

Ethics Test Results Before and After Ethics Training: A Disturbing Experience

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Outline of Talk

- **Berry's Course**
- **Berenbach's Test**
- **Berenbach Meets Berry**
- **Berry Uses Test**
- **The Test's Structure**
- **The Results**
- **Discussion About Results**
- **Conclusions**

Berry Teaches Ethics

Berry occasionally teaches CS492, “The Social Implications of Computing”.

It’s a 4th year course in several programs at UW, including software engineering (SE).

**Part of the course’s coverage is:
Ethics of Computing and Software (SW)
Development**

He was always looking for new material and exercises for the class.

Berenbach Concerned with Ethics

Berenbach is concerned with

- 1. SE ethics and the ramifications of unethical behavior and**
- 2. ACM — IEEE Computer Society's SE Code of Ethics (CoE)**

Berenbach Tests Ethics

Berenbach had developed the test that is shown in the appendix of the paper ...

<http://ieeexplore.ieee.org/document/5532565/>

to measure how well its examinees understand the application of a CoE to various compromising scenarios in SW development

He was looking for a way to test the test.

Berenbach Kibitzing with Berry

Berenbach showed Berry the test, hoping to find a customer.

Berry saw the test as usable as an exercise in the course.

Berry's Plan:

Berry would

- 1. give test anonymously to whole class before teaching ethics component,**
- 2. teach ethics in a scenario-driven way,**
- 3. give test anonymously to whole class after teaching ethics component, and**
- 4. have the class discuss lessons learned and what was expected to be an improvement in the class's test results.**

Expectation

We expected an improvement in the class's ethicality in the second test.

Nu?

Ethics Curriculum

1. Reading and in-class discussion of:

- **ACM — IEEE CS's CoE and Professional Practice (since then disappeared)**
- **ACM — IEEE CS's SE CoE & PP**

Ethics Curriculum, Cont'd

2. Lectures about:

- **Intellectual Property Protection for SW**
- **Liability and Warranty, in general**
- **History, Requirements, and Design of Internet**

Ethics Curriculum, Cont'd

3. Debates about:

- **SW Piracy**
- **University Policing of Downloading of Copyrighted Material**
- **E-Voting**
- **Patentability of SW**
- **Minimum Liability for SW**

Ethics Curriculum, Cont'd

4. In-class Discussion about:

- 9 ethics scenarios from professional lives of computing, mostly SW, professionals
- Pros and cons of licensing of SW engineers

Note that these scenarios are *not* the ones in the test, but from other sources; however, they *do* cover the same principles.

Structure of Test

Question 1: examinee's estimate of himself

Questions 2–12: to determine examinee's behavior for 11 scenarios

Question 1:

I would be more likely to select a solution to a situation that was ethical rather than expedient.

- a. Strongly Agree**
- b. Agree**
- c. Neutral**
- d. Disagree**
- e. Strongly Disagree**

A Likert Scale, 5–1, measuring predicted ethicality.

Questions 2–12:

SCENARIO (story)

— I would [do something unethical or illegal to resolve the SCENARIO.]

- a. Strongly Agree**
- b. Agree**
- c. Neutral**
- d. Disagree**
- e. Strongly Disagree**

A Likert Scale, 5–1, measuring actual ethicality.

Example: Question 3

After interviewing with a new company that competes with your current one, the new company offers you a job to create a program that your current company is trying to patent. The new company has also offered a large pay increase and signing bonus.

— I would take the job and create the program.

Implications of Structure

Because each scenario's action is unethical, the Likert values for Questions 2–12 are meaningfully addable and averageable.

With the Test Answers

For each examinee, we could compare:

her self-assessment of her ethicality

with

the ethicality of what she said she would do for any question or for the average question.

Minor Expectation

We expected that in any test, a person's or group's predicted ethicality would be higher than his or its actual ethicality, ...

that is, people think highly of themselves.

People Think Highly of Themselves

**As expected, ...
as a whole, ...**

**the class's predictions of its behavior is
more ethical and less expedient**

than

**indicated by what it says it would do in
the scenarios.**

Before vs After

Two graphs, one for each test.

For each ethicality,

**“Ethical”, “Somewhat Ethical”, “Neutral”,
“Somewhat Expedient”, and “Expedient”,**

For Each Ethicality

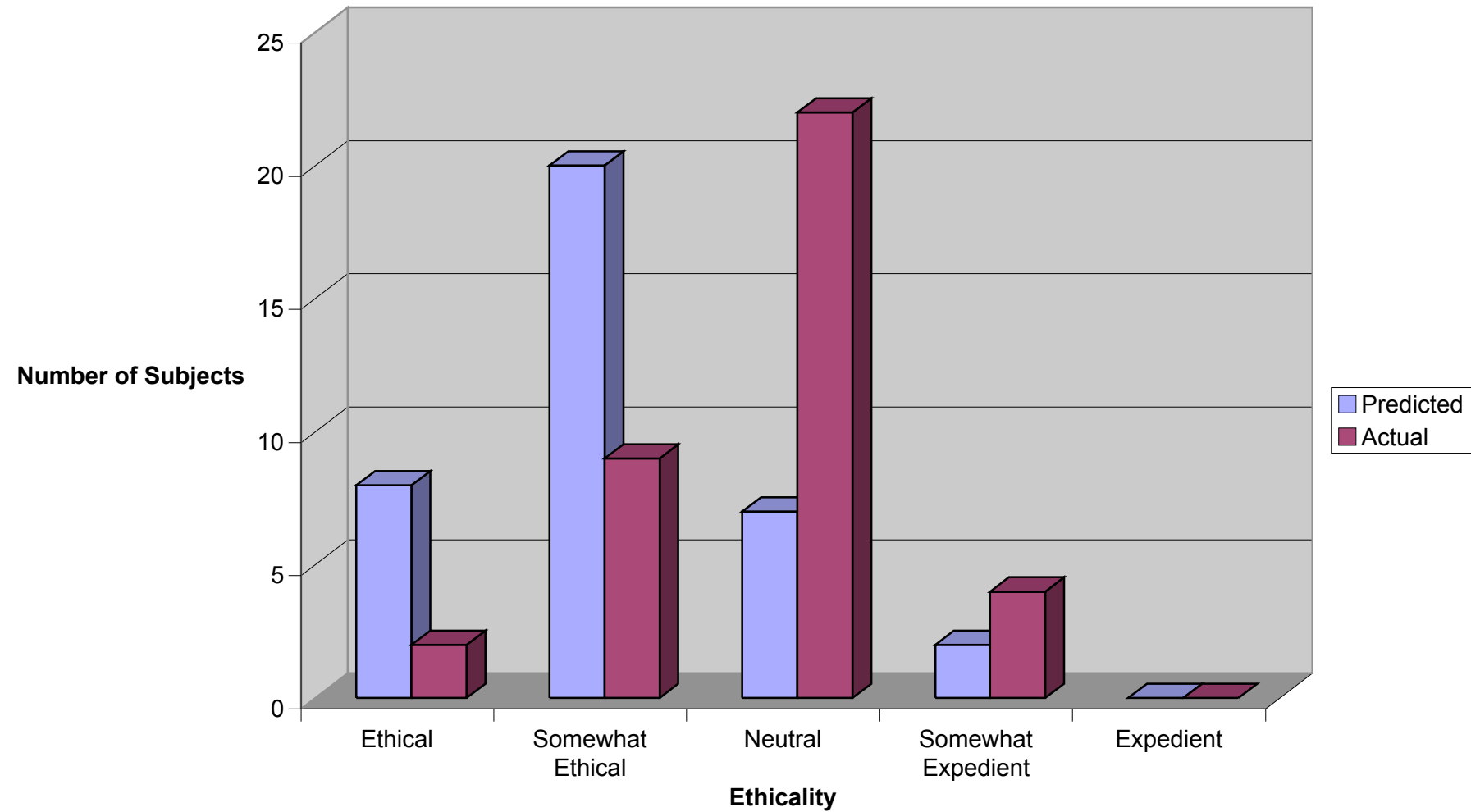
a graph plots:

the number of examinees self-assessing to the ethicality

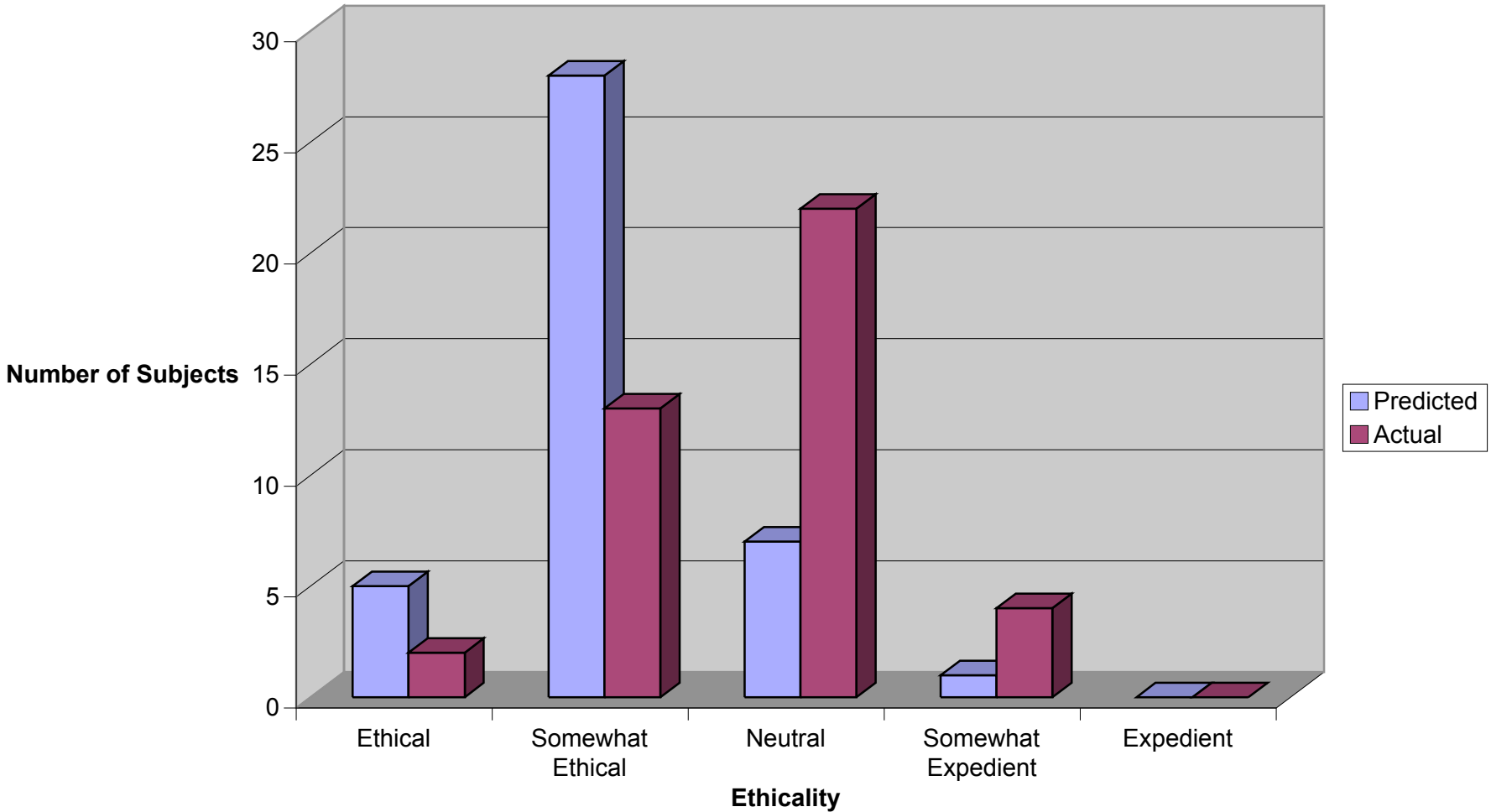
vs.

the number of examinees saying that their responses to the scenarios would be at the ethicality.

Predicted vs. Overall Actual Ethicality (Before)



Predicted vs. Overall Actual Ethicality (After)



Shocking Conclusion

What the class said in the after test that its behavior would be in the scenarios was no more ethical and no less expedient than what it said in the before test.

The results say that teaching ethics had no effect on what the class said its behavior would be.

Nu?! Maybe Berry's teaching is ineffective?

Discussion in Class

The in-class student-driven discussion about the results focus on understanding *why* there was little change in overall ethicality:

Points that emerged in discussion:

- **The questions lacked context; thus, the answers cannot be considered an accurate prediction of behavior.**

Discussion in Class, Cont'd

- **Since the exam was anonymous and did not count, the answers given were probably more honest than they would have been had the test counted, e.g., for a grade or licensing.**

Nearly everyone agreed that nearly everyone *knew* what the *right* answers should be, but gave honest answers for an anonymous test.

Discussion in Class, Cont'd

Thus, the answers given *are* probably an accurate prediction of behavior.

Discussion in Class, Cont'd

- **One student said that after years of watching expedient people get ahead of ethical people, he or she learned to be expedient. Many others in the class appeared to agree with the sentiment.**

Conclusions

Ethics can be taught.

For the most, part ethics is easy to learn.

But learning ethics is no guarantee of ethical behavior.

Our Beliefs

An ethical organization, led by ethical leaders, promotes ethical behavior of its members.

An expedient organization, led by expedient leaders, promotes expedient behavior of its members.