Self-Plagiarism, Text Recycling, and Science Education

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Academicians generally consider it unethical to reuse text from published work without explicit attribution. However, in practice, the conventions and ethics associated with reusing text vary considerably across academic domains and genres. Although it may be anathema in the humanities, certain types of reuse are both common and acceptable in contemporary scientific discourse. The boundaries of acceptable practice are complex, however, so there is a strong temptation to ignore the topic in educational settings. Because the fallout from innocent errors can be damaging, scientists must assume responsibility for determining what constitutes acceptable reuse in their domain and for instructing future scientists in these practices.

That scientists frequently reuse text can hardly be disputed. A 2007 study of Australian academics found that 60 percent had recycled at least one-tenth of a previously published work (Bretag and Carapiet 2007), and an informal poll of scientific editors found that they "are fine" with recycling 10 percent of a paper (with many respondents suggesting a higher limit; Kravitz and Feldman 2011).

In the past 10 years, editorials and letters addressing the practice of text reuse have been published in dozens of scientific journals across a broad range of fields and around the globe (try a Google Scholar search for "self plagiarism" and "text recycling"). Those opposed to the practice have described it as "intellectually lazy" and "deceptive"—insisting that authors should not reuse "previously published text, unless it is done in a manner consistent with standard scholarly conventions (e.g., by using of quotations and proper paraphrasing)" (*https://ori.hhs.gov/plagiarism-0*). Others disagree, declaring that some types of reuse are not only reasonable but also sometimes desirable, because readers benefit from consistency of language across multiple publications when following an ongoing line of research. In spite of growing recognition of such reuse as an important issue in scientific communication, scientific writing textbooks, courses, and websites—along with school plagiarism policies—are virtually silent on the matter.

Understanding text recycling

Here is a typical example; the first passage comes from an article published in *Science* in 2010 (Gneezy et al. 2010), the second from *PNAS* in 2012 (Gneezy et al. 2012):

> We conducted a field study at a large amusement park (8). Participants (N = 113,047) rode a roller coaster–like attraction, were photographed during the ride, and later chose whether to purchase a print of the photo.

> We conducted a field study at a large amusement park. Participants rode a rollercoaster-like attraction, were photographed during the ride, and later chose whether or not to purchase a print of the photo.

Self-plagiarism is increasingly used as a label for such reuse; however, that term is problematic for two reasons: It labels as deviant all occasions of a practice that is often legitimate, and it excludes common examples of replication that do not involve reusing one's own material.

Text recycling (TR) is a more productive term. It better captures the variety of reuses common in the sciences and offers the neutral space needed for productive deliberations about when the practice is legitimate (and even valuable) and when it is unethical or unproductive.

In a first step in establishing editorial norms for TR, BioMed Central and the Committee on Publication Ethics (COPE) recently collaborated on a set of guidelines for editors (*http://io.aibs.org/cope*). These clearly establish TR as an accepted practice under certain circumstances, stating, for example, that for both Introduction and Methods sections of research reports, some amount of TR "may be unavoidable" But whereas these guidelines set parameters for determining when a manuscript might be considered duplicate publication, they do little to clarify expectations for typical uses of TR likely to confront both working scientists and students.

Recycling in the educational setting

As teaching institutions offer more opportunities for students to engage in research, students become more likely to encounter potential TR situations—especially when writing scientific research reports or grant proposals. (Unlike professional scientists, however, students are more likely to face decisions about recycling from the work of *others*—such as prior publications from the research team they have joined or technical descriptions of methods or materials they are using.)

Although TR can pose difficult decisions for experienced scientists, students face an even more complicated situation: In addition to the

nuanced conventions of TR itself—such as different norms for different sections of a research report—students are caught between professional norms and school plagiarism policies. These policies are typically written as generic and therefore universally applicable statements. But because they reflect norms for the humanities rather than for the sciences, any use of TR could be interpreted as a violation of school standards.

Another challenge greater for students than for professionals is that norms for recycling vary significantly by field even within the sciences: In the health sciences, for example, the practice is quite common; in other fields, it is much more limited. Whereas professionals need to understand the conventions of only a single discipline, students face decisions about recycling in multiple disciplinary contexts: Is it permissible to recycle information about a database in a sociology paper? What about a short description of equipment in a chemistry report?

TR poses challenges to teachers, too. For one thing, it is the very nature of TR not to identify itself. Unlike quotation, there is no standard linguistic mechanism for identifying recycled text. And unlike commonplaces (such as, "In this study, we..."), which experienced scientists easily recognize, instances of TR are often invisible without time-consuming investigation. Without an established mechanism for students to acknowledge the use of recycled material, suspect phrases require instructors to infer intent: Is this recycling or plagiarism?

Another challenge is the lack of teaching materials. Although TR is ubiquitous in scientific writing, the practice remains largely misunderstood and generally ignored within educational contexts. Why? Because for the past 100 years, responsibility for writing instruction from the primary to the university level has been largely handed to those trained in humanities fields. In spite of efforts to better understand student plagiarism in recent years, those who teach writing (even scientific writing) and those who articulate plagiarism policies are often ignorant about TR. Therefore, scientific writing textbooks and handbooks have little to offer faculty members who choose to address the matter.

Sharing our expertise

Given these challenges, faculty members can best help their students navigate the complexities of recycling in the context of research mentoring. We can share our own knowledge about the conventions of recycling in our fields and be transparent about our own practices. We can show students examples of TR from our own published work and—even better—our work in progress as we make decisions about recycling.

And most important, we can guide students in applying the standards of our field in their own writing. To contend with the problem of identifying recycled material, I developed a protocol for my own science-focused writing courses: I ask students to identify all instances of recycling with gray highlighting (gray shows up on printed copies). This highlighting serves two purposes: First, it provides occasions for learning. Seeing how students use recycling in their own work (you will likely be surprised) offers the opportunity to discuss those choices. In years of using this approach, I have helped many students understand that they tend to recycle much more text than is rhetorically useful and also that much of what they choose to recycle is not appropriate for the context of their own work. Second, asking students to explicitly identify recycled text protects those who are trying to behave ethically from plagiarism charges and limits the unproductive time we would otherwise spend trying to infer our students' motives.

Teaching about TR is especially important for international students, because they often rely heavily on published papers as models. We must help these students understand that what may be acceptable when recycling portions of one's own prior work might be considered plagiarism when drawing on the work of others. Although models are indeed helpful, students should be cautioned against using published texts as detailed templates.

Text recycling offers yet one more challenge to the stubborn notion that the responsibility for teaching scientific communication can be relinquished to those without insider knowledge of scientific discourse practices. And it certainly reveals the inadequacy of putatively generic plagiarism guidelines. Our students live in a world in which copying and pasting has become integral to the practice of writing and in which the repurposing of all kinds of material—prose, audio, visual, and so on—is increasingly the norm. Teaching the responsible and effective use of text recycling can help students become more expert writers and avoid damaging distractions in young scientists' careers.

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