



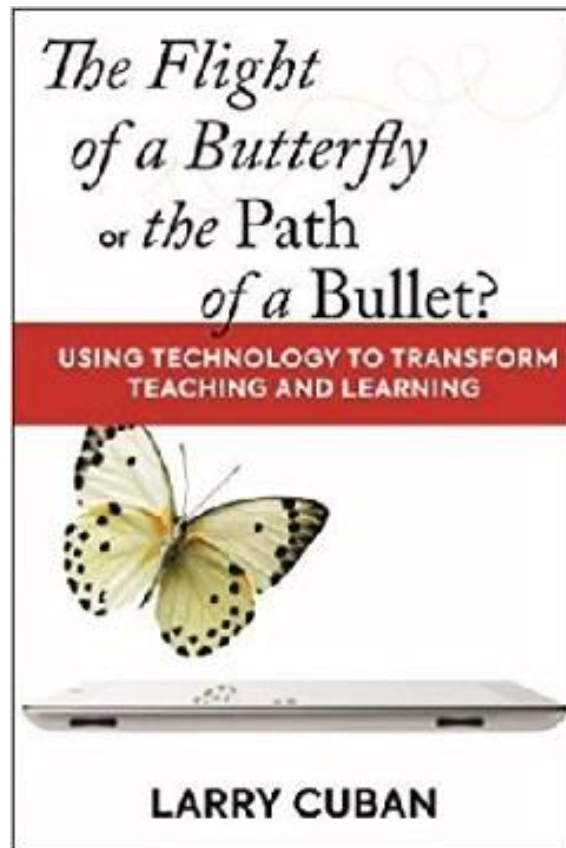
Cuban, L. (2018). *The flight of the butterfly or the path of a bullet: Using technology to transform teaching and learning*. Cambridge, MA: Harvard Education Press.

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The title of Larry Cuban's latest insightful and timely book, his third on education technology over a 30-year period, takes on a certain poignancy after the recent Parkland, Florida, school shooting of February 2018, another in a series of tragic losses of life in American schools. Cuban, who is professor emeritus at Stanford University, draws his title from a line by the great explorer of classroom life Philip Jackson, who notes that the course of educational progress emulates butterflies rather than bullets. Cuban follows that butterfly path around a series of Silicon Valley schools situated among the California poppies. He alights on the classrooms of 41 exemplary teachers across 12 charter and public schools and six districts. In each case, he follows the course of a single lesson, closely observing how the teachers integrate technology into their teaching, after which he asks them about the difference that technology makes for their teaching.



He notes that some teachers use computers to teach the most traditional fare, for example, in reading Steinbeck's *The Pearl*. Others mix it up a bit by setting out a series of behavioral objectives (from Tyler in the 1930s) for lessons on whiteboard animation. Students use worksheets and Chromebooks in the same lesson. Other teachers, however, use digital supports in the midst of more daring moves, as one teacher debates over paying slavery reparations to African Americans. In most of these cases, this chronicler of educational reform expresses his admiration for how the teachers made sure that "technology was in the background" (p. 58).

This series of single classroom visits precludes assessing the computers' contributions to student learning, and Cuban is very clear on how this is not the object of his study. He is, however, very attentive to what can be readily observed, which is the sense of classroom orderliness ("I see that all of the students are on task"; p. 96). Only once, in the 41 lessons that he attended, did that familiar sense of disruptive energy arise. A student calls out, after he introduces himself to the class, "Larry, the Cable Guy" (p. 110). The reference to the comedian is one, I confess, I had to look up on YouTube, although I was hardly surprised by what I heard ("You know how I stay so young, I read at a third-grade level"). It spoke well to the student's sense of irreverence. These were "exemplary" teachers, after all, with this one moment suggesting that the classrooms have otherwise been as much about exemplary "students."

A teacher of Spanish, who uses the 20th-century mainstay of worksheets to reinforce her lessons, tells Cuban, "Chromebooks in my classroom has dramatically changed my access to student learning, monitoring of their proficiency development, and my ability to cover material over the course of a school year" (p. 36). Cuban helps us to see that the "tell" here, in the poker sense, is the teacher's focus on monitoring the progress of students, as well as

her own work. He perceptively sets out how such concerns are part and parcel of "the current rush to personalized learning" (p. 101). The new teaching machines are attuned to tracking mastery learning. It is here that Cuban's considerable command of the history of education reform is deployed to identify the roots of current moves in the "more productive, effective, and individualized" of the "efficiency-driven, behaviorist wing" of 1930s reformers. The teachers that Cuban observes demonstrate how the use of these new technologies is strengthening their ability to monitor and direct student learning. The irony is not lost on Cuban who acutely observes how personalized learning "undercuts the student centeredness that the teacher seeks" (p. 146). Mastery learning appears to be just as much about teacher mastery of the classroom as it is about student learning.

Cuban clearly admires student-centered learning. It is a way of treating children "as more than 'brains on a stick,'" as it involves them in "more interaction with the 'real world'" (p. 122, 105). Yet what he found most often in those Silicon Valley classrooms was teacher-centered instruction that was not so much sage-on-the-stage, as guide-on-the-side-with-tablet-in-hand directing student activities. He contrasts "the efficiency end of the spectrum" in classroom teaching to "the student-centered end" (p. 121), while noting how often the measure of "efficient" comes up in his exchanges with the teachers he has met with (p. 136). You can almost hear Cuban let out a sigh on this point, even as he is otherwise the constantly respectful and attentive observer of the classrooms. What had emerged four decades earlier out of the hippie, whole-earth culture of the early personal computer days in Silicon Valley was now being largely directed toward tracking and measuring developmental progress in skill acquisition (Turner, 2006).

Still, for all of the emphasis on classroom management, what I found most

promising in the teachers' commentary were those who pointed to how the internet facilitated, in the words of one of them, "individual access to more authentic materials from around the world" (p. 37). Although Cuban did not witness any instances of this, he does cite a 2013 Pew study reporting that 95% of the teachers surveyed assert that students are doing research online. This can mean many things, of course. My hope, if I can be allowed an aside, is this: in the course of this online research, teachers will introduce students to the qualities and richness of online materials resulting from increasing levels of open access to scholarship, archives, and museum collections, as well as, in a necessary complement, teaching them strategies for assessing the information reliability and integrity of websites, much as Wineburg and McGrew are developing (2017). Cuban's observations on and support for teacher autonomy in the implementation of technology, at more than one point in this book, speaks to the promise of such initiatives.

The whole of this exemplary classroom technology tour comes down, for Cuban, to seeing "both change and stability as central to the conduct of teaching over the past two centuries" (p. 149). The stability, in his classroom observations, comes with teachers' maintenance of order in the classroom, while the element of the change is found in the means of managing that order. Cuban points to the "constancy in how teachers set goals, organize and execute lessons" (p. 152). He notes that there have been "few structural changes in the core craft of teaching, school and district governance, funding, and organization" amid the "many adaptations" of technology (p. 164).

While Cuban is always respectful of his educational hosts, resisting any blaming of teachers, he does note how "every reform aimed at moving classroom practice from teacher- to student-centered" has been sacrificed by the need for teachers to develop a "lesson to fit each grade level taught" (p.

179). There's no greater example of this stability amid change, he points out, than how today's norm of age-graded schooling has remained relatively unchanged since it had its beginnings in Quincy, Massachusetts, in the 1840s. The age-graded school renders decade after decade of reform "just barely recognizable years later" (ibid.). Such insights highlight how helpful it is to have a historian of Cuban's caliber as a guide to today's schools. He also sets this theme of stability and change in a broader historical context by stepping away from the schools to show us how it plays out over no less than the long history of the ice age, the Roman Catholic Church, and climate change. This big-picture perspective leaves one wondering how to get a grip on what is currently most in need of change and what it would be best to preserve or stabilize?

Yet if we are to assess what needs to change and why, we need to be able to weigh the actual problems caused by age-graded schools and the advantages of a student-centered curriculum. What may be missing from this book is a guiding sense of the educational shortcomings that schools need to address. Consider a few of the classic critiques of where schooling falls short on its promise, whether that of Bourdieu and Passeron (1977) or that of Ladson Billings and William Tate (1995) on the reproduction of class and race inequality. Such studies bring a greater moral imperative to judging and inspiring educational reforms within this timeless spectrum of change and stability. And, if this book's question is, what's technology got to do with it, then one begins to consider what Silicon Valley programs like [Black Girls Code](#) are seeking to bring about.

In an interesting turn for an education study, Cuban gives the book's final word to Bob Dylan, not with a lyric from the laureate, but a quote that I was able trace back to a college newspaper interview from 1964: "There is nothing so stable as change." This is a succinct statement of Cuban's theme. Yet

the Dylan line that came back to me on finishing the book was from “When the Ship Comes In”: “And the words they use to get the ship confused / won’t be understood when they’re spoken.” In this, Cuban is our sage. He takes great care in sweeping away the confusions generated by those “well-intentioned and well-heeled crusaders seeking to improve teaching and schooling” (p. 102). He may float like a butterfly from classroom to classroom, but he can sting like a bee (supported by an admirably rich array of footnotes). And we are indebted to him for that.

When it comes to answering the question of whether technology is the difference that makes a difference, even in the hands of the exemplary teacher and students, Cuban says yes and no in the face of change and stability. The “butterfly effect” suggested by this book (for a final play on its title) is not that the flutter of wings in Asia can lead to a tornado in Kansas; rather, it’s the reverse. For the tornado of tablets and other devices in American classrooms may have only caused the needle on student learning to flutter, without moving the schools in the substantial ways that many of us might have hoped.

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