Contributions

Commentary

A Slide Down a Slippery Slope: Ethical Guidelines in the Dissemination of Computer-Based Presentations

The continual development of technology opens many new and exciting doors in all walks of life, including science. Undoubtedly, we all have benefited from the ability to rapidly disseminate and acquire scientific information. Published articles can be downloaded from the Internet even prior to their "actual" publication date, requests for pdf reprints of papers can be e-mailed to authors around the globe and sometimes honored within minutes, and webcasts allow for both passive and active participation in conferences and workshops without leaving one's office. But along with the increasing availability of technological tools comes the need for a corresponding understanding of ethical conduct and responsibilities associated with their use. Science is increasingly more accessible than ever before, but has this accessibility garnered new dilemmas?

In particular, we specifically ask if the appropriate ethical behavior associated with the dissemination of scientific information, and particularly unpublished information, during scientific meetings, workshops, and other related events currently dominated by computer-based slide presentations is being handled in a manner consistent with the norms of printed materials. Although the concept of computer ethics is not new (Moor 1985, Mitcham 1995), it has largely focused on the protection of copyrighted software and hardware, individual privacy, and corporate security, and the general role of computer ethics in society (Moor 2001, Floridi 2006, Johnstone 2007). To increase awareness and stimulate debate, we present the following case studies to illustrate our concerns regarding the use of computer technology in scientific presentations:

Example 1: Scientist A presents a talk at Meeting 1. She uploads her slides from a convenient flash drive onto the meeting room laptop to present her paper. A few weeks later, Scientist B, who had attended Meeting 1, gives a talk at another meeting (Meeting 2). Unbeknownst to Scientist A, Scientist B had obtained the slides from A's talk at Meeting 1 and subsequently presented them at Meeting 2 without any acknowledgment to Scientist A. To make matters worse, Scientist B altered one slide to remove the header that would have identified the slide as belonging to Scientist A. Unfortunately for Scientist B, a colleague of Scientist A attended Meeting 2 and was intimately familiar with both the work of Scientist A and specifically the slide that was altered.

Example 2: A scientist presents a paper at a meeting, after which one of the symposium organizers e-mails all the speakers asking for copies of each presentation to prepare a summary document. One

of the speakers then replies to the group that they have already copied all the presentations from this symposium onto their personal flash drive, and that they would burn a CD and mail it to the symposium organizer on behalf of all speakers. Although this person, in this same e-mail, did ask eventually for permission, no prior request was made to copy the files in the first place.

Example 3: A group of scientists attend and present their research at an international meeting. All the speakers upload their presentations on a single laptop that is used to project the talks. At the conclusion of the meeting, one of the organizers makes a general announcement that presentations will be made freely available online, and that anyone objecting to having their presentations on a web site should contact the organizers; thus, the default assumption was that presentations could be freely shared, as opposed to the inverse. Unfortunately, not all attendees were present at the specific time this announcement was made, and consequently, some were unaware that presentation slides would appear online.

Unfortunately, none of the above examples of what we consider to be unethical scientific conduct—albeit to differing degrees of severity—are hypothetical; rather, they are all based upon actual cases. The ramifications of such unethical conduct are even more severe when presentations contain unpublished data or concepts. In fact, we suspect that most presentations at meetings contain at least some unpublished data or concepts, as it is often the interaction with the audience, in a less formal setting than the peer review process, that provides authors an opportunity to fine-tune their work prior to formal submission to a scientific journal, while the audience gains early exposure to results not yet published. Unpublished data or concepts thus remain the proprietary knowledge of the authors, and there are multiple negative impacts if they are copied and used for any reason without specific permission. We would argue that this is very much akin to reviewing a grant proposal, where the use of the unpublished privileged information is also strictly forbidden. Although we all likely understand the gravity of inappropriately copying information from a grant proposal, our examples above seem to indicate that the waters are far murkier when it comes to unpublished information on slides that are used in presentations. Perhaps some see this as a trivial concern, but for us the ramifications of misuse place it clearly in the scientific misconduct arena.

In the days of 35-mm slides, as well as its various precursors, the ethical scientist would never consider helping him or herself to a slide or two from another's carousel without asking. In today's world of more modern technology, the act of taking presentation slides belonging to others should be no more common simply because presentations are more easily downloaded from computers. Different meetings often have different rules regarding the publishing of abstracts and symposium summaries, but these tend to be merely summaries of the talk and not the actual content of the presentation. In some cases, perhaps, the sharing of slides poses no problem, yet this dangerous assumption does not eliminate what should be our default position based upon an ethical assumption. The position should be that, in the absence of specific permission from an author, presentations remain the intellectual property of the authors and thus are never to be copied by anyone, regardless of the formality or informality of the meeting setting, and regardless of the honest intent of the copier. Many meetings, especially large ones at the national or international levels, operate on increasingly tighter schedules. The brief time between symposia is often insufficient to allow speakers who are finished to delete thoroughly their presentations (i.e., place the contents into the "trash" and then empty the "trash," even though this type of deletion is not necessarily "undoable"), while still allowing the incoming slate of speakers to upload their presentations. We submit

that new guidelines for professional meeting behavior involving electronic versions of presentations are desperately needed, and we provide the following as a starting slate of guidelines:

1) All presentations are the intellectual property of the author(s); hence, computer slides shall never be downloaded by anyone else without the prior and explicit consent of the author(s).

2) Meeting organizers should accept formally and unequivocally *all* the responsibilities of hosting a scientific meeting, which includes ensuring that proper security protocols are in place to prevent unauthorized downloading to protect the integrity of the research process and uphold an ethical code of conduct.

3) Meeting organizers are encouraged to examine the use of modern computer-based tools to improve security measures during meetings. Some meetings already use secure servers onto which speakers can download their slides from a central location, but then retrieve them from, but not download to, a meeting room computer. Such a strategy effectively eliminates unauthorized downloads. Computer slides, of course, can still be shared through the intended and appropriate route; that is, by asking the presenter.

4) If meeting organizers wish to develop a web site to host presentation files, then they must ask speakers to provide consent prior to the development of the web site and posting of slides. For example, this could be obtained from authors by asking them during the abstract submission process. In the absence of any written consent, however, then the assumption shall be that the posting or sharing of presentation files is forbidden.

5) We call upon Universities to require their students to perform coursework in ethical scientific conduct, *and* to ensure specifically that new or existing coursework is relevant to today's technological tools. Although we believe that the more obvious examples of ethical misconduct, such as the theft of data, plagiarism, the fabrication and falsifying of data, are still critically important (e.g., LaFollette 1992, Giles 2005, Butler 2008), many texts on ethical behavior in science (e.g., Bulger et al. 1993, Macrina 2005) do not yet address new ethical challenges due to increased availability and use of electronic resources. We argue that additional discussion is needed to understand and appreciate the severity of misconduct through the improper downloading of presentation files, particularly as new students become more and more technologically integrated.

We have only focused on one component of ethical conduct and responsibility in today's computer world, mainly in the manner in which information is electronically disseminated in scientific meetings. In reality, though, with the constant development and refinement of new technologies comes an almost bottomless Pandora's box, forcing us to run the proverbial Red Queen's Race to ensure that our ethical understanding keeps pace with technological advancements. In today's progressively changing world, science is more accessible than it has ever been, and will continue to become even more so. We applaud wholeheartedly these advancements that greatly enhance our fields of study, but with these advancements come a constant and vigilant need to understand ethical scientific behavior, which is not trivial, but certainly a far better option than dusting off our 35-mm slide carousels.

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