GUEST EDITORIAL

They Copied it RIGHT OUT of the Solution Manual!

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When students plagiarize it can provoke moments of scholarly outrage. In spite of this passionate protest, we rarely discuss the substance of plagiarism, the discipline-specific meaning of knowledge, or the relative value we place on different forms of knowledge.

Definitions of plagiarism usually contain the simple phrase, "no (scholar) shall submit the words, ideas, images, or data of another person as (their) own." Research integrity policies emphasize the requirement to acknowledge collaborators and, "to cite appropriately." We all agree that copying a full sentence without attribution crosses the line into plagiarism—but how many times have we seen a problem copied directly from a secondary textbook and used in an assignment without citation? The defense goes something like this, "if you give them the reference students will just find the solution online." I suspect that students can also take key phrases from the problem statement and search those online, as they did during a recently borrowed convocation address. This lack of attribution resulted in the resignation of the dean. It seems that a more thoughtful solution is needed.

Some basic drill problems contain no original work, so citing a source does not make sense. These problems typically fall in Bloom's first cognitive domain and are "common knowledge." They rarely develop deep understanding or critical thinking. While they are useful, they should form only a small part of our coursework.

At the other extreme is the case where a professor or instructor constructs a new problem using citations from the literature and/or new data, or develops extensive course notes or slides with embedded active learning. These materials may progress through a number of levels of cognitive understanding and critical thinking, and may have been validated and modified through several classes of students, or even in collaboration with several instructors. This type of work requires careful thought and creative development. It is peer-reviewed and published in journals such as *Chemical Engineering Education*. It should clearly be attributed to the rightful author(s) every time it is used. This is commonly done in business faculties with case study literature. This shows respect for our colleagues and their scholarship in education, and provides a model of professional and scholarly integrity for our students.

Some teaching materials fall between these two extremes. A problem or explanation may be modified but retain the original authors' compelling and creative presentation format, just as figures may be modified for a new paper. In this case, "modified from J. Smith, 2004" is an obvious solution.

In exploring the boundaries of plagiarism in the scholarship of teaching, and in explaining those boundaries to our students, I have yet to hear a logically consistent explanation for the following question: Why is it a clear case of plagiarism if a student copies the solution from the solution manual with no citation, but it is not plagiarism if the professor copies without citing the original source the problem statement from the same author's textbook or from a colleague's course materials? ❐