentistry, New York, USA

Correspondence
Charles Bertolami, DDS, DMedSc, NYU College of Dentistry, 345 East 24th Street, New York, NY, 10010, USA.
Email: cnb4@nyu.edu

Purpose/objectives: The Knobe effect refers to a measurable tendency among people to believe that undesirable side effects are brought about intentionally while desirable side effects are brought about unintentionally. People blame decision-makers for bad outcomes but do not credit them for good outcomes. The purpose of this study was to determine if the same is true for dental students and whether, as health care practitioners, students might mistakenly expect a benefit-of-the-doubt entitlement for themselves that the public is unwilling to bestow when an outcome is bad.

Methods: Over three years, roughly 500 first-year dental students were posed two previously published standardized Knobe cases requiring a yes/no response. The survey was conducted as part of a classroom exercise with aggregated responses recorded digitally, anonymously, in real time.

Results: The Knobe phenomenon was confirmed among dental students but the effect was muted in comparison to that of the public. Dental students aligned with the general public in declining credit for a good outcome but not in attributing blame for a bad outcome. Overall, dental students' negative responses exceeded their positive responses for both questions—confirming the Knobe effect but also revealing that dental students were less willing to take a stance by positively assigning either praise or blame.

Conclusion: Using an in-class survey instrument to demonstrate the Knobe effect among dental students may be one way of making more concrete an unjustified benefit-of-the-doubt entitlement these future professionals may otherwise expect for themselves.

KEYWORDS
dental education, dental student, ethics, intent, side effect, survey

1 INTRODUCTION

There is a difference between injuring someone on purpose and injuring that person by accident. In the case of physical injury, the former constitutes battery, a crime, while the latter represents, at most, a tort claim. The former may proceed to a fine and/or conviction, while the latter, when occurring within a therapeutic context, usually leads to a...
financial settlement indemnified by a malpractice insurance carrier. This distinction is true even when the injuries sustained in the two cited circumstances are identical—for instance, a tooth avulsed as part of a barroom brawl versus the same tooth avulsed as an iatrogenic mishap during a dental treatment procedure. The difference comes down to a question of intent.

Intent, defined according to what was in the mind of the agent at the time of an occurrence, is not always easy to discern. The two examples given above share in common that the outcomes represent only side effects as defined by Felz. In neither case was the primary intent to avulse a tooth, although in the first situation producing a generalized state of harm was intended, while in the second case it was not. A side effect is defined as a reasonably foreseeable consequence of an action whatever the primary aim may have been—that is, collateral damage or collateral benefit. In the emerging field of Experimental Philosophy, Joshua Knobe has shown that “the perceived goodness or badness of side effects of actions influences people’s ascriptions of intentionality to those side effects” and in so doing affects “people’s intentional action intuitions.” People “seem considerably more willing to say that a side effect was brought about intentionally when they regard that side effect as bad than when they regard that side effect as good.” Moreover, the ascription of intentionality to side effects colors—positively or negatively—how the overall act is construed, extending beyond the side effects themselves.

In both dental practice and dental education, understanding the public’s intuitions regarding intentional actions is important because dentists as professionals might expect a benefit-of-the-doubt entitlement when things go wrong: that is, attributing to the patient a state of mind that the dentist is honest and deserving of trust even when there are doubts. Dentists may be susceptible to believing this based on their own internal good intentions and, more derivatively, on the stature they expect patients to attach to their title, qualifications, education, reputation, academic degrees, and jurisdictional licensure. Is this benefit-of-the-doubt entitlement justified? Does the public tend to ascribe good intent even when things go wrong? Do they give credit when things go well?

2 | METHODS

The New York University Institutional Review Board (IRB) approved this study as exempt from IRB oversight (IRB-FY2021-5153). Over 3 years, roughly 500 first-year dental students at the New York University College of Dentistry were posed two previously published standardized Knobe cases requiring a yes/no response. The survey was conducted as part of a classroom exercise in the course Professionalism and Ethics in Healthcare. The Top Hat digital classroom polling system (Tophatmonocle Corp, Toronto, ON, Canada) was used, collecting and reporting aggregated responses, doing so in real time, anonymously, without generating individually identifiable data. Immediate feedback of responses to students was seen as enhancing the exercise’s usefulness as an in-class educational tool. Anonymity and the voluntary nature of the survey were aimed at alleviating student anxiety over the use of the data for tracking attendance, influencing course grade, or stress based on the perception that an expected correct response exists. Thus, students had the option of answering both questions, neither of the questions, or either question one or question two without consequence.

The standard Knobe effect questions were as follows:

Case 1: “A vice president of a company goes to the chairman of the board and says, “We have got a new project. It is going to make oodles of money for our company, but it is also going to harm the environment.” The chairman of the board says, “I realize the project is going to harm the environment. I do not care at all about that. All I care about is making as much money as possible. So start the project.” The project starts, and sure enough, the environment suffers.”

Question 1: Did the chairman intend to harm the environment? (Answer yes or no).

Case 2: “A vice president of a company goes to the chairman of the board and says, “We have got a new project. It is going to make oodles of money for our company. It is also going to have a beneficial impact on the environment.” The chairman of the board says, “I realize the project is going to benefit the environment. I do not care at all about that. All I care about is making as much money as possible. So start the project.” The project starts, and sure enough, the environment benefits.”

Question 2: Did the chairman intend to benefit the environment? (Answer yes or no).

3 | RESULTS

The findings as shown in Table 1 are consistent with the Knobe effect because for each of the 3 years surveyed more students attributed to the decision-maker (the chairman) the intent to harm rather than the intent to help. Correspondingly, for each year, more students denied an intent to help in comparison with an intent to harm. Aggregated across the 3 years in Table 2, 25% of students concluded that the chairman intended to harm the environment in Case 1 while half that number, 12.5% (rounded to 13% in
Table 1 Responses of first-year dental students to standardized Knobe questions

| Year | Response | Intention to harm? | Percent | Intention to help? | Percent |
|------|----------|--------------------|---------|--------------------|---------|
| 2020 | Yes      | 79                 | 25%     | 40                 | 13%     |
|      | No       | 231                | 75%     | 268                | 87%     |
| (N = 310) |     |                    |         |                    |         |
| 2018 | Yes      | 26                 | 20%     | 10                 | 16%     |
|      | No       | 101                | 80%     | 106                | 84%     |
| (N = 127) |     |                    |         |                    |         |
| 2017 | Yes      | 21                 | 34%     | 5                  | 6%      |
|      | No       | 41                 | 66%     | 80                 | 94%     |
| (N = 85) |     |                    |         |                    |         |

Table 2 Aggregate responses of dental students and the general public

| Dental students | Intention to harm? | Intention to help? |
|-----------------|--------------------|--------------------|
| Yes             | 25%                | 13%                |
| No              | 75%                | 87%                |

| General public  | Intention to harm? | Intention to help? |
|-----------------|--------------------|--------------------|
| Yes             | 82%                | 23%                |
| No              | 18%                | 77%                |

the table), concluded that the chairman intended to help the environment in Case 2. The results of the two cases can be integrated in the usual Knobe format: 25% of the participants say that the chairman brought about the bad side effect (harming the environment) intentionally, while 87% say the chairman did not bring about the good side effect (helping the environment) intentionally.

While this outcome confirms the Knobe phenomenon among dental students, the effect is muted in comparison to that of the general public. In other published work, 82% of public participants felt that the bad side effect was intentional (compared with only 25% for dental students). Moreover, 77% of the general public said the chairman did not bring about the good side effect intentionally. This compares with 87% of dental students who felt the same way. The 2020 data were collected in a manner that made cross tabulation possible. That is, the number of respondents who said yes to Question 1 while also saying no to Question 2 (Q1 = yes, Q2 = no; positive for Knobe effect) could be compared with the number of respondents who said no to Question 1 while also saying yes to Question 2 (Q1 = no, Q2 = yes; negative for Knobe effect). By this methodology, the Knobe phenomenon was confirmed on the group level (19.3% vs. 6.2%). Application of the McNemar test for a difference in rates indicates that this outcome is not likely due to chance ($p < 0.001$).

Dental students seemed more aligned with the general public in declining credit for a good outcome but not in attributing blame for a bad outcome. Overall, dental students’ negative responses exceeded their positive responses for both questions—confirming the Knobe effect but also revealing that they were less willing to take a stance by positively assigning either praise or blame.

4 | DISCUSSION

Even when the intent of a primary act is certain, the intent of foreseeable side effects may be uncertain. As such, side effect intent can overshadow ethical appraisal of the primary act. For instance, in wartime, collateral damage in the form of injury to civilian non-combatants (a side effect) may override and invalidate the ethical claims of achieving the primary objective of destroying a munitions factory. The trolley problem first advanced by Philippa Foot in 1967 and extended by others as summarized by Edmonds has been among the tools used to assess the intentionality of side effects. Their efforts, however, have been neither dispositive nor satisfying. For this reason, the work of Knobe has proven useful—it short circuits theoretical considerations on the intent of side effects by cutting directly to people’s intentional action intuitions as a matter of practical real-world importance. Such folk intuitions are what really matter to health care practitioners and decision-makers.

While the Knobe effect was discernible among this population of dental students, the phenomenon was relatively feeble in comparison with that of the general public. Students were inclined to respond “no” to both questions in both circumstances. One reason may be that, unlike the general public, dental students did not differentiate primary intent from side effect intent. Obviously, the primary intent of the chairman was to make as much money as possible, and this alone is what the students understood the chairman’s intent to be. For these students, the chairman is neither absolved nor lauded for the intent underlying the stated foreseeable environmental consequences. In other words, dental students may have answered a question that was not being asked, rewording it internally to read, “What was the intent of the chairman?” rather than answering the question that was asked, “Did the chairman intend to harm/help the environment?” They may have done so because of their sophistication as test-takers, seeking the
one correct answer that, in this case, was found by reductively rephrasing the question and relieving the ambiguities intrinsic in this kind of exercise.

Alternatively, another reason why these students were disinclined to assign blame may be that even during their first-year of professional studies they have already come to identify with being an authority figure and decision-maker, finding themselves sympathetic with that particular point of view and reticent when it comes to attributing blame. Failure of professional persons to interrogate themselves over intentionality of side effects could lead to falsely exonerating the decision-maker for negative side effects while mistakenly promoting expectation of a benefit-of-the-doubt entitlement.

Both explanations are relevant to teaching ethics in dental schools. The first in sensitizing students to recognizing and taking ownership for foreseeable side effects. This cohort of students did not do so, possibly because of a simplistic understanding of intent. The second, based on the Knobe effect, underscores the importance of understanding that the public is far more likely to blame than to credit, and so dentists should not expect a benefit-of-the-doubt entitlement.

Why the Knobe phenomenon manifests itself in people, even cross-culturally,8 is a matter of conjecture. It could be connected with the observation of Baucells and Sarin9 that negative feelings associated with loss outweigh the positive feelings associated with the same amount of gain. Conceivably, an exquisite sensitivity to loss explains the greater tendency to blame for negative side effects than to praise for positive side effects and could offer, in principle, an evolutionary survival benefit. Attribution of blame can be deceptively appealing and even well intentioned as when some teachers blame students for poor performance while not praising them for good performance.10 This teaching behavior is self-reinforcing in technical fields requiring repetitive exercises as the teacher observes improvement in student performance after negative critique but worsening after positive critique. This outcome is a side effect of a natural regression toward an improving mean in exercises involving repetitive performance.10

Yankelovich and Furth offer guidance for professional people living in an era of mistrust: 1. No one gets the benefit of the doubt.11,12 Assume the need to demonstrate good faith/responsiveness; 2. Being “good people” and having “good motives” are not acceptable justifications for poor results; 3. Recognize that honesty, integrity, and stewardship elicit a response from people hungry for ethical renewal; and 4. Building trust requires making few promises and commitments; living up to each faithfully; and understanding that performance should exceed expectations. This advice may qualify as simple folk wisdom; however, evidence of the Knobe effect in the general population substantiates the value of these recommendations. Moreover, routinely using an in-class survey instrument to demonstrate the Knobe effect among dental students may be one way of making more concrete the unjustified benefit-of-the-doubt entitlement these future professionals may otherwise expect for themselves.

ACKNOWLEDGMENTS
The authors would like to thank Drs. Richard Niederman, Shulamite Huang, and Ryan Ruff for guidance and assistance in statistical analysis and Ms. Elyse Bloom for editorial assistance.

REFERENCES
1. Felz A. The Knobe effect: a brief overview. J Mind Behavior. 2007;28(3/4):265–277.
2. Knobe J. Intentional actions and side effects in ordinary language. Analysis. 2003;63(3):190–194.
3. Merriam Webster Dictionary. Search for a Word. 2021. https://www.merriam-webster.com/dictionary/the%20benefit%20of%20doubt. Accessed January 30, 2021.
4. Edmonds D. Would You Kill the Fat Man: The Trolley Problem and What Your Answer Tells Us about Right and Wrong. Princeton, New Jersey: Princeton University Press; 2014.
5. Foot P. Natural Goodness. Oxford: Clarendon; 2002.
6. Foot P. Moral Dilemmas and Other Topics in Moral Philosophy. Oxford and New York: Clarendon; 2002.
7. Foot P. The problem of abortion and the doctrine of double effect. Oxford Rev. 1967;5:5–15.
8. Knobe J, Burra A. The folk concepts of intention and intentional action: a cross-cultural study. J Cognit Cult. 2006;6(1-2):113–132.
9. Baucells M, Sarin R. Engineering Happiness: A New Approach for Building A Joyful Life. Los Angeles: University of California Press; 2012.
10. Kahnemann D. Thinking, Fast and Slow. New York: Farrar, Straus and Giroux; 2011.
11. Yankelovich D, Furth I. The role of colleges in an era of mistrust. Chronicle Higher Educ. 2005;52:B8–B11.
12. Yankelovich D. Profit with Honor: The New State of Market Capitalism. New Haven and London: Yale University Press; 2006.

How to cite this article: Bertolami CN, Opazo C, Janal MN. A question of intent: Application of the Knobe effect in teaching ethics. J Dent Educ. 2021;1-4. https://doi.org/10.1002/jdd.12602