

## CASE STUDIES

### How should cases be analyzed?

Many of the skills necessary to analyze case studies can become tools for responding to real world problems. Cases, like the real world, contain uncertainties and ambiguities. Readers are encouraged to identify key issues, make assumptions as needed, and articulate options for resolution. In addition to the specific questions accompanying each case, readers should consider the following questions:

1. Who are the affected parties (individuals, institutions, a field, society) in this situation?
2. What interest(s) (material, financial, ethical, other) does each party have in the situation? Which interests are in conflict?
3. Were the actions taken by each of the affected parties acceptable (ethical, legal, moral, or common sense)? If not, are there circumstances under which those actions would have been acceptable? Who should impose what sanction(s)?
4. What other courses of action are open to each of the affected parties? What is the likely outcome of each course of action?
5. For each party involved, what course of action would you take, and why?
6. What actions could have been taken to avoid the conflict?

Your discussion group should attempt to come to some consensus on these points. If consensus is not possible, then written or oral summaries should reflect majority and minority opinions.

### Is there a right answer?

#### ACCEPTABLE SOLUTIONS

Most problems will have several acceptable solutions or answers, but it will not always be the case that a perfect solution can be found. At times, even the best solution will still have some unsatisfactory consequences.

#### UNACCEPTABLE SOLUTIONS

While more than one acceptable solution may be possible, not all solutions are acceptable. For example, obvious violations of specific rules and regulations or of generally accepted standards of conduct would typically be unacceptable. However, it is also plausible that blind adherence to accepted rules or standards would sometimes be an unacceptable course of action.

#### ETHICAL DECISION-MAKING

It should be noted that ethical decision-making is a process rather than a specific *correct* answer. In this sense, *unethical* behavior is defined by a failure to engage in the process of ethical decision-making. It is always unacceptable to have made no reasonable attempt to define a consistent and defensible basis for conduct.

## 1. Dealing with Suspicions of Misconduct: Data Fabrication

Carlos Gonzalez is a well-known investigator at a specialty chemicals company. He has a reputation for being brilliant, demanding, and intensely competitive. The company values him greatly. His group has been responsible for 12 patents that have generated several hundred of thousands of dollars in revenue for the company.

One of Mr. Gonzalez's new group members, Grace Hung, comes to him and says that a very important result recently reported to upper management was fraudulent. This work is related to a new strategy for data storage and has already received considerable attention from management. There are already discussions about scaling up this process to the pilot plant and, if the pilot studies are successful, giving Mr. Gonzalez a significant promotion and raise.

Ms. Hung claims that the technician working on the project, Mr. Edward Lansing, must have made up most of the data because a key characterization assay in the lab was not working. This was discovered, she noted, when she tried to utilize the assay. Mr. Lansing has worked with Mr. Gonzalez for ten years. The two are co-inventors on several patents and have become personal friends. Mr. Gonzalez hardly knows Ms. Hung.

### Questions

1. How should Mr. Gonzalez respond to this complaint? How should he deal with:
  - a. Ms. Hung?
  - b. Mr. Lansing?
  - c. the data that have now been called into question?
  - d. management at the company in which all three individuals work?
  - e. the internal company report and lab notebook in which the possibly fraudulent data were reported?
2. Assume Mr. Gonzalez is unresponsive to Ms. Hung's complaint. How might Ms. Hung follow up on her concerns?
3. Assume that Mr. Gonzalez proceeds by asking Mr. Lansing obliquely about the assay used for the project, mentioning that Ms. Hung seems to have some kind of problem with it. In spite of Mr. Gonzalez's subtlety, Mr. Lansing suspects that this inexperienced postdoc has planted some serious suspicions in Mr. Gonzalez's mind. If Mr. Lansing is confident of the accuracy of his work, how should he respond to Mr. Gonzalez? Should Mr. Lansing approach Ms. Hung, and if so, what should he say to her?

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This case was adapted from The Online Resource for Instruction in Responsible Conduct of Research  
(<http://rcr.ucsd.edu>)

Case F2 from

*Teaching the Responsible Conduct of Research Through a Case Study Approach*,  
a handbook prepared by the Association of American Medical Colleges (Korenman SG and Shipp AC, 1994)

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## 2. Expedience, Misrepresentation, or Falsification?

Dr. Leyos is a senior scientist in the research division of an internationally respected pharmaceutical company. His research group has recently been studying the regulation of a novel gene that may be a primary factor in allowing tumors to metastasize. Three preliminary experiments have shown positive results consistent with the hypothesized role, but each of these studies has flaws. In the first case, investigators were not blinded to the origins of the samples for data collection and analyses. In a second case, adequate controls were not included and in the third case, the freezer thawed resulting in some sample degradation. However, despite these limitations, all three preliminary experiments were consistent with a clear confirmation of the hypothesis. Based on these results, a definitive experiment was designed and carried out. Because of long incubation periods and assay times, the experiment required six months to complete. Because demonstration of the effect required pooling of 20 mice for each data point, the experiment was extremely costly both in lives of animals and dollars spent. On completion of the final assays, Dr. Leyos learned that labels fell off of two samples, one for a control group and the other from an experimental group. If the two samples are omitted from the analysis, the results just miss reaching the accepted level of statistical significance ( $P < 0.05$ ). If the samples are assigned to control and experimental groups one way, the final analysis is also not statistically significant. However, if the samples are reversed, then the results are highly significant and consistent with the previous three experiments. In this case, the company will likely authorize research on a new cancer treatment based on these results.

Dr. Leyos feels strongly that this result will lead to new therapies for cancers that are difficult to treat. Dr. Leyos is trying to decide among the following courses of action:

- A. *Repeat the experiment (at a cost of approximately 6 months, 300 animals, and \$500,000 of employee time and research materials)*
- B. *Attempt to report the findings without the questionable results (i.e. stating that the results are not quite statistically significant).*
- C. *Assign the two samples to their likely groups and report the statistically significant and convincing results.*

Consider the following questions:

1. Which of these actions (A - C), if any, should Dr. Leyos take and why?
2. What actions, if any, could Dr. Leyos have taken that would be preferable?
3. If Dr. Leyos chose option C, against your advice, what should you do? What would you do?
4. If Dr. Leyos chose option C, was accused of misconduct, and a committee found him to be guilty of reporting the data despite his uncertainty about the groups, then:
  - o Is this data falsification and/or research misconduct?
  - o If the committee defined this as falsification, and you were asked to recommend sanctions against Dr. Leyos, what would you recommend?

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### 3. Plagiarism on a Laboratory Presentation

May is a senior chemical engineering student preparing an oral presentation and written report for the senior laboratory course. She has copies of presentations from students who previously took the course. Her group has received below-average grades on previous experiments, in part because of typos and grammar mistakes on presentation slides. May is anxious about receiving a low grade again. English is her second language and she often makes grammar mistakes during oral presentations. She has a job offer after graduation that she has already accepted, but in order to graduate, she must obtain a 2.0 GPA in her chemical engineering courses. She can do this if she obtains a “C” in senior lab.

May incorporates slides from other students into her presentation, including the background, experimental methods, and theoretical analysis slides. She changes all of the slides so that they will have the same format as her slides. She does not use quotation marks or attribute the work to previous students.

When the faculty teaching the course suspects that May has done this, he confronts her. May argues that the information on the slides is common knowledge since the students in the course have seen the material in question reviewed many times.

The faculty member is not satisfied with May’s response and tell her that he intends to file a formal charge with the Academic Honesty Office. Instructors may recommend a number of sanctions in this case, including failing the assignment or course, and suspension, probation, or expulsion from the University. The faculty member tells May that he will recommend that she fail the course.

- 1. Is plagiarism like this a common practice?
- 2. Are there circumstances that should have led to May's being forgiven for plagiarizing?
- 3. Should May be allowed to continue in the course?

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This case was obtained from “On Being a Scientist: Responsible Conduct in Research”  
(<http://www.nap.edu/readingroom/books/obas/>)

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