

# DEVELOPING AND EVALUATING ETHICS EDUCATION PROGRAMS

# OVERVIEW



- Why evaluate?
- What assessments should be used?
- How can assessment data be used to improve your program?
- What are best practices for evaluating your program?
- Q&A

Please have a word document or a blank sheet of paper ready.

# WHY EVALUATE YOUR TRAINING PROGRAM?

- **Provide evidence of training effectiveness**
  - Does training have intended effects?
  - Does training achieve learning goals?
- **Improve the training program**
  - Refine program design, instruction, activities, and content
- **Determine ongoing effectiveness**
  - New RCR topics
  - New activities
  - New instructors
- **Determine minimum proficiency**
  - Do trainees meet minimum requirements?



THE FIRST STEP IN  
EVALUATING ANY ETHICS  
TRAINING PROGRAM IS TO  
ESTABLISH LEARNING  
OBJECTIVES.

# EXAMPLE LEARNING OBJECTIVES

- Describe the learning goals of your training program.
- Identify appropriate assessments for your training program.
- Understand how assessment data can be used to improve your training program.

Start thinking about what learning objectives are relevant for your ethics training.

# WHAT SHOULD BE ASSESSED?

- **Knowledge**

- Rules, regulations, policies
- Basis for navigating ethical problems

- **Skills**

- Decision making
- Problem solving
- Strategies for navigating ethical issues

- **Attitudes and perceptions**

- Predisposes people to think and behave in certain ways
- Affects how knowledge and skills are applied in real life

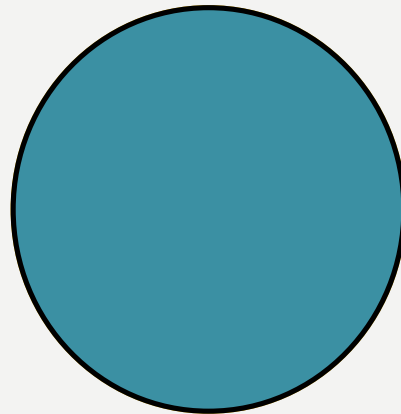
- **Behavior**

- Good work habits
- Corrective actions taken
- Research misconduct findings

# ACTIVITY: DETERMINE LEARNING OBJECTIVES

Brainstorm specific learning objectives of your ethics training program.

- Specify what trainees will be able to do after training (e.g., knowledge, skills, attitudes, behavior)
- Example learning goal: Improve ethical decision making skills when faced with complex and uncertain situations in research.



# **TAKING A MIXED METHODS APPROACH TO EVALUATION**

Quantitative and qualitative  
data provide unique  
information.



# QUANTITATIVE ASSESSMENTS

## QUICK TO ANALYZE

Numerical data can be analyzed succinctly.

## CHARACTERIZE YOUR SAMPLE

Means.  
Medians.  
Standard deviations.  
Frequencies.

## COMPARE GROUPS EASILY

Individual trainees.  
RCR sessions.  
Training cohorts.

- ❖ Likert-scale or multiple choice survey questions (e.g. Qualtrics)
- ❖ In-class polls (e.g., through Zoom)

# QUALITATIVE ASSESSMENTS

## INFORMS QUANTITATIVE ASSESSMENTS

Open-ended responses can inform the development of survey questions.

## HELPS INTERPRET QUANTITATIVE DATA

Can explain differences across scores.

## PROVIDES RICH CONTEXTUAL INFORMATION

Identify what resonates with trainees.

- ❖ Reflection exercises
- ❖ Take-home points from a session
- ❖ Open-ended questions on a survey
- ❖ Group discussions



# EXAMPLE ASSESSMENTS

# EXAMPLE REACTION MEASURES

- Questions pertaining to satisfaction with trainers, material, and administration
- Validity concerns
- Examples
  - “Please rate the effectiveness of Activity X on a scale of 1 (low) to 7 (high).”
  - “To what extent are you motivated to apply the training content to your own work on a scale of 1 (not at all motivated) to 7 (very motivated)?”

# EXAMPLE KNOWLEDGE MEASURES

Measure	Format
Knowledge of Responsible Conduct of Research  McIntosh et al. (in progress)	<ul style="list-style-type: none"><li>• 34 multiple-choice items</li><li>• Item content indexed to 10 RCR topics</li><li>• Single form</li></ul>
Research Ethics Knowledge and Analytical Skills Assessment  Taylor et al. (2012)	<ul style="list-style-type: none"><li>• 41 items</li><li>• Multiple choice, true/false, &amp; short answer</li><li>• Parallel forms</li></ul>

# EXAMPLE DECISION-MAKING MEASURES

Measure	Format
<p>Professional Decision-Making Measure (PDR)</p> <p>DuBois et al. (2016)</p>	<ul style="list-style-type: none"><li>• 16 multiple choice items</li><li>• Assesses professional decision-making strategy use</li><li>• Parallel forms</li><li>• 8<sup>th</sup> grade reading level</li></ul>
<p>Ethical Decision-Making Measure (EDM)</p> <p>Mumford et al. (2006)</p>	<ul style="list-style-type: none"><li>• 25 – 28 multiple choice items depending on domain</li><li>• Vignette-based, multiple-choice questions</li><li>• Scores reflect ethicality and sensemaking strategies</li><li>• Parallel forms</li></ul>

# EXAMPLE ATTITUDES & VALUES MEASURES

Measure	Format
How I Think about Research (HIT-Res) DuBois et al. (2015)	<ul style="list-style-type: none"><li>• 54-item measure</li><li>• Assesses self-serving cognitive distortions</li><li>• Rate agreement with statements</li></ul>
Values in Scientific Work (VSW) English et al. (2018)	<ul style="list-style-type: none"><li>• 35-item measure</li><li>• Assesses intrinsic, extrinsic, and social values in scientific work</li><li>• Rate agreement with statements</li></ul>

# **SHORT-TERM VS. LONG-TERM CHANGES**

**IT MAY TAKE TIME TO SEE THE  
INTENDED EFFECTS OF  
TRAINING FOR CERTAIN  
OUTCOMES.**



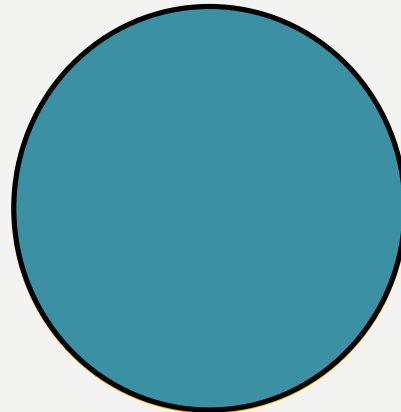


# LONG-TERM CONSIDERATIONS

**RESEARCH TEAM &  
INSTITUTION LEVEL**

# HOW TO MAKE TRAINING STICK

- Factors external to training matter (e.g. post-training environment)
- Encourage and reward application of training content
- Faculty need to reinforce training content
- Institutional policies and norms should align with training content



What does an environment that supports and reinforces ethics training look like?

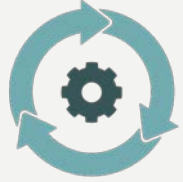
# REINFORCING TRAINING CONTENT

- Set an appropriate tone about the responsible conduct of research
  - Avoid using cynical language
- Provide constructive rationale for policies and procedures
- Articulate how doing responsible and rigorous research contributes to career success and makes science better
- Explicitly encourage application of training



- Identify clear learning objectives
- Align learning goals with appropriate assessments
- Deliver assessments at the appropriate time (e.g., pre-post)
- Use valid assessments (don't just make them up!)

**WHAT MAKES  
FOR  
SUCCESSFUL  
EVALUATION?**



Plan for and be systematic about evaluating your training program.



Assess regularly. Look at the pattern of data across multiple measures.



Be strategic about what you assess. You can't assess everything.



Consider culture and language fluency when choosing assessments.

## OTHER BEST PRACTICES AND CONSIDERATIONS

# QUESTIONS?

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