Ethics of research not so black and white

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With federally funded research under growing scrutiny from the public, researchers face more pressure than ever to defend their work and make ethical decisions regarding their research process. However, a new study from sociologists at Rice University finds that the scientists see many scenarios in the research process as "gray areas" when it comes to ethical decision-making.

"Ethical Ambiguity in Science" draws on 171 in-depth interviews with physicists at universities in the U.S. and the U.K. and examines the concept of "ethical ambiguity"—the border where legitimate and illegitimate conduct is blurred. The study will appear in an upcoming edition of *Science and Engineering Ethics* and is already available online.

The research is part of the "Ethics Among Physicists in Cross-National Perspective Study," a National Science Foundation-funded international comparative project that examines scientists' perceptions of ethics in the U.S., China and the U.K. Nearly one-third of the scientists interviewed indicated that they are reluctant to universally designate behaviors such as plagiarism, idea appropriation or misuse of research funding as wrong or unethical.

David Johnson, a postdoctoral research associate in Rice's Department of Sociology and the study's lead author, said this finding stands in contrast to existing research in this area. He said that it is worth considering whether a traditional black-and-white view of misconduct – routine or egregious – is overly simplistic.

"Existing research on ethical conduct in science takes for granted that scientists understand, easily recognize and completely agree upon what constitutes unethical behavior," Johnson said. "This is driven in part by the tendency in previous research to restrict scholarly focus to egregious and rare infractions of falsification, fabrication and plagiarism."

In the interviews with 48 of the 171 physicists, the scientists outlined the three following positions on the issue of ethical ambiguity. Each of these positions promotes the collective interest of science rather than addressing what is ethically correct or incorrect.

1) **Altruism**: A scientist may legitimize potentially unethical behavior or not recognize it as such because they think its good for science. For example, a physicist might use federal funding that is supposed to be restricted to a particular project to pay a student to work on a topically similar but financially unrelated project because they need to keep their researchers funded.

2) **Inconsequential outcomes**: This refers to scenarios where scientists do not attempt to evaluate whether a questionable practice is right or wrong because the consequences are perceived as minimal. For example, a physicist might not intervene if she thinks a visiting researcher from a foreign country steals an idea from her lab, as long as her students do not suffer, or if the idea is published in a low-ranked journal. The idea is that when someone isn't sure about questionable behavior, but the consequences are low, they do not try to get to the bottom of it.

3) **Preserving the status quo**: Science is so competitive that it can be hard for scientists to distinguish between appropriate and inappropriate behavior. An example of this is a researcher taking advantage of, exploiting or being abusive toward graduate students because there is a sense that this is all part of competing among the elite in science.

"Each of these strategies is rationalized as promoting the collective interest of science rather than addressing what is ethnically correct or incorrect," Johnson said.

He said the range of practices that came up in the physicists' discussions of ethically gray scenarios included accepting funding for military research, misuse of research funds, plagiarism, allocation of credit and authorship, cronyism, overhyping research results and exploitation of subordinates (graduate students and postdocs).

Elaine Howard Ecklund, the Herbert S. Autrey Professor of Sociology at Rice, director of Rice's Religion and Public Life Program and the study's co-author, said the results of this study suggest that ethics training in science should not only focus on fabrication, falsification, plagiarism and more routine forms of misconduct, but also on strategies for resolving ethnically ambiguous scenarios where appropriate action may not be clear – for example, the meaning of authorship or when it's appropriate to use federal funding for elaborate meals with colleagues at conferences.

Both Johnson and Ecklund said it is important to examine the ethics of particular practices because the gray or ethically ambiguous scenarios invite morally questionable conduct that may go unpunished.

The researchers hope the study will encourage future research on the ambiguities surrounding what it means to be a "good" scientist. Johnson and Ecklund "hope these results will encourage a shift among researchers from the theoretical, universal and clear-cut aspects of ethics to the practical, particular and ambiguous features of ethical decision-making.

Provided by Rice University