

Assessing Student Learning and Evaluating Courses and Programs in Research Ethics

Presented at the Nineteenth Annual
Teaching Research Ethics Workshop
Indiana University-Bloomington
May 2012

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Poynter Center for the Study of Ethics and American Institutions
Indiana University Bloomington
618 East Third Street
Bloomington IN 47405-3602
<http://poynter.indiana.edu>

Outline

1. Assessing student learning
 - a. Overview
 - b. Case discussion
 - c. Example: Short in-class or written exercise
 - d. Rubrics
 - e. Example: Pre-test / post-test
2. Program evaluation

1.a. Assessing student learning – Overview

- How can we assess student learning?
- How can we assess student learning in research ethics?
 1. understand central concepts
 2. construct coherent moral arguments
 3. recognize moral problems and examine them in a rational way (Bulger and Reiser 1993:S8, quoting Callahan and Bok 1980:81)

Define your goals

- What will you assess?
 - “instructional objectives” vs. “pedagogical hopes” (Elliott and Stern 1996)
- Unrealistic goals
- Realistic short-term goals
- Realistic long-term goals

Objectives (Elliott and Stern 1996)

At the end of the course, students will

1. be able to **clearly describe relevant scientific conventions** including: laboratory practice, institutional responsibility, etc.;
2. be able to **describe what leads to ethical problems** including causes inherent in the social context of the practice of science;
3. be able to **identify ideal scientific practices** and consider how to **bring scientific conventions more in line with the ideal**;
4. be able to **separate behaviors into four categories**: morally prohibited, required, permitted, and encouraged.
[my emphases]

Scope of assessment

- One exercise (activity, discussion)
- One session (class period)
- Day-long event (workshop, seminar)
- Series of workshops (seminars)
- Undergraduate or graduate class

Types of learners

- Undergraduate students
- Graduate students
- Postdoctoral researchers
- Lab technicians
- Research administrators (sponsored research, IRB, IACUC, etc.)
- Junior and senior faculty

1.b. Moral Reasoning in Scientific Research

- Introduction to the approach
- Instructions on using the materials
- “Developing a Well-Reasoned Response to a Moral Problem in Scientific Research”
- Six short case studies, accompanied by “Notes for Discussion and Assessment” and an evaluation checklist

Moral Reasoning checklist

The Jessica Banks Case Evaluation Checklist

Student's name:

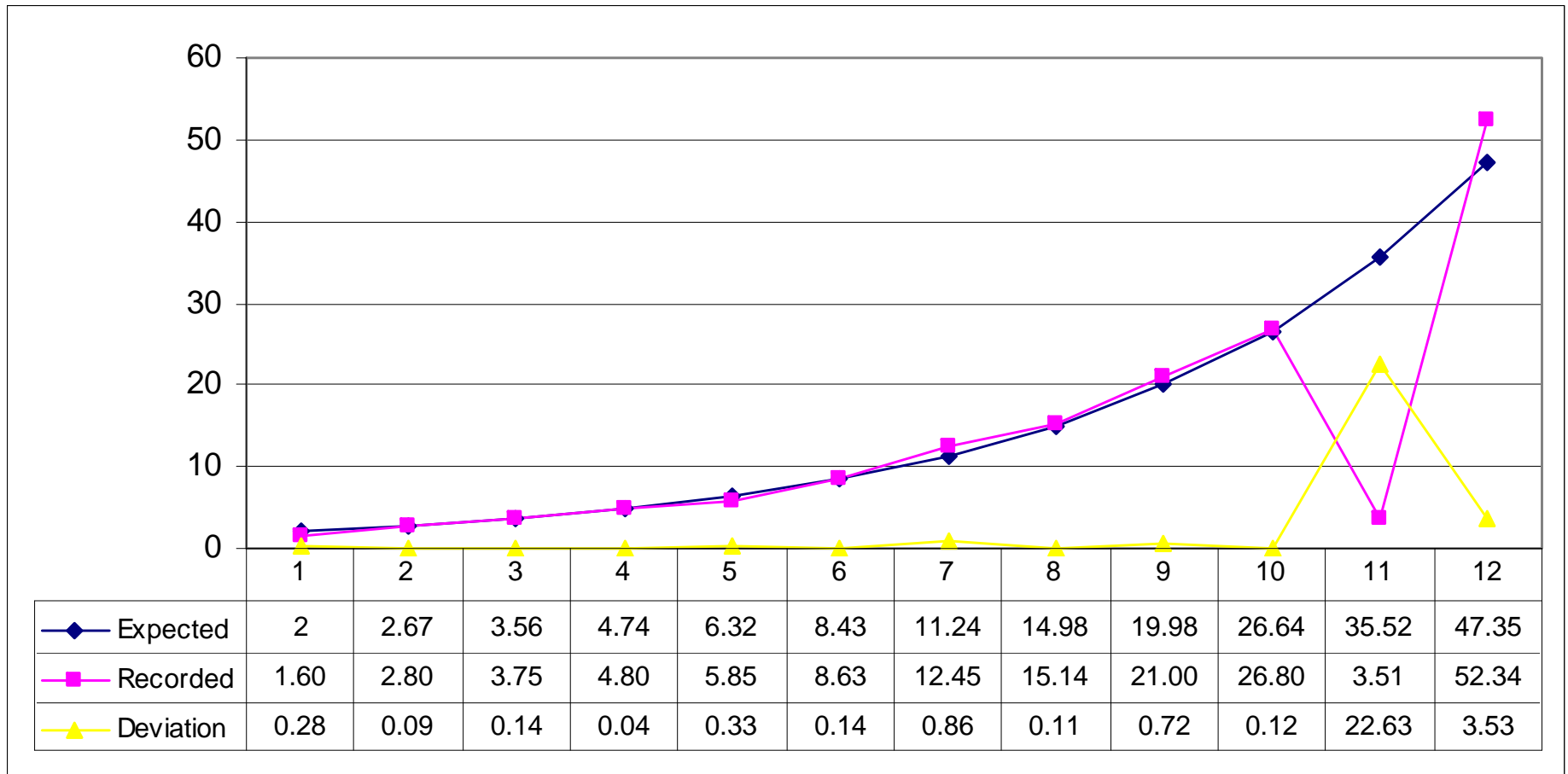
Side 1 position (yes or no)										
Side 2 position (yes or no)										
Issues and Points of Conflict (5 points; 4=5; 3=4; 2=3; 1=1)										
Banks's vs. Hayward's right to notebooks										
Banks's right to pursue research she has already worked on vs. Hayward's right to control research initiated in his lab										
Banks's interest in establishing independence vs. her interest in maintaining collegiality and personal integrity										
Banks's obligation to respect mentor vs. her obligation to warn other students										
Subtotal:										

Estimated Points (5 points; 4=5; 3=4; 2=3; 1=1)

1.c. Short in-class or written exercise

- “Report Reviews” (Pimple 2007)
 - How would you respond to each team’s conclusion?

Team A

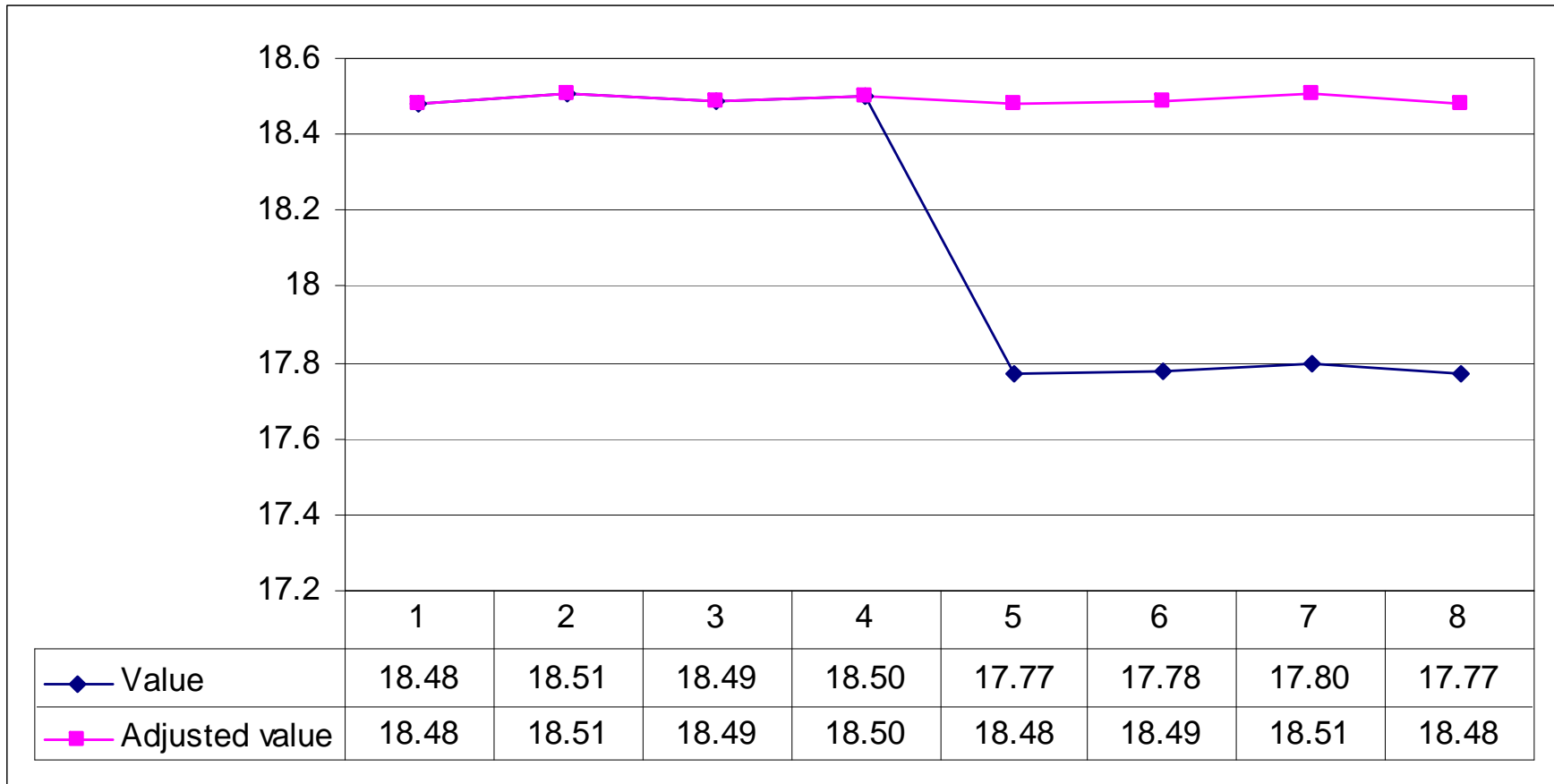


Assessment / Pimple

Team B

Measurment #	Recorded value	Value for article
1	75.23	75.23
2	60.13	75.36
3	75.49	75.49

Team C



1.d. Rubrics

- Creating and using a rubric
- Moral Reasoning in Scientific Research
- Elliott and Stern 1996 pp. 357-360

Exercise – Report Reviews Evaluation rubric	Did not state or imply	Implied	Stated explicitly	Assigned
Points for substance				
A is falsification	0	1	2	
B is fabrication	0	1	2	
C is falsification	0	1	2	
A – Failing to report dropped points in the article is unacceptable	0	2	4	
A – Calling point 12 “way off the line” is questionable	0	1	2	
B – Making up a value is unacceptable	0	2	4	
B – Failure to even speculate on a cause is questionable	0	1	2	
C – Failing to report adjustment in the article is unacceptable	0	2	4	
C – Difference in calibration should be shown, not assumed	0	1	2	
C – Devising the correction factor is praiseworthy	0	1	2	
A and C – Hypothesizing a cause is praiseworthy	0	1	2	
Unexpected results can be the most important results	0	2	4	
Recording data correctly in research reports is praiseworthy	0	1	2	
Reporting changes in research report is praiseworthy	0	1	2	
Additional experiments may be needed in some cases	0	1	2	
Subtotal (38 possible)				

Points for style	Range	Assigned
Uses complete sentences	0-5	
Builds a coherent argument	0-7	
Subtotal (12 possible)		
Subtotal from Points for substance		
Total (50 possible)		

Grade scale	
46-50 points	A
40-45 points	B
35-39 points	C
25-34 points	D
0-24 points	F

1.e. Pre-test / post test example

- Elliott and Stern 1996
 - Objectives
 - Original test
 - Outcome
 - Improved approach
 - Post-test instructions

2. Program evaluation

- In adult education, simple questions can sometimes be adequate to evaluate program success
 - Did you learn something useful and relevant to your work?
 - Are you satisfied with the results?
- Ask meaningful questions
- Hold a debriefing meeting

Organizational climate

- Survey of Organizational Research Climate (Thrush et al. 2011)
 - “the first full-scale survey designed to assess research personnel’s perceptions of the organizational environment for responsible research practices”
 - Whole institution and units

Sources

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Contact information

Kenneth D. Pimple, Ph.D.

(812) 856-4986

FAX 855-3315

pimple@indiana.edu

<http://poynter.indiana.edu/>

<http://mypage.iu.edu/~pimple/>

See slide 1 for mailing address