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—*Wall Street Journal*

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DANIEL T. WILLINGHAM

WHY DON'T STUDENTS *Like* SCHOOL?

SECOND EDITION

A COGNITIVE SCIENTIST ANSWERS QUESTIONS ABOUT HOW THE MIND WORKS AND WHAT IT MEANS FOR THE CLASSROOM

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Praise for *Why Don't Students Like School*

“Brilliant analysis.”

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“Accessible, entertaining prose that knits together the cognitive science of learning with illuminating examples, to reveal students' challenges navigating school. A real gem is Willingham's convergence on clear implications for classroom improvement. The book is a masterpiece of style and content that every teacher will find indispensable.”

—Mark McDaniel, professor, Washington University in St. Louis, co-author of *Make It Stick*

“In these pages, Daniel Willingham lays out key ideas that have the power to improve education, borne from the study of cognitive science and evidence of how students learn, using accessible and thought-provoking examples that educators—and, indeed, everyone with an interest in schools—can find compelling. Since its initial publication, and through today, *Why Don't Students Like School?* represents a critical addition to the literature on teaching and learning. Daniel Willingham expertly examines cognition in multiple ways and then puts that knowledge to work with recommendations for practical actions that teachers can take in their classrooms to strengthen their instructional pedagogy. Amid a massive national shift to the increased use of distance learning, this second edition also focuses on what research currently tells us about the use of technology in education, and helps to provide educators

with the essential questions they should ask about adopting new technologies and teaching tools. To be sure, this second edition of Daniel Willingham's pathbreaking work is right on time."

—John B. King Jr., 10th U.S. Secretary of Education and President and CEO of The Education Trust

"A rare pairing of intelligible theoretical principles and practical strategies, crafted with teachers in mind. Willingham's book is one that educators can revisit and appreciate anew with every year of teaching."

—Jasmine Lane, high school English teacher, Minnesota

"Every school teacher and home-schooling caregiver should read this book. A distinguished cognitive scientist and brilliant explainer, Daniel Willingham brings us up to date on the latest science showing how critically important factual knowledge is for a person's competence and success. He shows us exactly how to cause youngsters to LOVE gaining it! A great contribution!"

—E.D. Hirsch Jr., author of *How to Educate a Citizen*, and founder of the Core Knowledge Foundation

"This second edition of *Why Don't Students Like School?* comes as COVID-19 has exacerbated longstanding inequities and schooling has become more foundational to helping keep students engaged and hopeful. Willingham's clear explanation of what it takes to learn and think well gives teachers and policymakers a strong blueprint for helping our youth not only tackle COVID's aftermath but thrive."

—Randi Weingarten, president, American Federation of Teachers

"Willingham's second edition takes us on a deeper dive into the knowledge of the mind; it takes what we now know and

presents it in a way that encourages educators to hone their craft. Not only will education be better, students will also benefit with the retention of long-term learning."

—Patrice M. Bain, EdS, educator and author of *Powerful Teaching*

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SECOND EDITION

For Trisha

Acknowledgments to the First Edition

Esmond Harmsworth, my literary agent, has been an asset every step of the way, starting with the initial concept. Lesley Iura, Amy Reed, and the whole team at Jossey-Bass showed great expertise and professionalism during the editing and production processes. Anne Carlyle Lindsay was an exceptional help with the artwork in the book. Special thanks go to two anonymous reviewers who went far above and beyond the call of duty in providing extensive and helpful comments on the entire manuscript. Finally, I thank my many friends and colleagues who have generously shared thoughts and ideas and taught me so much about students and education, especially Judy Deloach, Jason Downer, Bridget Hamre, Lisa Hansel, Vikram Jaswal, Angel Lillard, Andy Mashburn, Susan Mintz, Bob Pianta, Trisha Thompson-Willingham, and Ruth Wattenberg.

Acknowledgments to the Second Edition

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The Author

Daniel T. Willingham earned his B.A. degree in psychology from Duke University in 1983 and his Ph.D. degree in cognitive psychology from Harvard University in 1990. He is currently professor of psychology at the University of Virginia, where he has taught since 1992. He is the author of several books, and his writing on education has appeared in 17 languages. In 2017 President Obama appointed him to the National Board for Education Sciences. His website is http://www.danielwillingham.com.

Introduction

Arguably the greatest mysteries in the universe lie in the three-pound mass of cells, approximately the consistency of oatmeal, that reside in the skull of each of us. It has even been suggested that the brain is so complex that our species is smart enough to fathom everything except what makes us so smart; that is, the brain is so cunningly designed for intelligence that it is too stupid to understand itself. We now know that is not true. The mind is at last yielding its secrets to persistent scientific investigation. We have learned more about how the mind works in the last 25 years than we did in the previous twenty-five hundred.

It would seem that greater knowledge of the mind would yield important benefits to education – after all, education is based on change in the minds of students, so surely understanding the student's cognitive equipment would make teaching easier or more effective. Yet the teachers I know don't believe they've seen much benefit from what psychologists call “the cognitive revolution.” We all read stories in the newspaper about research breakthroughs in learning or problem solving, but it is not clear how each latest advance is supposed to change what a teacher does on Monday morning.

The gap between research and practice is understandable. When cognitive scientists study the mind, they intentionally isolate mental processes (for example, learning or attention) in the laboratory in order to make them easier to study. But mental processes are not isolated in the classroom. They all operate simultaneously, and they often interact in difficult-to-predict ways. To provide an obvious example, laboratory studies show that repetition helps learning, but any teacher knows that you can't take that

finding and pop it into a classroom by, for example, having students repeat long-division problems until they've mastered the process. Repetition is good for learning but terrible for motivation. With too much repetition, motivation plummets, students stop paying attention, and no learning takes place. The classroom application would not duplicate the laboratory result.

Why Don't Students Like School? began as a list of nine principles that are so fundamental to the mind's operation that they do *not* change as circumstances change. They are as true in the classroom as they are in the laboratory[*] and therefore can reliably be applied to classroom situations. Many of these principles likely won't surprise you: factual knowledge is important, practice is necessary, and so on.

What may surprise you are the implications for teaching that follow. You'll learn why it's more useful to view the human species as *bad* at thinking rather than as cognitively gifted. You'll discover that authors routinely write only a fraction of what they mean, which I'll argue implies very little for reading instruction but a great deal for the factual knowledge your students must gain. You'll explore why you remember the plot of *Star Wars* without even trying, and you'll learn how to harness that ease of learning for your classroom. You'll follow the brilliant mind of television doctor Gregory House as he solves a case, and you'll discover why you should *not* try to get your students to think like real scientists. You'll see how people like American politician Julian Castro and actress Scarlett Johansson have helped psychologists analyze the obvious truth that kids inherit their intelligence from their parents – only to find that it's not true after all, and you'll understand why it is so important that you communicate that fact to your students.

Why Don't Students Like School? ranges over a variety of subjects in pursuit of two goals that are straightforward but far from simple: to tell you how your students' minds work and to clarify how to use that knowledge to be a better teacher.

Note

* There actually were three other criteria for inclusion: (i) using versus ignoring a principle had to have a big impact on student learning; (ii) there had to be an enormous amount of data, not just a few studies, to support the principle; and (iii) the principle had to suggest classroom applications that teachers might not already know. The first edition offered nine principles; in this second edition I've added a tenth chapter on technology and education.

1
Why Don't Students Like School?

Question: Most of the teachers I know entered the profession because they loved school as children. They want to help their students feel the same excitement and passion for learning that they felt.

They are understandably dejected when they find that some of their pupils don't like school much, and that they, the teachers, have trouble inspiring them. Why is it difficult to make school enjoyable for students?

Answer: Contrary to popular belief, the brain is not designed for thinking. It's designed to save you from having to think, because the brain is actually not very good at thinking. Thinking is slow and unreliable. Nevertheless, people enjoy mental work if it is successful. People like to solve problems but not to work on unsolvable problems. If schoolwork is always just a bit too difficult (or too easy) for a student, it should be no surprise that she doesn't like school much. The cognitive principle that guides this chapter is:

> People are naturally curious, but we are not naturally good thinkers; unless the cognitive conditions are right, we will avoid thinking.

The implication of this principle is that teachers should reconsider how they encourage their students to think, in order to maximize the likelihood that students will get the pleasurable rush that comes from successful thought.

The Mind Is Not Designed for Thinking

What is the essence of being human? What sets us apart from other species? Many people would answer that it is our ability to reason – birds fly, fish swim, and humans think. (By thinking I mean solving problems, reasoning, reading something complex, or doing any mental work that requires some effort.) Shakespeare extolled our cognitive ability in Hamlet: “What a piece of work is man! How noble in reason!” Some three hundred years later Henry Ford more cynically observed, “Thinking is the hardest work there is, which is the probable reason why so few people engage in it”[*] (Figure 1.1).

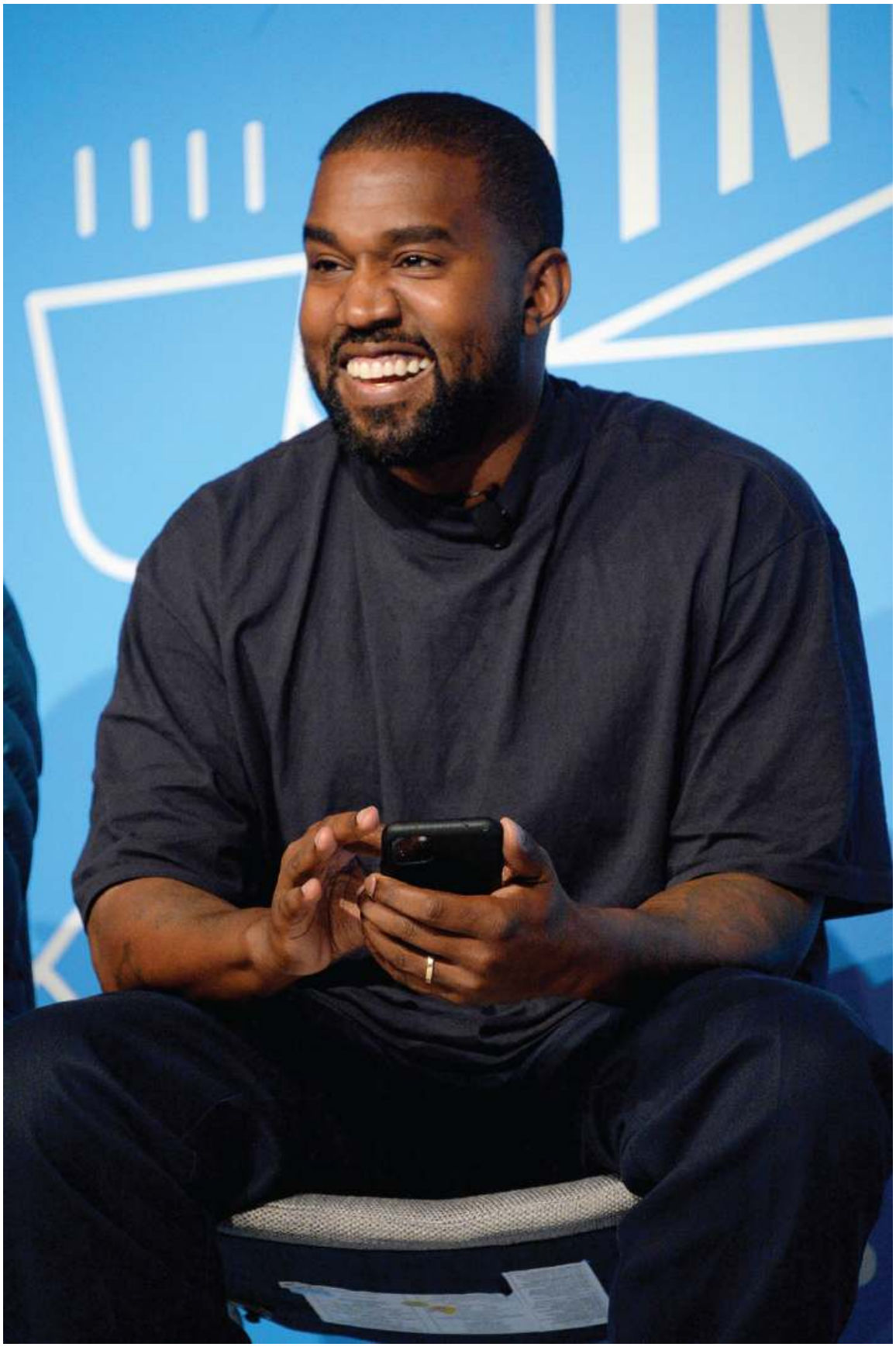

FIGURE 1.1: Kanye West is one the most successful and respected songwriters and performers, as well as a highly successful businessman. But he has said, “I actually don't like thinking. I think people think I like to think a lot. And I don't. I do not like to think at all.”[1]

Source: © Getty Images/Brad Barket.

Both Shakespeare and Ford had a point. Humans are good at certain types of reasoning, particularly in comparison to other animals, but we exercise those abilities infrequently. A cognitive scientist would add another observation: Humans don't think very often because our brains are designed not for thought but for the avoidance of thought.

Your brain has many capabilities, and thinking is not the one it does best. Your brain also supports the ability to see and to move, for example, and these functions operate much more efficiently and reliably than your ability to think. It's no accident that most of your brain's real estate is devoted to these activities. The extra brain power is needed because seeing is actually more difficult than playing chess or solving calculus problems.

You can appreciate the power of your visual system by comparing human abilities to those of computers. When it comes to math, science, and other traditional “thinking” tasks, machines beat people, no contest. Calculators that can perform simple calculations faster and more accurately than any human have been cheaply available for 40 years. With $50 you can buy chess software that can defeat more than 99% of the world's population. But we're still struggling to get a computer to drive a truck as well as a human. That's because computers can't see, especially not in complex, ever-changing environments like the one you face every time you drive. And in fact, the self-driving vehicles in development typically use radar, lasers, and other sensors to supplement information from visible light.