

MILTON CHEN

Foreword by GEORGE LUCAS

EDUCATION NATION



SIX LEADING EDGES

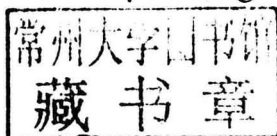
of INNOVATION *in our* SCHOOLS

EDUCATION NATION

*Six Leading Edges of
Innovation in our Schools*

MILTON CHEN

Foreword by George Lucas



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PRAISE FOR EDUCATION NATION

“I strongly believe that education is the single most important job of the human race. I’m very excited that *Education Nation* is adding to the tools we are giving educators and many others to make change in their own communities.”

—**George Lucas**, founder and chairman, *The George Lucas Educational Foundation* (from the Foreword)

“This book provides an outstanding overview of where we stand in the history of learning technologies, what current initiatives are most promising, and what challenges and opportunities we face in the near future.”

—**Christopher Dede**, Timothy E. Wirth Professor in Learning Technologies, *Harvard Graduate School of Education*

“How fortunate we are that Milton Chen has decided to share the lessons he has learned along the way on his incredible learning journey. As we just begin to unlock the methods of teaching our kids in a 21st Century context, this book should be embraced by every caring educator and parent who wants to do right by our kids.”

—**Gary E. Knell**, president and CEO, *Sesame Workshop*

“Milton Chen is a visionary and global leader in education. Emphasizing creativity, technology-enabled learning, project-based intellectual adventures and social/emotional intelligences, *Education Nation* encompasses the well-being of the whole child and the major shift to student-centered learning. Chen is a masterful storyteller

and collaborator. His ideals continue to inspire and push our own boundaries to do what is right to help kids—and to never give up.”

—**Susan Patrick**, *president and CEO, International Association for K–12 Online Learning (iNACOL)*

“Milton Chen has had an extraordinary perch for learning how media and technology can spark innovation and redefine teaching and learning. *Education Nation* provides a new vision of what is now possible, with vivid examples from real schools.”

—**Linda Darling-Hammond**, *Charles E. Ducommun Professor, Stanford University and codirector of the School Redesign Network*

“This is a great book, Milton Chen is truly a gifted writer who has a unique ability to illustrate in words what the rest of us can only imagine. I found myself “seeing” in my mind what was written on the page. His writing is inspirational and leads us to see that there is no better time than now for creating a New Day for Learning.”

—**Dr. An-Me Chung**, *program officer, C. S. Mott Foundation*

EDUCATION NATION

THE GEORGE LUCAS EDUCATIONAL FOUNDATION

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THE GEORGE LUCAS EDUCATIONAL FOUNDATION

The George Lucas Educational Foundation, founded in 1991, is a non-profit operating foundation committed to providing tools, resources, and inspiration about what works in public education. Through *Edu-topia*, its mission is to empower and support education reform by shining a spotlight on innovative and successful learning environments. *Edu-topia* embraces six core concepts of project-based learning, comprehensive assessment, integrated studies, social and emotional learning, teacher development, and technology integration. To find and share solutions, visit Edutopia.org.

ACKNOWLEDGMENTS

MUCH OF THIS BOOK is my effort to “curate” my favorite stories in recent years from the Edutopia.org Web site, my “best of” collection from Edutopia’s amazing wealth of resources documenting innovation in schools. My first debt of appreciation goes to the many talented colleagues at The George Lucas Educational Foundation (GLEF) who produced the inspiring content on Edutopia.org and in our *Edutopia* magazine. The editorial and Web production work has been led by David Markus and Jim Daly as editorial directors; Ken Ellis, executive producer for documentaries; Cal Joy, director of Web development; and Cindy Johanson, our new executive director. As a foundation founded by a filmmaker, GLEF’s distinctive work is in making documentary films to capture what innovation looks like in the classroom. The films are supported with explanatory articles, interviews, and resources. Many of the examples I describe in this book are linked to those films and are best understood by seeing the teachers and students in action.

I also express my gratitude to the board of directors at The George Lucas Educational Foundation—George Lucas, Steve Arnold, Micheline Chau, Kim Meredith, Kate Nyegaard, and Marshall Turner—who provided a unique organization and resources for us to do this creative work. I thank them for providing me with the time to reflect on our body of work and to write this book.

I also thank Amy Borovoy, Laurie Chu, and Sharon Murotsune from the Edutopia staff for their help in assembling the images published here. For more than three years, Sharon served as my executive assistant, coordinating the communications and travel that enabled me to visit a number of the schools and projects profiled and talk to their pioneering educators. A talented artist at LucasArts, Greg Knight, did the illustrations for the Visions 2020 piece (pages 167 and 168 in the photo insert). I also thank my colleagues from the Fulbright New Century Scholars

program, who broadened my horizons to understand that the issues of improving schools in the United States are shared globally.

A number of valued colleagues read portions of the manuscript and provided many insightful comments to improve it: Christopher Dede of Harvard Graduate School of Education, Ted Hasselbring of Vanderbilt University, and Susan Patrick of iNACOL, all members of GLEF's National Advisory Council; Steve Arnold of the GLEF board; John Bransford and Susan Mosborg of the University of Washington; Pedro Hernández-Ramos of Santa Clara University; Kevin Kelly of San Francisco State University; Chris Livaccari of the Asia Society; Joe Morelock of Oregon's Canby School District; and Kathy Shirley of the Escondido School District in California. Any errors of fact are solely my own.

This is the third book I've worked on with the publishing team at Jossey-Bass, who again demonstrated their expertise and professionalism. Kate Gagnon, associate editor; Justin Frahm, production editor; Dimi Berkner, marketing director; and Lesley Iura, publisher, have all been a pleasure to work with. From the design of the book to its organization and selection of images, we started out with good ideas and our collaboration made them better, practicing a twenty-first-century skill we want students to develop.

My wife, Ruth Cox, has always been my first and most honest reader. Working in the academic technology group at San Francisco State University, she's an expert on technology use in higher education. This year, we celebrate our silver anniversary together. Through these twenty-five years, she has been an actress, lecturer in psychology, and mother to our daughter, Maggie, who is now embarking on her own career. We also share the same birthday, a statistical miracle signifying that it was all meant to be. As a teacher, parent, and partner, she knows how to put "the edge" into education and life. I lovingly dedicate this book to her.

FOREWORD

I DIDN'T ENJOY school very much. Occasionally, I had a teacher who would inspire me. But as an adult, as I began working with computer technology to tell stories through film, I began to wonder, "Why couldn't we use these new technologies to help improve the educational process?"

Twenty years ago, when we started our foundation, we could see that digital technology was going to completely revolutionize the educational system, whether it liked it or not. Technology is a virus that is changing education, just as it has changed nearly every industry, including my own in filmmaking and entertainment. Twenty years from now, when every student has his or her own computer, educational systems will be using technology in much more powerful and pervasive ways. When knowledge is changing so rapidly, it doesn't make sense to spend \$150 on textbooks that students only use for fifteen weeks. From the beginning, we wanted our foundation to show how to best use these new technologies.

THE GOAL OF EDUCATION: USING INFORMATION WELL

When we first started out, we asked, "What are the most important things students should learn?" Our answer focuses on three uses of information: we want students to know how to *find* information, how to *assess* the quality of information, and how to *creatively and effectively use* information to accomplish a goal. When I was a student, information was contained in the encyclopedia, a reputable source. But fifty years later, when information is on someone's Web site, it's not clear whether it's reputable or true. So, from among many sources, students need to assess for themselves which information is most factual and useful.

Then, students need to take that information, digest it, and do something creative with it, whether it's designing a multimedia presentation or a rocket to the moon. Instead of just asking students to spit information back, schools should be asking them, "What can you create with the information you've found?"

Social-emotional learning also becomes very important. In today's world, it is not enough to know how to use information well. Students also have to learn how to cooperate, to lead, and to work well with different types of people. These skills are keys to being successful in a career and to having a civilized society. Students need to learn how to become wise human beings, emotionally and intellectually.

TEACHERS AS COACHES AND WISE ELDERS

Teachers play critical roles in connecting the social-emotional and intellectual realms. They become students' guides, coaches, and "wise elders." When technology is employed, teachers are freed from standing in front of the class and presenting information. We've got Google for that. Now, they can spend more time developing deeper personal relationships with students. They can pat students on the back, call them by name, and encourage them to work harder. Like Plato or Aristotle, they can inquire, "Why do you think that's true?" These are things no computer will ever do well. In my experience, there's nothing more potent in education than a teacher who truly cares about you.

THE YOUTH ARE BUILDING THE PATH

Changing education is a long-term challenge and takes generations. The next generation of youth is going to accept this change completely. They have taken over technology and run with it while schools are trying to catch up. On Facebook, students are talking to Russian and Chinese kids, comparing notes, and collaborating on projects. They know there's a real world out there that adults know little about. They are realizing, "My little cocoon isn't my little cocoon anymore."

Today's youth are building a pathway to change education. I see the difference in my own daughters, who are thirty and twenty-one. They speak different languages and think differently from each other. My younger daughter's generation lives in the Internet world and is tied into a different reality than my older daughter and me. We still like to look up the movie schedules in the paper!

THE FUTURE OF TECHNOLOGY

The potential of digital technology is vast. We have barely tapped into it. Eventually, there will be a new delivery system for instructional materials, with all the relevant and best-quality textbooks, curricula, documentaries, and faculty presentations. It will be broken down into specific categories so students and teachers can search topics very quickly. It will include the vast repositories of places like the Library of Congress, the Louvre, and our best universities. And it will be safe for students, teachers, and parents.

Schools will benefit from advances in simulation technology, making it more affordable. In universities, medical students use digital cadavers to simulate the human body. Eventually, high school students will have a simpler version to learn human anatomy and physiology. School versions of high-end computer-aided design programs will enable students to build a house on a Florida beach and see if it could withstand a Category 5 hurricane. After studying the geology, engineering, and science, there's nothing better than being able to push the button and see what happens. Nothing would get students' attention more than that!

EDÚTOPIA'S ROLE

At Edutopia, our job is to produce and disseminate information about the most innovative learning environments, addressing core concepts of project-based learning, cooperative learning, technology integration, comprehensive assessment, and teacher development for implementing these practices. When we first started, we quickly learned about fantastic

schools, teachers, and situations where student learning is off the charts. But they're not well known and therefore not replicated.

Today, there's a growing consensus that technology and new practices can help students learn faster and enjoy learning. We want Edutopia.org to be the place where educators can find out about these practices and put them to work. Our "Schools That Work" online features provide detailed information to help the broad audience needed to change schools, from state capitols and universities to schools and Main Street, where parents urgently want a better future for their children.

In the past few years, Edutopia has seen rapid growth in the numbers of exemplary schools and creative learning settings. Dr. Milton Chen, who led our foundation for twelve years as executive director and continues as senior fellow, has had a unique vantage point for following these trends in innovation. In *Education Nation*, he has done a fantastic job acting as Edutopia's curator, assembling this exhibition from the large collection of stories from our Web site and other sources. His unique and personal perspective, dating back to his years at Sesame Workshop, provides the narrative weaving these stories together, with Web links to resources and films showing engaged students and effective teachers in action. As one educator said about Edutopia, this book can be a valuable "idea factory" for creating twenty-first-century schools.

I strongly believe that education is the single most important job of the human race. I'm very excited that *Education Nation* is adding to the tools we are giving educators and many others to make change in their own communities.

GEORGE LUCAS
Founder and Chairman,
The George Lucas Educational Foundation

PREFACE
MY LEARNING JOURNEY
FROM THE LONGEST STREET
IN THE WORLD
TO A GALAXY
LONG AGO AND FAR, FAR AWAY

I'VE ALWAYS BEEN FASCINATED by the ability of children to learn in creative, powerful, accelerated, and joyful ways. This fascination started for me as a teenager and has carried me over a thirty-five-year career devoted to designing, researching, and advocating for educational media and technology. Like the MIT Media Lab's Seymour Papert, I've always believed that these tools, especially in the guiding hands of teachers and parents, could serve as "wheels for the mind."

My own personal odyssey has led me from working at Sesame Workshop in New York City to KQED, the PBS station in San Francisco, and the past twelve years as executive director of The George Lucas Educational Foundation in the San Francisco Bay Area. Looking back, I appreciate that it's been a unique journey and a fortunate one. Thanks to the numerous versions of *Sesame Street* now shown in the Middle East, Africa, Europe, Latin America, and Asia, I sometimes say my career has taken me from the longest street in the world to a galaxy long ago and far, far away. I begin by sharing my "learning journey," since it frames and colors my views of where education is and where it needs to be as we end the first decade of the twenty-first century.

My journey began on the south side of Chicago, where I spent my childhood. To this day, living in San Francisco, many people are surprised to hear that's where I grew up, since, in fact, there were not many Asian families in the Midwest. Just after World War II, in 1945, my father, Wen-Lan, came with a group of mining engineers to

study coal mines in West Virginia and Pennsylvania. He stayed on for graduate school at Penn State and was joined by my mother, Shu-Min, a music student, in 1949. Although they had married in 1945, they were separated for the first four years of their marriage.

When I became interested in the history of Chinese in the United States, I was surprised to learn that the five-year span in which my parents immigrated was the *only* five years, post-World War II, when Chinese could come to the United States. In 1945, China was an ally against the Japanese; in 1949, the Communists won the civil war and China became the enemy. Born in 1953, I was indeed a son of global events and a historical U.S.-China relationship that opened the door for my parents to come here and quickly shut it, forcing my parents to sever ties to their families and make a life in the Midwest.

Decades later, my mother told me that my maternal grandfather, whom I never met, had been, in the Chinese phrase, a “social educator” who had studied sociology and created a community learning center in their small farming village in the 1930s, first providing books to teach literacy and later bringing in a new technology called radio as an electronic source of awareness of a wider world. I like to think we share a common gene for educational innovation and using new methods to bring learning to a broader group of learners.

I have always seen education through the lens of social justice, which I trace back to early experiences attending a racially integrated school, Frank Bennett Elementary School, on the far south side of Chicago. (Though I never thought about it as a boy, I’ve learned Mr. Bennett was a lawyer and member of the Chicago City Council and Board of Education in the early 1900s, with the new school dedicated in his name, two years after his passing, in 1927.) In a class photo from 1961 (see page 153), half of the children are white, half of them are black, and there’s me and Janis Miyamoto. My class was a dramatic shift from Bennett’s history as an all-white school.

But although our school was integrated, every day when the school bell rang and we walked back to our neighborhoods, I, along with the white children, walked a few blocks to our homes, while the black

children had to walk further, over the Dan Ryan Expressway, to their neighborhood. Integrated school, segregated community. When I was eleven and our family decided to move to the suburbs for better schools, a neighbor came and asked my father whether we were, in fact, selling our home to a black family. We helped to integrate that Roseland neighborhood in the 1960s, the same neighborhood where a community organizer named Barack Obama worked during the 1980s.

I got bitten by this bug of innovative learning early on. It might have happened during my high school years, during those hot and muggy August days in the forest preserves near Chicago, where my first job was working as a YMCA day camp counselor. On those field trips, where we hiked, made campfires, roasted hot dogs, and fished in the ponds, I saw my group of 12 eight-year-old boys come alive, their boundless energy fueling endless curiosity about the trees, fish, and insects. We chose to call our group "The Dirty Dozen," and they lived up to their name.

In the fall of 1970, I went to the right college for the wrong reason. I went to Harvard with a vague idea of becoming a public interest lawyer, perhaps working on educational issues such as desegregation and student tracking. During my sophomore year, I started working as a research assistant at the Center for Law and Education on campus, then headed by a young civil rights lawyer named Marian Wright Edelman, now known as the distinguished and courageous founder of the Children's Defense Fund.

That year, I saw a small note in a Chinese American newsletter, saying that the Children's Television Workshop was looking to diversify its group of advisors. *Sesame Street* had launched in 1968, to tremendous national publicity; its founder, Joan Cooney, and its tallest character, Big Bird, appeared on the cover of *Time* magazine. Like millions of children and parents, I was taken with the creativity of the program, its blending of Muppets, a multiracial cast, music, animation, and films to deliver a core curriculum to preschool children. I had read that *Time* article in high school and even fashioned a speech for a contest on the new role of the "mass media" in education. I could think of nothing more exciting than getting involved with this national phenomenon.

As a college sophomore, I hardly qualified as an advisor, but I wrote to Joan Cooney anyway. To my surprise, she wrote back and told me I was in luck. (To this day, I try to write back to every student who writes me.) Their major curriculum advisor was Dr. Gerald Lesser, a Harvard professor of education and psychology, just across campus, and I should go talk to him. At the time, Gerry Lesser was a rare academic interested in harnessing television to teach. From our first meeting, I was disarmed by this casual and welcoming Harvard professor in his trademark tennis shoes, corduroy slacks, and appealing knack for describing early childhood development in plain English. This unique skill stood him in good stead in persuading TV writers and performers to understand the show from the child's point of view.

Sam Gibbon, one of three producers for the series, recalled the early curriculum seminars:

Gerry would come into these meetings of gray beards from all over the country, [academics] who were accustomed to defending their turf. . . . He'd take off his coat, loosen his tie, and roll his sleeves up. He would introduce everybody and say something about their work. There would be sixty people in the room and he would introduce every single one of them, calling them by their first name. It was an amazing feat of memory. [Professional] titles were out the window, and he'd say, "Any good idea is as good as any other good idea, and it doesn't matter where it comes from."¹

At the tender age of nineteen, working with Gerry, Dr. Courtney Cazden, a reading expert, and a small group of graduate students, I started watching kids watch *Sesame Street* and *The Electric Company* reading series, studying how they absorbed lessons from a medium thought to have no redeeming educational value. From *Sesame Street*, they learned concepts of letters, numbers, shapes, and sorting quickly and enthusiastically, debunking the conventional wisdom of those days. Some "experts" skeptically asked how a TV-delivered curriculum could teach counting from 1 to 10 to preschoolers, when kindergarten teachers