ERRATUM

A Qualitative Approach to Responsible Conduct of Research (RCR) Training Development: Identification of Metacognitive Strategies

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Tables 1–3 in the article were not correctly published. Please find the corrected tables below.

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Table 1 Summary of RCR training[a]

Module	Title	Objectives	Content
1	Application of Ethical Research Guidelines	• Apply fundamental research guidelines in ethical decision-making	• Guidelines Packet • 4 Case Studies with Questions
2	Complexity in Ethical Decision-Making	• Discuss differences between an ordinary decision-making and ethics-related decision-making • Discuss limitations of rule-based approach	• Self-Reflection Activity • Pre-training Measures • Module 1 Case Discussion
3	Personal Biases Influencing Ethical Decision-Making	• Understand the existence of cognitive biases • Identify personal biases in one's decision-making	• Self-Enhancement Demonstration • Milgram's Study Video • Behavior Predictions Activity
4	Common Reasoning Errors Encountered in Ethical Decision-Making	• Identify and generate typical reasoning errors that inhibit decision-making	• Identification of Common Myths in Research Ethics • Reasoning Error Identification • Reasoning Error Generation
5	Decision-Making Strategies	• Understand and apply decision-making strategies to address typical reasoning errors	• Case Analysis • Strategy Generation • Training Evaluation: Day 1
6	Field Specific Differences	• Locate one's field specific guidelines • Apply ethical decision-making model utilizing strategies	• Locate Field Specific Guidelines on the Web • Two Case Analyses with Questions
7	Sensemaking in Ethical Decision-Making	• Interpret sensemaking model and its importance to ethical decision-making	• Module 6 Homework Review • Role Play Activity
8	Complex Field Differences	• Understand disparities in ethical decision-making across disciplines	• Field Specific Guidelines Review • Group Case Analysis
9	Outcomes of Different Perspectives	• Make decisions while considering multiple perspectives (other individuals, institutions, etc.)	• Case Analysis • Role Play Activity
10	Key Components of Ethical Decision-Making	• Rehearse key components of ethical decision-making • Apply acquired knowledge in testing situations	• Training Summary and Class Discussion • Training Evaluation: Day 2 • Post-training and Personality Measures

[a] Module 1 is self-directed pre-training; Modules 2 through 5 are presented in Day 1 classroom training. Module 6 is self-directed between training days; Modules 7 through 10 are presented in Day 2 classroom training.

Table 2 Problem and metacognitive reasoning strategy dimensions

Problem Dimension	Training Data Example	Ethnographic Data Example	Strategy Dimension
1 Conflicting interests	*Conflicting goals* "Sometimes it seems that many branches of the organization are thinking of what is good for their own projects rather than what is good for the research center as a whole."	*Conflicting opinions* "Different universities are contributing to different parts of the product, so who owns the intellectual rights to it?"	1. Looking within • Assessing motives 2. Assessing one's emotions • Discussing emotions with others 3. Questioning one's judgment • Considering if decision is consistent with the team's or institution's goals and objectives
2 Lack of communication	*Lack of mutual understanding* "For this project to work our part of the project must be done this way - our partners don't seem to understand this."	*Lack of information exchange* "We often don't know what they are doing, so when they make certain adjustments to their product, we are not informed about it, and this can result in wrong or redundant product development."	4. Considering others' perspectives • Being mindful of others' goals
3 Poor resource management	*Unfair resource distribution* "The overall budget is allocated by a particular university; if one branch of the research center exceeds the budget, then other branches need to cut their budget - it doesn't seem fair."	*Unfair resource distribution* "The budget is reshaped annually to allow room for adjustments, but it also leaves us with a lack of security."	5. Defining "best case" course of implementation • Accounting for constraints and obstacles 6. Assessing situational demands • Having a broad picture of the issue
4 Lack of collaboration	*Data withholding* "We are having trouble getting the data (from other branches) that we need to do our jobs, and this appears to be because they are withholding it for some reason."	*Silo mentality* "From the beginning of this project, people from different disciplines have had their own ideas of what we can feasibly do; it can become frustrating when these differences interfere with progress."	7. Weighing competing considerations • Contrasting decision variables 8. Anticipating consequences • Thinking about long-term consequences

Table 2 continued

Problem Dimension	Training Data Example	Ethnographic Data Example	Strategy Dimension
5 Poor publication practices	*Lack of overarching publication rules* "There is no set standard to determine how to rank authorship - or even where to publish - between some of the disciplines involved in the research center."	*Disagreement regarding other's publication rules* "When collaborating with so many people on a project, there is often a debate as to who should be an author. Some people don't want a lot of names, others don't mind, but the final decision can create friction which did not previously exist."	9. Recognizing one's circumstances • Determining expertise needed

Table 3 Metacognitive reasoning strategy dimensions and subdimensions

Dimension	Definition	Subdimensions
1 Looking within	Considering one's personal biases, values, beliefs and goals	• Assess if your motives are self-centered or others-oriented • Assess if the decision is consistent with your values and beliefs • Assess if your decision is free from biases • Assess your personal strengths and weaknesses • Keep in mind that the decisions you make define your life as you live it now and what it will become • Consider your opinion of yourself as compared with those people that you respect

Table 3 continued

Dimension	Definition	Subdimensions
2	Assessing one's emotions	Assessing and regulating emotional reactions to situations	• Do not ignore your emotions, but do not let them rule you either. Use emotions as a source of information for decision-making
		• Identify what emotions you are experiencing (e.g., guilt, fear, empathy, etc.)
		• Examine the event or situation in detail to understand what situational factors have caused the emotional state
		• Share and discuss your emotions with others
		• Express your emotions constructively when communicating information or your opinion to others
		• Be cautious if your gut feeling is telling you that your decision is wrong. Reconsider your decision and actions to see if there is an alternative solution. You may want to discuss the situation with other people if you have "a bad feeling" about your decision or situation
3	Questioning one's judgment	Considering common reasoning errors in ethical decision-making	• Take time to think about your decision before acting
		• You may not have all the information, so do a thorough information search
		• Explore alternative solutions
		• Consider how controversial your decision is
		• Consider the value of a compromise
		• Think about your future actions in relation to the decision made
		• Consider if your decision is consistent with your group's beliefs and values
		• Consider if your decision is consistent with institutional norms and requirements
		• Consider if your decision is consistent with ethical guidelines and social norms

Table 3 continued

Dimension	Definition	Subdimensions
4 Considering others' perspectives	Being mindful of other people's goals, responsibilities, and concerns	• Be mindful of others' goals, obligations and time commitments • Be mindful of how people involved are connected with one another • Be mindful of how others will interpret your actions • Forecast other people's reactions in relation to the situation • Directly or indirectly ask for other people's opinion on the issue if you cannot forecast their reactions • Consider how you will explain your actions to your peers, subordinates, supervisors, sponsor, or public • Consider if your actions are just and fair towards others
5 Assessing situational demands	Thinking about factors in the environment that facilitate or constrain individual's choices and behavior	• Make sure you have a broad picture of the issue • Review individual, group, and organizational mission statements • Make sure you understand the true cause of the problem • Research into what others have done in similar situations • Assess important organizational factors such as organizational climate and culture (e.g., in-group vs. out-group) • Consider prevailing values in the organization • Consider appropriate channels in obtaining lacking information • Consider credibility of obtained information
6 Defining "best case" course of action implementation	Thinking about factors that will help or prevent from implementing the decision	• Consider all key players and their vested interests • Consider the feasibility of the decision in terms of financial constraints, current and future obstacles • Make sure you have organizational support • Consider the most effective communication channels • Consider all possible solutions and alternatives • Generate back-up plans

Table 3 continued

Dimension		Definition	Subdimensions
7	Anticipating consequences	Thinking about consequences for others, and short-term and long-term outcomes based upon possible decision alternatives	• Think about the consequences for yourself • Think about the consequences for others: peers, team, institution, sponsor, and public • Think about magnitude and severity of consequences for self and others • Think about the short-term and long-term effects of what you do • Consider the potential strengths and weaknesses of the outcomes of your decision
8	Weighing competing considerations	Assessing pros and cons of potential decisions by examining the importance of each piece of information	• Sort through all the relevant and irrelevant information • Search for additional information if necessary • Contrast each of the variables with each other and determine ranks of importance to you personally and others • Weigh the importance of each variable carefully
9	Recognizing one's circumstances	Thinking about one's position and decision-making capacity in the situation	• Consider contextual variables in relation to your situation, such as your job role, your position in the organizational chart, your future career goals, etc. • Consider direct and indirect threats and opportunities the situation poses to you personally, your in-group, and institution • Consider if you have the necessary professional expertise and/or personal experience to solve the problem • Consider sources of potential help