

Ethical Dilemmas in Research Integrity
(Order No. 02T20004801D)

Final Report

Date: April 29, 2004

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No matter how promulgated, no set of rules can solve every problem of research integrity, nor even most. Situations encountered in the real world usually reflect ethical conflicts, tradeoffs, gray areas, slippery slopes. To address and resolve such a realistic dilemma requires more than a manifesto of principles and standards. It takes, in addition, perspective gained by experience, along with informed judgment. These are best taught by example.

The principles and standards of research integrity are well documented and not difficult to learn. The knowledge-based experience and informed judgment necessary to apply these effectively cannot be documented. It can, however, be learned, if it is taught by example.

Working through a structured set of realistic problems and solutions didactically under the guidance of experienced professional mentors will teach students not only the principles of research integrity but, more importantly, how to apply them effectively in real-life situations.

This project developed a text that can be used to teach principles of ethics in the conduct of scientific research. The text, or *content*, consists of terse dilemmas in nine categories, each presented as a realistic scenario that illustrates a situation where a scientist might be faced with a difficult choice. The dilemmas have no right or wrong answers, but rather, focus on the kinds of real life situations that generally do not present a crisp choice and require instead a measured application of principles and integrity, tempered by experience. Students can view the dilemmas, form their own opinions about how they might respond, and compare these to the responses provided by a panel of experts, who are all credentialed scientists with significant research experience. The content is delivered in two forms: as a working Web site which can itself serve as a delivery platform, and also as a ready-for-press publication, in both Microsoft Word format and Acrobat PDF format, that can be viewed, printed on a laser printer, or used to create a conventional printed and bound book. Either form can also be uploaded to a different delivery platform, such as an interactive learning tool or an alternative Web-based product.

We understand that ORI staff are familiar with the phenomenon of WebLogs, often called *blogs*, and with the concept and practice of *blogging*. A blog is an ideal platform for developing content of this sort because it provides an interactive forum where the content can be presented, discussed, and allowed to evolve interactively over time. An online bulletin board could also be used; however, a blog has the advantage of a more finished presentation that allows content to develop in much the same format as it will appear at the end.

Radio Userland as a Development Platform

We chose Radio Userland as the WebLog platform. This choice was arbitrary. Several good alternatives were available, including *Blogger* and *Movable Type*, to cite only the two most commonly used, along with nearly 30 others. A good summary roundup appears at <http://www.microcontentnews.com/articles/blogware.htm>, which explains the difference between static and dynamic blogs and the implications for moderating an online community. Radio had the advantages that it requires no knowledge of programming whatsoever; has low total cost of about \$40 per year, which includes hosting; and incorporates all typical features with minimal customization. Almost any of the other alternative platforms would have given comparable or even superior results, although perhaps with somewhat more customization and programming required.

The project Web site is at <http://radio.weblogs.com/0116640/>. This entire Web site can be uploaded via FTP to any server, where it would have a different URL but would otherwise have precisely the same appearance. Radio maintains two identical Web sites, one on the local computer and one on the remote server. Changes made on the local computer propagate up to the server. The local Web site always has URL <http://127.0.0.1:5335/> and consists of many HTML files collected into one directory called *Radio Userland*, which is usually a subdirectory in *Program Files*. To deliver or replicate this Web site requires only downloading the Radio software from the Userland Web site; setting the serial number to 0116640; and copying the directory of files, either from another computer or by downloading it from the Digital River server. After performing these steps, the local machine has all of the content needed to create the Web

site and all of the capabilities needed to maintain or revise it. (A few preferences should be reset, such as the WebMaster email address.)

Our entire Radio Userland directory is herewith delivered to ORI on CD-ROM. Within this directory, a subdirectory named *WWW* contains all of the project Web site content. The dilemmas, for example, are in the *Stories* subdirectory, which is organized in chronological order into a series of nested subdirectories. It would not be difficult to recover all of the Web site content from the *Stories* subdirectory, although this is not the recommended way of doing so.

A few very minor changes were made to the HTML templates stored outside the *Stories* directory. Generally this was accomplished by setting *Preferences* on the local Web site home page. It might be easier to copy the *Radio Userland* folder in its entirety than to recreate these customizations.

With the Radio blogging software, Web site content can appear in either of two forms: as postings on the home page or as stories, which are self-contained separate pages. Most blogs have many postings that appear in chronological order and can be accessed through a calendar, along with perhaps a few stories that can be accessed through URL links. Our blog has only one posting and a large number of stories. Each dilemma is a separate story, with responses at the bottom.

The navigation panel at the left edge of every Web page was created using a template. It lists the nine categories provided by ORI. Each of the nine navigation panel entries links to a story that serves as a table of contents for that category and lists all dilemmas in the category. Clicking on an entry in this list links to the story containing the dilemma. The viewer's browser will dim each link, once it is clicked and its target page has been viewed. This helps viewers keep track of which dilemmas they have already seen as new dilemmas are posted. The global list of stories thus has one entry for each dilemma, which identifies the dilemma by its title, along with nine stories that comprise the tables of contents for each of the nine categories and a few miscellaneous stories, such as the one containing the Web site instructions.

Content Development

During the development process, members of the expert panel accessed the Web site to view the dilemmas and then, when they chose to respond to a particular dilemma, they clicked a small email icon at the bottom of each page to open an email window where they could enter their response. This email was sent back to the WebMaster, along with a tag identifying the page that was open at the time that it was sent. The WebMaster collected these emails and posted the responses by copying the text from the email, searching the global table of contents to find the dilemma being discussed, and then editing the story containing that dilemma to paste in the response. Dilemmas were posted without any responses for a period of time, after which selected responses were added to foster discussion based on the input of others, and all other responses were then appended much later.

A newsgroup feature, available in Radio and other blogging platforms, would have been handy but was not used in this project. The newsgroup feature automatically notifies subscribers that a new posting is available. If a platform similar to ours were used on an ongoing basis to develop further content of this sort, it would be worthwhile to consider publishing to a newsgroup. We chose not to use this only because it might have placed an unnecessary burden on the expert panel members.

Drafting the Dilemmas

As initially proposed, this project set out to create more than 200 dilemmas, about 20 or more in each of the nine categories defined by ORI. This proved to be overly ambitious, not because of the amount of work involved, but rather, because it was difficult to identify so many unique and pertinent scenarios. Many of the proposed dilemmas were similar and dealt with situations that differed from one another only in superficial details. Many of the proposed dilemmas were overly complex and dealt with multiple issues, sometimes in different categories.

Although we did ultimately have nearly 200 dilemmas in hand, after much editing, simplification and refinement, there were fewer than 60 unique and distinctive scenarios. We therefore chose to post fewer dilemmas than originally proposed and to combine postings that were similar to one another in terms of the principles they dealt with and the

particular issues they addressed. This ultimately improved the quality of the content, we believe, by focusing the attention of the expert panel.

Members of the panel could not be expected to respond to every dilemma. It was desirable for each member to respond to as many as possible, however, so that there would be consistency in viewpoints. That is, rather than having many experts provide a few responses to a small cohort of dilemmas, we wanted to have a few experts respond to a large percentage of the total. In some cases, where a participant responded to only a small number of the posted scenarios, their responses were combined with the responses of others to create a composite response reflecting shared points of view.

Step-by-Step Instructions for Updating Dilemmas

Dilemmas can be added, changed or replaced either with or without their associated responses. To add a dilemma, go to the local Radio home page, click the *Stories* link at the top, and then, on the Stories page, click the *create* link. Paste the text, then use the drop-down menus to set the type size and font. We used the convention of Times type for dilemmas and Arial type for responses, and the convention of two spaces after a period. Enter the title in the box at the top. It is important to enter this carefully because the text entered here will be used to create a file name. If you ever want to change the title, it will be necessary to delete the story and re-create it with the new title. After entering the text and the title, click the *Create New Story* button. It might be necessary to scroll down for this to become visible. Radio will not save the text, nor give a warning, if you navigate off the page without clicking this button.

Besides the stories containing the individual dilemmas and their responses, there is also one story for each of the nine categories that serves as a table of contents listing the dilemmas in that category. After adding a dilemma, you must therefore edit the table of contents story for its category and add a link whose text is the title of the dilemma. This link can be obtained from the browser URL entry, by simply navigating to the new story, but it is important to use the server URL, not the local home page URL.

To revise an existing dilemma—by adding a new response, for example—follow the same procedure except click the title of the existing story, rather than the *create* link.

When the story opens, click the *Edit This Page* button. As before, do not forget to click the *Post Changes* button before leaving the page, or any changes will be lost.

Capturing the Content

To create the final publication in PDF format, we first drafted front matter consisting of a title page, copyright page, table of contents, and introduction. We used Microsoft Word for this although, obviously, any word processor would suffice. The page size was set arbitrarily at six inches by eight inches, which is suitable for a book of this sort. (A standard 8 ½ by 11 inch sheet can be used for printout but obviously would not be suitable as a publication format.)

Using the Web site navigation bar and tables of contents as a guide, we then copied each dilemma from the Web site and pasted it at the end of the text. A certain amount of reformatting was performed to convert from the visual format of the Web site to the publication format of the book. This was almost entirely automated with the use of styles. The *heading 1* style formats a dilemma title. The *dilemma* style formats the dilemma statement. The *response* style formats the responses. A page break follows each dilemma except the last in a section, which is followed by a section break.

Suppose, for example, that a new dilemma with responses were posted on the Web site (or, equivalently, that one was revised and needed to be replaced in the book). The process is as follows: In the browser, select from the Web site the entire page, consisting of a title, a dilemma, and some responses. Copy this to the clipboard. In the Microsoft Word document, paste this text between page or section breaks, after first selecting any older version to delete it. Next, select the title, click *Clear formatting* on the Styles and Formatting Menu (to remove any vestige of the Web formatting) and click the *Header 1* style to apply it. Then, select the dilemma text, again click *Clear formatting* and click the *dilemma* style to apply it. Finally, select the responses, click *Clear formatting*, and click the *response* style to apply it. This simple process creates almost all of the book.

After copying all of the dilemmas, we added nine chapter headings (in the *section* style) and back matter, and then used Acrobat Distiller to create the PDF file. Content can be retrieved from the PDF by simply cutting and pasting, which preserves all typographical format. The MS Word file is available, if wanted, but should not be particularly useful.

We do not intend to publish the book, *Ethical Dilemmas in Research Integrity*, as a conventional printed and bound volume. We are instead turning this deliverable over to ORI. We did, however, assign the PDF an ISBN number, which is 0-9628976-5-0. We also intend to post this PDF on the project Web site. In this way, members of the expert panel will be able to cite it as a publication to which they contributed as co-authors.

The MS Word document and PDF both contain color, since we expect that these will be distributed in electronic form. A printed book almost certainly would not have color.

The PDF can be used to create a black-only book, even though it contains color.

Problems Encountered During this Project

We experienced two serious problems while completing this ORI contract. In retrospect, it is now clear that either of these by itself would have been fatal to the development effort. The first obstacle occurred during the fourth month, when ORI unaccountably suspended funding for more than six months. Despite dozens of telephone calls to the person identified as having fiscal responsibility and also to her immediate supervisor, not once did anyone answer either of these telephones at any time during the 6-month period. Although a voice message was left on each and every occasion, not once did anyone return any of these telephone calls.

The second problem occurred in April, 2003, during month 7 of the 12-month project. Funding had been suspended for more than three months, by that time, and there was no indication of when—or whether—funding would resume. On April 9, the Principal Investigator, Dr Claire E. Gutkin, accepted a position as Science Review Administrator at the Center for Scientific Review, a branch of the National Institutes of Health in Bethesda, Maryland. Much of our success in recruiting expert panel members and motivating them to respond to the posted dilemmas revolved around their personal and professional relationship with Dr Gutkin, who was personally acquainted with every one of them.

The project would have been substantially finished by this time, of course, had ORI not suspended its funding. It still would have been possible to finish only slightly behind schedule if Dr Gutkin could have continued to participate, although without compensation, of course. And it would have made perfect sense for her to do so, since

her new employer was, after all, simply another branch of the Department of Health and Human Services. Not only did HHS not allow Dr Gutkin to participate in any way whatsoever after April 10, 2003, but HHS also specifically prohibited Dr Gutkin from notifying her colleagues on the expert panel that she could no longer work on their project. She was prevented, not only from notifying the expert panel about the circumstances of her abrupt departure, but even from notifying them of the fact that she could no longer participate.

What Happens Next

We intend to continue working on this project for several more months. Because many of the expert panel participants work in the academic community, they might be available to provide additional responses, and also more motivated to do so, once the spring semester is over. Certainly, right now is a bad time to be asking for contributions from academics.

Additional material will be incorporated into the project Web site, as it is received, and also into both the Microsoft Word version of the book and the Acrobat PDF version. Probably, both of these will also be posted on the Web site. We hope to have a minimum of four responses to each of the existing dilemmas before drawing the final curtain on this project.