Editorial

(Power)Point to Ponder

According to Microsoft estimates, as many as 3 x 10^7 PowerPoint presentations are made every month.[1] And we've all heard many that are excellent, especially ones presented at our regional and national physics meetings. That's because they are given by people who know their subject well and are experts in the preparation and delivery of good presentations. As teachers, we're experienced in making logical arguments, following a story line, and relating what we have to say in a coherent, logical way. We can utilize the features of PowerPoint to good advantage. But what about the use of PowerPoint by individuals who don't have such experience and skills? Our students, for example. I've seen hundreds of student physics presentations during the past 30 years. Increasingly they employ PowerPoint. And I'm worried about what I see happening to the quality of the presentations.

The use of PowerPoint can make it too easy to mask deficiencies in a speaker's knowledge and preparation. Using a canned template, i.e., PowerPoint's "AutoContent Wizard," the presenter can quickly prepare a presentation that may be quite incoherent and yet appears professional and organized. All too often the audience listens to the speaker quite patiently and politely, beguiled by multicolored backgrounds and bulleted phrases entering the field of view from every which way. With the aid of distracting animated graphics, the presenter can gloss over a flawed analysis and move on to the next slide before anyone notices or has a chance to raise a question. The result may not always be inconsequential.

An example is suggested in the report prepared by the board that studied the circumstances surrounding the final flight of the space shuttle Columbia. In a section titled "Engineering by Viewgraphs,"[2] the board's report suggests that a critical PowerPoint slide provided by Boeing might have been misunderstood by NASA officials, resulting in their not fully realizing that it addressed a life-threatening situation. Based on briefings they received, NASA officials decided that Columbia could be safely landed without a visual inspection of damage caused to the left wing by the impact of foam debris 81 seconds after takeoff. A thorough study of the slide in question was done by Edward R. Tufte, an internationally recognized expert on the presentation of information. Tufte, a professor emeritus at Yale, points out that one has to work through six levels of bullets to finally untangle the confusing, "PowerPoint festival of bureaucratic hyper-rationalism"[3] manifest in the slide. The Columbia Investigation Board added in its report, "At many points during its investigation, the Board was surprised to receive similar presentation slides from NASA officials in place of technical reports. The Board views the endemic use of PowerPoint briefing slides instead of technical papers as an illustration of the problematic methods of technical communication at NASA."[2] One can hear the echo of Richard Feynman's much earlier complaint about the way in which NASA transmitted information to the committee investigating the earlier Challenger tragedy: "Then we learned about 'bullets' — little black circles in front of phrases that were supposed to summarize things. There was one after another of these little goddamn bullets in our briefing books and on slides."[4] Poorly prepared slides, even with accompanying narration, can be confusing. Even well prepared PowerPoint slides by themselves are at best a highly inefficient way to transmit technical information. As Tufte puts it, "The PP slide format has probably the worst signal/noise ratio of any known method of communication on paper or computer screen."[5]

Of course it's possible to give a bad presentation using slides or a chalkboard, or nothing but spoken words. In a *Physics Today* article,[6] John Rigden laments the overuse of overhead transparencies by speakers at professional meetings. He speaks of physicists who have a large collection of transparencies and can prepare a major talk in minutes by merely shuffling through transparencies and putting them in a sequence chosen for the occasion. Rigden goes on to give an amusing description of how Lincoln might have delivered the Gettys-

DOI: 10.1119/1.1664375

burg address if he'd had an overhead projector. But Peter Norvig, director of search quality at Google, has gone a step further. He's actually created a very comical PowerPoint presentation of the Gettysburg address.[7]

Obviously it's wrong to blame transparencies or PowerPoint or any other tool for a poor presentation. But Norvig cautions that "using PowerPoint is like having a loaded AK-47 on the table. You can do very bad things with it."[8] Putting PowerPoint into the hands of people who haven't been taught to prepare and deliver good presentations is asking for trouble. Sherry Turkle, professor of the Social Studies of Science and Mathematics at MIT, is a frequent user of PowerPoint herself, but has reservations about its use by students: "Students are thinking and doing presentations on complicated things and we need them to be able to think about them in complicated ways. PowerPoint is not a step in the right direction. It's an example of a technology we should be quite skeptical about as a pedagogical tool."[9]

We should be teaching our students how to communicate well. That is in no way synonymous with teaching them to use PowerPoint. Indeed, if they're not careful, their bullets could hurt somebody.

References

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