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# Does Teaching Ethics Make a Difference? A Preliminary Study Using an Outcomes Assessment Process

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## Abstract

Does teaching ethics to students in agriculture and natural resources have any measurable impact upon their perceptions, beliefs and values? This study suggests that it does in at least two important ways: first, students came to think more critically about their personal value sets and to entertain the notion that values and beliefs might change as ethical reasoning develops; and second, that course content effected some movement toward greater inclusiveness, i.e. a shifting away from egoism and toward greater altruism. However, in spite of our conscious efforts in the course to instill greater appreciation for cultural diversity, instruction seemed no substitute for first-hand experiences.

Based upon our preliminary findings, we believe (1) interactive opportunities to work with case studies, and employing topical situations from agriculture and natural resources, offer students the best chance to consider new ideas and become more willing to examine their own basic assumptions, perceptions, beliefs, and values; and (2) that course outcomes based upon an applied approach to ethics instruction are measurable and can be objectively assessed with reasonable reliability.

## Introduction

In the aftermath of so many ethical breaches within our society during the past decade— political, corporate, medical, religious, academic—the subject of ethics has taken on a renewed and urgent interest among many college educators. Ethical components have been added to course syllabi and whole new courses in ethics added to core

curriculums. Agriculture as an academic discipline, as an industry, exporter, user of petro-chemicals and biotechnology, manager of soil and water, food provider, etc. is more than ever under a constant scrutiny by ethicists, as well as an increasingly skeptical public, to practice in ways that are consistent with ethical principles. Similarly, the field of natural resources management is challenged to examine its practices and assumptions in ways that go beyond just the traditional cost-benefit arguments. They are challenged to consider an accounting methodology that factors not just what is tangible and immediately measurable, but what might have value according to criteria of non-consumption use, intangible valuation and pricing, as well as inter-generational sustainability.

## History and Background

In response to such concerns, the University of Nebraska College of Agriculture and Natural Resources (CASNR) initiated a course in "Ethics in Agriculture and Natural Resources" some ten years ago. Using a team teaching approach and a student-active learning pedagogy, the course intended to (1) challenge students to develop their awareness of situations that suggest a need for ethical analysis and responses, and (2) sharpen their ethical reasoning skills in formulating sound and persuasive arguments in support of a well-defined personal ethical stance.

This class meets twice a week for 75 minutes. It examines ethics from three essential perspectives: utilitarianism, kantianism and virtue ethics. Students are expected to apply appropriate theory and terminology to the variety of ethical situations and case studies used. Topics covered include: sustainable agriculture; animal rights and welfare; environmental concerns about water, air, soil; nutrition; globalization and cultural diversity issues; and biotechnology and corporate responsibility. Each semester, invited

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speakers on these and related topics provide a practical-world of work perspective to the students. The majority of students are in agricultural studies, though there are sizeable minorities from environmental studies, natural resources, and food and nutrition sciences. Enrollments have increased substantially over the past several years to a current level of 65-70. The course is team-taught by the authors, one from Agricultural Economics, the other from Agricultural Leadership, Education and Communication. Lecturing duties are generally divided, though both attend virtually all classes and intermittently function as facilitators for small-group activities and respondents to the general lectures.

Though various changes in curriculum, class size, and methodology have occurred over the decade, the original intent remains intact. The purpose continues to have students integrate their learning from other courses in their respective disciplines, as well as from their own experiences, within an ethical framework that they can effectively articulate and defend. Our pedagogical responsibility is not to re-shape their beliefs and values - that would be presumptuous - but rather to provide a classroom forum for examining them in light of basic ethical theory and sound reasoning practices. The classroom becomes a kind of simulation laboratory where certain ethical positions can be described, and ethical hypotheses tested, prior to what students will encounter in real circumstances in their roles as career professionals and citizens.

Moreover, the classroom interactions also mirror reality in that students themselves represent a broad diversity and range of opinions and values, not unlike what they will face in the professional workplace and society. Because strong differences of opinion exist and are expressed about what is a "right" or "wrong" action, a "good" or "bad" value, about what we ought to do, or should do, students gain a greater appreciation for the complexities of conflicting values and belief systems. Too, there is a growing awareness that differences and opposing viewpoints can be legitimately aired and debated in an environment of mutual respect and civility. For example, in this ethics course which is comprised of a variety of majors in traditional agriculture and environmental studies and natural resources, different and opposing views arise regarding any number of issues: sustainability, rights of nature, animal liberation, bioethics, anthropocentrism, etc. Frequently, they can have strong contrasting viewpoints about environmental, eco- and biocentrist concerns. But, as discussions often unfold, an opportunity frequently happens for a "teachable moment" in applied ethics. Previous studies, that indicate the value of inserting actual real-world issues into courses in general and ethics courses lend specific support to this

approach (Mason, 1994, and Stark, 1993).

However, as is true of any educational experience, the most important question always is: does it make a difference? Does this course in applied ethics have some effect on the biases, pre-judgements, and belief systems, of students? If so, to what measurable degree? Does this educational experience have the effect of changing perceptions, re-enforcing them, or modifying them? Is there some enhancement of skills in identifying ethical dilemmas, and the ability to apply principles to prescribed behavior? (Goodpaster, 1982). In short, does the course have any effect on ethical thinking, and does it result in a more effective set of responses to ethical situations? If there are no changes, and students think essentially the same at the end of the course as they did at the beginning, then one might legitimately question why such a course is needed. However, if it does have instrumental value and stimulates sound ethical thinking and reasoning, then it may well serve an important function in general education and may merit being part of the core curriculum (Ratcliff, 1992 and Dary, 1991).

## Objectives

The primary purpose of this study was to devise an ongoing procedure for measuring the impact, if any, that the course "Ethics in Agriculture and Natural Resources" has upon student perceptions, beliefs and values. Does the course generate an environment in which students engage in critical thinking—even to the point of reconsidering their previously held beliefs and value sets? If so, what type of change occurs and what are the associated implications for altering course content and/or process?

Through a specially designed outcomes assessment procedure, we wish to test the viability of content and process relative to course objectives, and make changes dependent upon their efficacy (Angelo, 1991). In so doing, we should be able to strengthen the practical applications approach, and adopt new case exercises, lectures, speakers, assignments, projects, etc. to those areas which may require adjustment or revision.

Since ethics, in one sense, is always addressing a new, unique case and set of circumstances, it is crucial that the course designers engage in a continuous process of self-examination about its theoretical relevance, content and case applications.

## Methodology

The foundation of this assessment is a student survey administered at the beginning of the course, and again at the end. The procedure is similar to that used in assessing changes in student values regarding agricultural

policy issues (Broder, 1997). The survey instrument measures the degree of student agreement with 20 statements that represent beliefs and values statements associated with the course content.

Students are asked to give an ordinal ranking of one-to-five for each statement, with one being strongly disagree and five being strongly agree. The 20 statements consist of 10 pairs of two statements, each of which represents an opposing position of the other. In other words, students have an opportunity to respond to distinctly different and opposing statements for each of the 10 topic areas. The topics basically cluster around two major themes of questions [Table 1]: (1) statements 1-10 address ethical reasoning processes related to values and value structure as well as ethical reasoning beliefs; and (2) statements 11-20 address more specific perceptions and beliefs concerning agricultural and natural resource issues.

With the only difference between the pre- and the post-survey being the ordering of the 20 statements (to reduce student awareness of it being the same survey), comparisons of responses can be made. Scale averages for each statement and statement pairs are calculated and compared across surveys and tested statistically to identify significant changes in response. A variety of student classifications are also possible in order to assess level and degree of change over the semester as affected by educational major, gender, pre-college background, and international experience.

This outcomes assessment process was employed for the first time in Fall, 1998 with a class of 67 students. Results of that assessment follow.

### **Findings and Implications**

The operating hypothesis of our study was that the course does make a difference, and does have some effect on the biases, pre-judgements and belief systems of participating students. However, we anticipated that the overall significance would be modest, given the backgrounds of these students (mostly rural and agrarian, coming from generally small, stable and homogeneous communities that express more traditional and generally conservative values). We believe the findings generally support this hypothesis.

As indicated in Table 1, only three of the 20 statements yielded a significant difference in average response between the pre-test and the post-test when total student population was evaluated. These were statements: #1 ('value sets to be formed and unchangeable'), #5 ('personal happiness is life's ultimate goal') and #18 ('mega-sized hog operations are major polluters').

Statement #1 has particular significance. Whereas most students came into the course thinking their own

personal value sets were largely formed and unchangeable, many did change their view over the period of the semester. In fact, the number of those in strong disagreement with the statement rose dramatically by semester's end. Looking at paired responses to this statement by various categories, it is clear that agricultural majors and/or those from rural/ farm backgrounds changed the most over the course of the semester. For those students particularly, the course apparently caused them to think more critically about their own value sets, and entertain the notion that one's values and beliefs might logically change over time as ethical-reasoning skills develop. Statement #2, the inverse statement to #1, did not show statistical significance, though the direction of change indicated did logically correspond with the response to statement #1.

Statement #5 intends to assess the degree of egoism and altruism among respondents. We anticipated strong agreement with this statement, suggesting egoism. The significant change here suggests some movement away from egoism and towards greater altruism. We conclude that the course experience generated a greater sense of inclusiveness – that views about life expanded out from "me and mine" towards a process of thinking that challenged exclusiveness. There was an apparent shift in ethical perspective towards greater involvement of the interests of others.

Here, too, agricultural majors and/or those from rural/farm backgrounds showed the most pronounced change over the period of the course. For these students, it suggests that the course had some particular effect in broadening the perspective of their individual goals. We should note, however, that strong agreement with statement #6 ('social involvement is an important responsibility'), indicating social responsibility and active community involvement, probably does suggest another form of altruism. Response to this question was strong in both the pre-test and post-test, and did not change significantly over the semester; although the distributions did indicate movement off a neutral position towards greater agreement.

Statement #9 ('prefer living in a culturally diverse community') and #10 ('American culture is superior') provide important information, we believe, in terms of the ABSENCE of any significant change. While an important focus of the course is cultural diversity, and includes readings, discussions and speakers on this topic, there was no appreciable change in students' desire to live in more culturally diverse communities. Again, this may suggest contentment with one's status quo arrangements rather than an unwillingness to experience the possible ambiguities of what we call "culturally diverse community."

Our own operating bias (that through an exposure to "cultural differences" we might have some influence on the sensibilities of students towards a greater acceptance of

**Table 1: Students' Responses to Values and Beliefs Statements in Pre and Post-Test Measures in Course: Ethics in Agriculture and Natural Resources, Fall 1998<sup>1</sup>**

Values and Beliefs statements	Average response on a 5-point scale (1= Strongly Disagree to 5=Strongly Agree)		
	All Responses <sup>2</sup>	All Matched Responses <sup>3</sup>	
1. I consider my own personal value sets to be formed and unchangeable.			4
Pre-Test .....	3.43	3.33	
Post-Test .....	3.07	3.10	
2. My own set of values is constantly evolving.			
Pre-Test .....	3.37	3.54	
Post-Test .....	3.49	3.67	
3. Religious beliefs are not necessarily related to ethical decisions.			
Pre-Test .....	2.36	2.44	
Post-Test .....	2.23	2.41	
4. I consider my own religious beliefs to be an important factor in my life.			
Pre-Test .....	4.21	4.13	
Post-Test .....	4.25	4.13	
5. Seeking happiness for myself and my immediate household in my ultimate life's goal.			4
Pre-Test .....	4.28	4.31	
Post-Test .....	3.82	3.74	
6. Being actively involved in and contributing to society is an important social responsibility to me.			
Pre-Test .....	4.04	4.08	
Post-Test .....	4.08	4.15	
7. I believe in an ethic that provides the most good for the most people.			
Pre-Test .....	3.61	3.69	
Post-Test .....	3.44	3.64	
8. Personal ethical choices should be based upon fundamental and uncompromising principles of conduct.			
Pre-Test .....	3.59	3.62	
Post-Test .....	3.52	3.41	
9. I prefer living in a culturally diverse community.			
Pre-Test .....	2.89	3.10	
Post-Test .....	2.92	3.10	
10. I believe American culture is superior to other cultures.			
Pre-Test .....	2.90	2.85	
Post-Test .....	3.07	2.82	

Values and Beliefs statements	Average response on a 5-point scale (1= Strongly Disagree to 5=Strongly Agree)	
	All Responses <sup>2</sup>	All Matched Responses <sup>3</sup>
11. U.S. Agriculture should operate according to basic principles of capitalism and free enterprise.		
Pre-Test .....	3.66	3.62
Post-Test .....	3.57	3.46
12. U.S. Agriculture should be provided an economic “safety net” in the form of government intervention.		
Pre-Test .....	3.52	3.58
Post-Test .....	3.41	3.28
13. Family Farms are important for the maintenance of traditional values in the United States.		
Pre-Test .....	4.26	4.15
Post-Test .....	4.34	4.36
14. Family farms are just like any small business and have no claim to special treatment by the public.		
Pre-Test .....	2.73	2.74
Post-Test .....	2.62	2.45
15. Vegetarianism is a legitimate ethical position.		
Pre-Test .....	2.91	2.74
Post-Test .....	2.74	2.46
16. Promoting red meat consumption is ethical.		
Pre-Test .....	4.16	4.10
Post-Test .....	4.23	4.21
17. 3.67“Mega-sized” hog operations provide enhanced economic opportunity to rural communities.		
Pre-Test .....	2.76	2.85
Post-Test .....	2.61	2.44
18. “Mega-sized” hog operations are major contributors to environmental degradation.		5
Pre-Test .....	2.75	2.92
Post-Test .....	3.38	3.46
19. Environmental problems exist but are being effectively remedied.		
Pre-Test .....	2.67	2.72
Post-Test .....	2.64	2.54
20. Today’s environmental situation is very serious.		
Pre-Test .....	3.76	3.87
Post-Test .....	3.79	3.97

<sup>1</sup> Based on student responses to testing instruments administered at the beginning (pre-test) and end (post-test) of the University of Nebraska Course: Ethics in Agriculture and Natural Resources, Fall 1998. The number of pre-test completed responses was 67 and the post-test was 61.

<sup>2</sup> All responses to pre-test and post-test surveys without noting specific individual responses and changes.

<sup>3</sup> Matched responses refer to those in which students supplied their I.D. numbers on both the pre

and the post tests, thus allowing paired comparisons for each individual. The total number identified by I.D. number was 40.

<sup>4</sup> Significant difference between pre-test and post-test results at the **5 percent** level. Based on the Wilcoxon Signed Rank Test for paired difference experiments.

<sup>5</sup> Significant difference between pre-test and post-test results at the **1 percent** level. Based on the Wilcoxon Signed Rank Test for paired difference experiments.

differences, and challenge some of their more ethnocentric positions) seems to have had no real effect on changing student attitudes. Those students, however, who previously had first-hand experience in either traveling or living internationally appear to have come into the course with more interest in living in culturally diverse communities than those who did not have such experiences. This may suggest that, from a pedagogic perspective, instruction is no substitute for actual first-hand experiences in motivating students towards a greater acceptance of and appreciation for cultural diversity.

Regarding those more specific questions related to opinions about agricultural practices and the environment, we make the following observations and tentative conclusions.

With respect to statement #18 ('mega-sized hog operations are environmentally hazardous') students indicated a significant change in position regarding such operations in rural communities. Opinion clearly shifted towards agreement that such operations do contribute to environmental degradation. Though the course itself may not have been the full reason for such change in opinion – the issue was frequently highlighted in the news media at the time – the open discussions and debate, using ethical reasoning processes, may well have contributed to the re-shaping of student opinion.

Other issues having ethical implications suggested little change in student positions over the course of the semester. On the whole, students maintained strong agreement with the notion that family farms are important for the maintenance of traditional values. They disagreed with the statement that family farms are like any other small business and that they have no special claim to special treatment by the public and the government. They also agreed that U.S. agriculture should be provided an economic "safety net" in the form of government interventions,

though, at the same time, perhaps incongruently, they indicated agreement with agricultural policies that suggests agriculture should operate according to basic principles of capitalism and free enterprise.

The survey, in short, suggests a strong allegiance to rural values and traditions. Such support, however, seems to stand in some conflict with other traditional values that encourage free enterprise and market competition. We might extrapolate from our results that there does exist a certain ambivalence or ambiguity about these positions which many students hold.

As for environmental concerns, statements #19 ('environmental problems are being effectively remedied') and #20 ('the environmental situation is serious') clearly suggest a broad-based student position that the environmental situation remains serious and is not being effectively remedied. As might be expected, the strongest agreement with these statements came from non-agricultural majors who were primarily natural resource and environmental studies majors. On the whole, though, the degree of change over the semester was not statistically significant; although very measurable movement towards stronger agreement was apparent within some of the student groupings, particularly among the urban and female students.

### **Implications For Pedagogy**

Using an outcomes-assessment process centered around a pre- and post-survey, we conclude from initial findings that our course, "Ethics in Agriculture and Natural Resources," does make a difference, albeit marginal. Students were more open to the idea of their own personal value sets evolving over time, presumably from exposure in the course to diversity of viewpoints and processes of applied ethical reasoning. Moreover, their perceived life's goals, while still focused upon happiness of self and immediate household, moved towards a more altruistic

position. Through direct, real-life examples of ethical issues taken from their backgrounds and career aspirations, students' views of the world appear to have expanded. And that has happened, we believe, by one key pedagogical principle – presenting theoretical ethical positions in terms of an applied approach: providing ethical situations that had topical value, and case studies that were relevant to their own experiences and life situations.

Still, despite our concerted effort throughout the course to help students gain greater appreciation for cultural diversity and the cross-cultural sharing of many ethically-based value sets, there was no discernable change of position regarding the desirability of (1) living in a more culturally-diverse community, and (2) critiquing the idea of American culture as ethnocentrically superior. Direct international living and/or travel experience seems to be a major discerning factor in understanding the more positive values of understanding and appreciating cultural diversity. Nevertheless, we will use this measure to continue experimenting with other course materials and student-experiential learning sets in order to keep improving this particular educational outcome for future semesters.

While these are only initial findings from our first semester using an output assessment process, they are encouraging to us: and provide us with a rationale and strong basis for continuing to use and refine the process. As we monitor student outcomes over future semesters, and accumulate a larger data base, we believe we will better identify and implement such refinements to this applied

approach that will further strengthen and maximize the relevance of this course in students' lives and careers.

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## *Book Reviews*

**Economic and Business Principles in Farm Planning and Production**  
**Sydney C. James and Phillip R. Eberle, Iowa State University Press,**  
**413 pp. \$44.95**

Economic and Business Principles in Farm Planning and Production, by Sidney K. James and Phillip R. Eberle is a text designed for a course in farm management principles. While the book covers in detail the basic material that should be taught in any introductory farm management course, chapters treat advanced topics as well. Although many of the

topics covered in the book might be equally well suited to courses in small agribusiness management, the authors draw their examples consistently from farm firm management.

The first four chapters of the book are heavily grounded in basic accounting. Most agricultural economics departments now require students to take an introductory accounting course (or perhaps two) as a prerequisite for farm management. One of the best features of this book is the authors' ability to come up with specific examples from actual farming situations that illustrate in detail how the accounting principle should be applied to a specific situation faced by a farmer.

I am also quite fond of the figures in the introductory chapters. These figures bear the mark of authors who