It puts kids to sleep — but teachers keep lecturing anyway. Here's what to do about it.

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ABSTRACT (ENGLISH)

[...]an analysis of research studies published in 2014 found that "active learning leads to increases in examination performance that would raise average grades by a half a letter, and that failure rates under traditional lecturing increase by 55 percent over the rates observed under active learning." [...]for some years an interesting movement has been underway in the natural sciences to come up with better ways of educating college students and, in particular, to create alternatives to standard lecture-based introductory courses. From POGIL (a guided inquiry approach developed for chemistry courses), to the use of "smaller classes that emphasize hands-on, interactive, collaborative learning" for intro physics courses at MIT, to the SCALE-UP model pioneered by science instructors at North Carolina State, the "sit 'n git" approach is being challenged in higher education. Oddly, though, such efforts appear to be limited almost exclusively to the hard sciences even though active interpretation of ideas — rather than passive absorption of information — would seem to be at least as important in the humanities and social sciences. [...]even in physics and chemistry, as Wieman observed in 2014, only "a small fraction of classes" seem to have moved away from relying primarily on lectures — although few universities apparently care enough about the issue to bother collecting data, so it's hard to know for sure. [1] Perhaps the most thorough review of evidence specific to higher education appeared in a book by Donald A. Bligh called "What's the Use of Lectures?" that was originally published...

FULL TEXT

Walk into any lecture class at any high school or college, and you are likely to find a good number of students doing something other than listening to the teacher. Dozing, perhaps. Shopping online. While that might be a testament to young people's reputed inability to focus on anything but video games for too long, it is more likely an indication that the lecture is dull, as way too many are.

In fact, an analysis of research studies published in 2014 found that "active learning leads to increases in examination performance that would raise average grades by a half a letter, and that failure rates under traditional lecturing increase by 55 percent over the rates observed under active learning." One article, titled "Twenty terrible reasons for lecturing," posted on a British university website, says in part:

1. "Lectures should last an hour. If I can stay awake for an hour, so can they."
2. "It's the only way to make sure the ground is covered."
3. "Lectures are the best way to get facts across."
4. "Lectures are the best way to get students to think."
5. "Lectures are inspirational: They improve students' attitudes towards the subject, and students like them."

But teachers —in high schools as well as in higher education —keep lecturing anyway and in some schools it remains the dominate class structure. Why do teachers still lecture? This post answers the question —and offers suggestions about what should be done about it. It was written by Alfie Kohn, the author of 14 books on education, parenting and human behavior, including, most recently, "The Myth of the Spoiled Child" and "Schooling Beyond Measure." This first appeared on www.alfiekohn.org. I am republishing it with permission.

By Alfie Kohn

[Lecturing is the] best way to get information from teacher's notebook
to student's notebook without touching the student's mind.
—George Leonard

Of Gary Larsen's delightfully deranged "Far Side" cartoons from the 1980s and '90s, my favorite features a bunch of cows contentedly grazing in a meadow. Suddenly one cow lifts its head and says, with dawning incredulity and disgust, "Hey, wait a minute. This is grass! We've been eating grass!"

Elsewhere I've described "the grass moment" as a shift in perspective that leads us to question what we (and those around us) have accepted uncritically. I had such a moment not long ago while visiting a college classroom. I was there for the final session, the grand wrap-up lecture, of a social science course at one of the world's most prestigious universities. The course was taught by a distinguished scholar in the field who also happened to be a fluent and engaging presenter.

Nevertheless, (a) about a third of the students enrolled in the course hadn't bothered to show up, (b) most of those who did come spent the class doing other things on their laptops, and (c) the students who were paying attention mostly just copied down the professor's PowerPoint presentation. (A new slide means it's time to start typing again).

Now I, personally, had a keen interest in the content of this presentation, but almost immediately I found my focus shifting to how it was being taught. I've been critical of an over-reliance on lecturing —along with other features of traditional instruction —for years. But that afternoon infused my long-standing skepticism with a fresh intensity. Why on earth would we think this arrangement —teacher in front of the room talking, students sitting silently and (ostensibly) listening —ought to play a central role in an institution whose goal is to promote learning?

I am hardly the only observer to entertain such doubts. In fact, for some years an interesting movement has been underway in the natural sciences to come up with better ways of educating college students and, in particular, to create alternatives to standard lecture-based introductory courses. From POGIL (a guided inquiry approach developed for chemistry courses), to the use of "smaller classes that emphasize hands-on, interactive, collaborative learning" for intro physics courses at MIT, to the SCALE-UP model pioneered by science instructors at North Carolina State, the "sit 'n git" approach is being challenged in higher education.

These and other initiatives took shape about a dozen years ago and then acquired additional momentum from an influential article called "Why Not Try a Scientific Approach to Science Education?" by Carl Wieman, a Nobel laureate then at the University of British Columbia and now at Stanford. Oddly, though, such efforts appear to be limited almost exclusively to the hard sciences even though active interpretation of ideas —rather than passive absorption of information —would seem to be at least as important in the humanities and social sciences. Moreover, even in physics and chemistry, as Wieman observed in 2014, only "a small fraction of classes" seem to have moved away from relying primarily on lectures —although few universities apparently care enough about the issue to bother collecting data, so it's hard to know for sure. "Institutions have yet to acknowledge there are better and worse ways to teach," Wieman told me earlier this year. "As long as that remains the case, a faculty member will be penalized for taking the time to change [his or her] teaching, or collect data on effectiveness."

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Wieman's article asked instructors, in effect: How can you justify the use of lectures in light of solid research showing that this isn't a very effective way even to get students to retain information, much less to understand concepts?

Wieman presented some data of his own, and additional evidence has been published since his article appeared. Indeed, even when someone tries to show that direct instruction (telling students things) works better than more active and interactive methods, a newer and better study subsequently comes along to refute that claim.[1] Perhaps the most thorough review of evidence specific to higher education appeared in a book by Donald A. Bligh called "What's the Use of Lectures?" that was originally published in 1971 and then updated with newer references in 2000. Bligh mostly offers advice to instructors for improving their lectures —a key recommendation being never to talk for longer than 20 or 30 minutes at a time. But his first chapter comprises a research review that raises

serious doubts about the value of the activity, no matter how skillfully it's done, particularly if the goal is to promote thought.

"The heavy reliance placed upon lecturing and its frequent use as an all-purpose method are unjustified in the light of evidence," Blight concludes. It's possible that, for students, "thought may take place during lectures," he concedes, but "the traditional style of continuous exposition does not promote it in such a way as to justify lecturing to achieve this objective."[2]

To question the effectiveness of lectures is not to deny that teachers know more than students do, a common straw-man objection offered defensively by traditionalists. Rather, it suggests that having someone with more information talk at those who have less doesn't necessarily lead to that information's being retained by the latter. And the more ambitious one's goal, cognitively speaking, the less likely one is to reach it by having students sit and listen. This is true because we are not empty receptacles into which knowledge is poured; we are active meaning makers.[3]

Even Donald Finkel, the author of my favorite book about college pedagogy, "Teaching with Your Mouth Shut ," wouldn't say that teachers ought never to talk. Lecturing probably has some role to play when the goal is just to transmit knowledge —at least when that knowledge cannot be discovered (or simply read) by the students. It may even have a role, though a far more limited one, when the goal is to help students understand ideas.[4] Likewise, there's a case to be made for lectures in non-course settings, such as professional-development events and conferences that last a day or two. Here's a proposed rule of thumb: The longer the period during which teacher and students are together, the less time, proportionately, that the teacher should be talking.

And the alternatives? That will depend on such variables as the subject matter and the size of the class. Of course, institutions committed to improving the quality of teaching don't treat huge introductory courses as a fact of life; they figure out how to reallocate resources to allow for smaller classes. (For example, see the article about MIT, above.) But in general we're talking about possibilities such as these:

* Devote a much greater proportion of total course hours to discussion. If section meetings don't always seem productive, that's an argument for figuring out how to facilitate those conversations more skillfully, not an excuse for having students spend more time passively listening, which we know doesn't work.

* If there is a body of knowledge that students must master, provide more of it in readings between class sessions —and even in short readings during class sessions (which guarantees that everyone does them and ensures that discussions take place while the content is fresh in students' minds). Lecturers who lean heavily on PowerPoint are actually making a case for their own irrelevance. The material is already in written form and can be supplied to students beforehand, freeing up class time for thinking and talking together about that material.

* During whole-class meetings, lecture only occasionally and briefly in order to frame the interactive activities where the real learning happens. For example, offer deep questions for students that they can (a) think about silently for a moment, (b) discuss for a few minutes in pairs or small groups, or (c) reflect on in writing. The point is to create opportunities for students to be actively involved. But be skeptical about gimmicks like "clickers" that aren't about being meaningfully active. These may improve rote recall but, according to a brand-new study, don't promote —and may actually hinder —conceptual understanding. (Just because lectures are largely ineffective with respect to both of these outcomes doesn't mean that a solution to one will be a solution to the other.)

* Elicit students'
questions about what they've read and heard —and also their observations ("What do you notice?") so they construct connections and distinctions rather than just listening to yours. This recommendation makes sense for any discipline and at any age.

So if these suggestions are feasible and productive, why haven't they been routinely adopted? One answer, simply, depressingly, is tradition. Lecturing is what instructors know. It undoubtedly played a central role in how they were taught. And it's what students expect. This makes it the path of least resistance, which of course doesn't offer even the beginning of an argument for continuing to rely on it.

Lecturing also appeals to people who like to hold forth, to be the center of attention, to control what's going on

(even though the speaker actually has no real control over what's happening in the students' heads; teaching and learning are two entirely different things). Moreover, even though many professors aren't very good at it, lecturing is still a hell of a lot easier than creating an environment that promotes meaningful learning. The latter requires considerably more expertise in the subject matter than does the former.

It also requires a grasp of pedagogy, an understanding of how learning happens, which, let's face it, is quite rare among college instructors. You can be an eminent philosopher or chemist or historian and know virtually nothing about how to help students understand philosophy or chemistry or history. A true educator, by contrast, not only knows how to do things other than lecture; he or she understands why these various strategies are necessary —in part because education is less about covering (a curriculum) than about discovering (ideas).[5]

One last barrier often cited to explain why lectures continue is economics: It's cheaper to pack hundreds of students into a lecture hall, particularly for intro courses. Large classes are never ideal, but even if budgetary constraints make it difficult to follow MIT's lead, that's not an excuse for having professors continue to lecture. Follow the POGIL and SCALE-UP links, above, to find out more about how even large courses can be reconfigured to produce . . . and here comes a suggested slogan for the movement . . . less listening and more learning.[6]

Reading the research about lecturing is one way to realize the current system doesn't make any sense. Another is to sit in the back of a college auditorium and watch rows of students updating their Facebook pages or shopping for shoes while a professor plows through a slide deck. In any case, if an hour or two of sitting still while someone pours words in your ears rarely produces lasting intellectual benefit, how can we justify a system of higher education whose uncritically accepted premise is that it does?

NOTES 1. For example, a report published in 2004 showed that students who received "an extreme type of direct instruction [in a science unit] in which the goals, the materials, the examples, the explanations, and the pace of instruction [were] all teacher controlled" did better than their classmates who were allowed to design their own procedures. (D. Klahr and M. Nigam, "The Equivalence of Learning Paths in Early Science Instruction," Psychological Science 15 [2004]: 661-67.) The way these researchers had set up the latter condition wasn't representative of the strategies most experts recommend for promoting discovery and exploration. Nevertheless, the finding may have given pause to progressive educators —at least until another study, published three years later, looked at the same issue in the same discipline for students of the same age. The second study, however, investigated the effects after six months instead of after only one week, and it also used a more sophisticated assessment of the students' learning. It turned out that any advantage of direct instruction soon evaporated. And on one of the outcome measures, pure exploration proved to be not only more impressive than direct instruction but also more impressive than a combination of the two —suggesting that direct instruction can be not merely ineffective but positively counterproductive. (D. Dean, Jr. and D. Kuhn, "Direct Instruction vs. Discovery: The Long View," Science Education 91 [2007]: 384-97.)

2. Donald A. Bligh, What's the Use of Lectures? (San Francisco: Jossey-Bass, 2000), pp. 252, 11. This has been known for a very long time. Among the earlier studies Blight cites on the limits of lectures: C. Bane, "The Lecture vs. the Class-Discussion Method of College Teaching," School and Society 21 (1925); and B.S. Bloom, "Thought-Processes in Lectures and Discussions," Journal of General Education 7 (1953).

3. There is an enormous literature on "constructivism," which is derived from the recognition that knowledge is constructed rather than absorbed; we form beliefs, build theories, make order. Learning isn't a matter of acquiring new information and storing it on top of the information we already have. It's a matter of coming across something unexpected, something that can't easily be explained by the theories we've already developed. To resolve that conflict, we must reorganize our way of understanding to accommodate the new reality we've just encountered. The question for educators, then, is how best to facilitate that process of reconstruing and reconstructing —and while there isn't a single answer to that question, it is pretty clear that transmitting information has a sharply limited role to play. Lecturing is a technique better suited to, and perhaps derived from, an obsolete theory of learning. All of this tends to be better understood by educational theorists and cognitive scientists than by classroom teachers —and, as a rule, is least well understood by those who teach older students. But there is an

exquisite irony present when constructivism itself is taught by lecture, something I, myself, have been guilty of doing. "Education is not an affair of 'telling' and being told, but an active and constructive process," John Dewey emphasized, and yet too often "the doctrine is itself merely told. It is preached; it is lectured; it is written about" (Democracy and Education, p. 38).

4. The deeper question is what the relative prominence should be of these two goals. Rather than matching a teaching strategy to one's objective, whatever it may be, we should be willing to ask whether schools spend too much time trying to fill students with information, leaving them with what Emily Dickinson called "the facts, but not the phosphorescence" of thought. (And even the facts are often soon forgotten.) Note that this line of inquiry is likely to prompt a reconsideration of many traditional practices other than lectures.

5. One painful example is the difference between mathematicians and math educators. When the former, who rarely have much understanding of how children learn, are presumptuous enough to issue opinions about elementary and secondary math education, their advice often consists of a demand to return to a fact-and-algorithm curriculum (delivered by traditional drill-and-skill instruction).

6. Conversely, smaller classes don't guarantee better outcomes if traditional practices, like lecturing, persist. And what's true of the size of the class is also true of its duration. Longer, like smaller, is generally preferable, but it doesn't ensure higher quality. For example, when high schools adopt "block scheduling," which offers longer class periods in order to allow for deeper exploration of ideas (including more project-based learning), teachers' first reaction may be to ask how they're supposed to lecture for two hours.

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