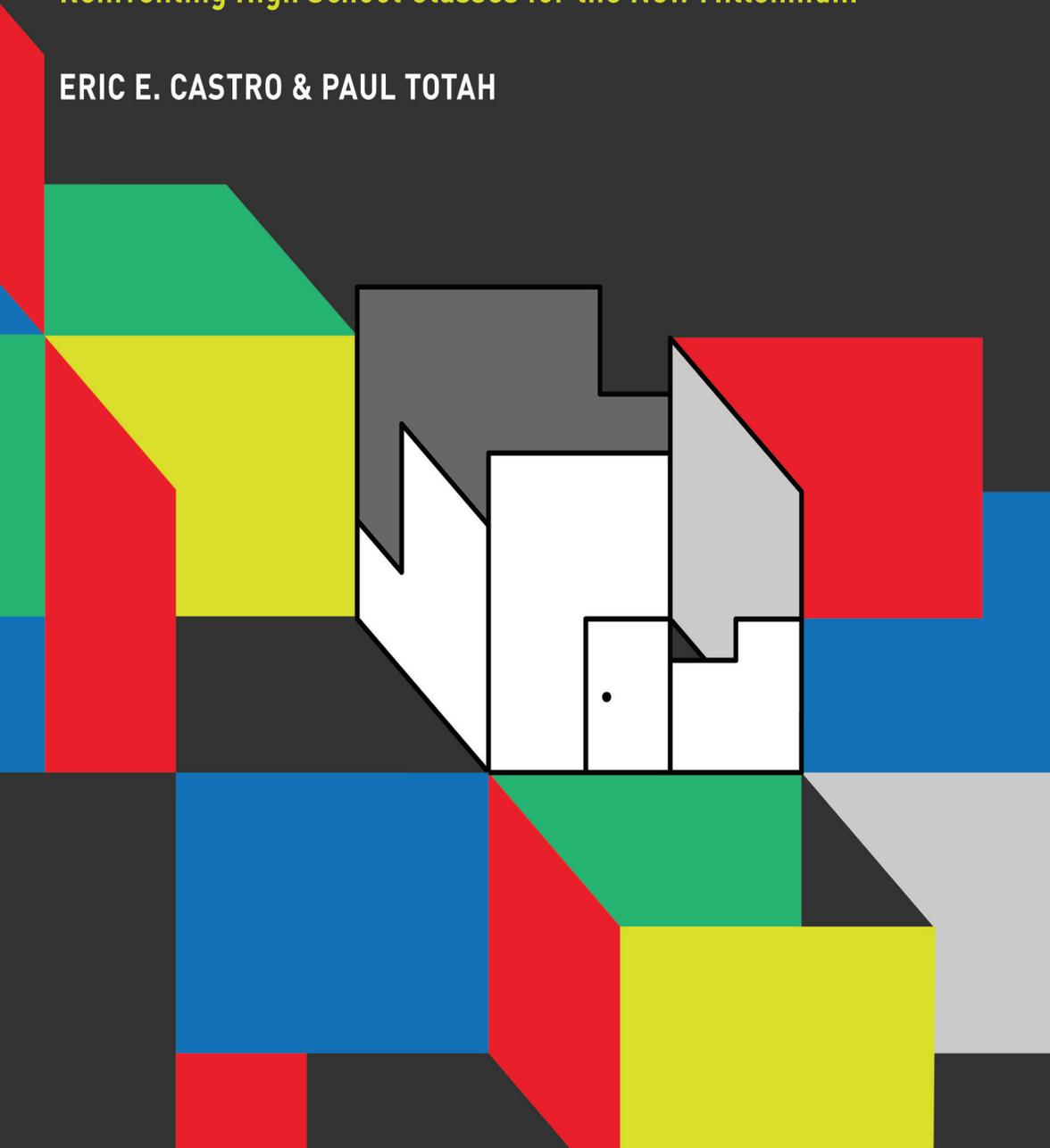


# CHARTING A NEW COURSE

Reinventing High School Classes for the New Millennium

ERIC E. CASTRO & PAUL TOTAH



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**by**

**Eric E. Castro  
and Paul Totah**  
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*Eric Castro and Paul Totah*

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# PREFACE

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The purpose of this book is to encourage teachers and administrators to move beyond traditional course structures and ask them to consider designing experiential curriculum that is interdisciplinary and focused on solving real-world problems. Why do this? Both authors believe that the current model of education falls short in preparing students to think creatively, work collaboratively, and engage actively as problem solvers. An educational sea change is needed more than ever given the problems that face our world now and that threaten to worsen in the next few decades. Some educators we know feel confused by the educational philosophy of the day that they see at their in-services and professional development seminars. They see new styles come and go and are wary of change for change's sake. To clear up this confusion and inspire educators, we have collected data from more than 30 teachers around the country who have enjoyed success with their 21st-century approach to curriculum and course design. These courses incorporate but also go well beyond project-based learning models because they look at curriculum holistically and structurally, rebuilding education from the ground up. We have searched for other books that replicate our research and have found none. We believe educators will find clear models to imitate and inspire them in creating their own courses. Because our book is based on interviews with teachers and relies on a narrative structure, we believe the book serves the great majority of educators who have not specialized in educational theory but who are keenly interested in engaging their students in more effective ways. We

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also believe educational theorists will find our work enlightening; we hope it inspires a new line of research within their community.

Each of the 33 teachers interviewed for this book speaks powerfully and eloquently about the success of education that bends the rules of traditional curriculum. Their stories are profound and offer models for all secondary school educators to craft courses for 21st-century learners, ones who need to go beyond the coursework their parents and grandparents practiced. Although each educator tells his or her own story with a distinct voice, common themes emerge. One is the importance of collaboration. Educators from separate disciplines who work together find that the course becomes greater than the sum of its parts. This kind of collaboration inspires educators to think outside the boxes of the classroom and standard curricula and to make the classroom one that incorporates the context of the time and place in which the students live.

A second theme that emerges is one of resilience. Teachers in this book ask their students to work individually and together to solve problems that matter to society and that matter to them. They teach the value of iteration, failure, and learning from mistakes to devise new models based on design thinking standards.

Students also grow in their sense of place, especially in relation to the urban and rural problems and the opportunities that surround them. They become actively engaged in stewarding the landscape and grow in their role as active citizens in their approach to education. Classwork is no longer rote; instead, it is something about which they care deeply.

Related to this idea is the theme of empathy. Students develop and strengthen their emotional IQ as they break barriers that separate them from other students, from people outside their community, and from people in distant countries. This new style of education helps them grow into caring and loving men and women who leave for college inspired to expand those connections.

Another theme that emerges is the importance of systemic support. The educators who have enjoyed the most success have done so because they have had the backing of principals, assistant principals, and deans who urge them to craft curriculum that has never before existed.

Our final theme is that of student choice. Many of these classes allow students some agency in what they study and pursue. These students surpass in achievement and effort what you find in most high schools. They are engaged by material they find both relative to them and important to society. They learn by doing and ask for lessons rather than endure them. They take pride in and find direction through these innovative classes, ones that, the authors hope, will inspire educators to craft their own hands-on, interdisciplinary curriculum.

NB: The authors conducted their interviews in 2015. The references to future events refers generally to the 2016-2017 school year. Some of the instructors included in this book have moved on to other schools or are no longer teaching the same class. Regardless, the principles they espouse and the experiences they relay have value beyond the moment when they sat for the interview.



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# INTRODUCTION

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One of the most iconic scenes in cinematic history provides an apt metaphor for this book. It occurs when Dorothy's home, after being lifted high into the air by a twister, deposits her in Oz. She opens a black-and-white door from a black-and-white room and enters into a magical world filled with color, adventure, and excitement. That is what happened to the teachers we interviewed when they opened themselves to a new way of teaching, one that transported them to a new place, where they discovered that education could be far more than they ever imagined. These teachers were successful using more traditional methods, and their students were well served by them. Still, every one of these men and women will tell you that something better lies beyond. They know from experience and the stories their students tell, both in class and later, when alumni return to say how much these classes had transformed them.

The teachers in this book wove three aspects of learning into their courses to create interdisciplinary, experiential curriculum to help students solve real-world problems. A few teachers employed only one or two of these elements, yet we felt compelled to include them.

It is important to note what this book is not. It is not a blueprint that administrators can unroll to build a new school from top to bottom. Every school serves a specific community with its distinct needs. An inner-city New York City school and a rural school in Idaho should consider their contexts and the opportunities and challenges of their unique locations. Also, we are not so bold as to suggest that this book holds all the answers. At

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the end of the day, we have more questions, and more interesting ones, than those with which we started. As you read this book, we hope you develop your own questions, ones that will inspire you to create or modify courses that relate to your unique situation.

This book is a collection of stories, encouraging you to determine what sort of teacher or administrator you need to be to serve students in your charge. Feel free to imitate any of these teachers whole cloth, as we know they would be flattered by imitation. They would, we suspect, be more impressed if you did them better and went beyond their planning and execution, taking their curriculum (as well as your students) to the next level.

We won't spend much time here listing the limitations of traditional models of education. Too many experts have done that to death. If you bought this book, then chances are you agree with us and are looking for some new ways to proceed.

Eric began his career teaching social science and psychology and happily discovered the usefulness of the Internet. At first the World Wide Web was simply a research tool for students to supplement their textbooks, but with the advent of Web 2.0, he began using the Internet as a tool to help students collaborate and, eventually, publish their own work. He then became the school's educational technologist.

After teachers at our school were issued iPads in December 2011 and all students received theirs in the fall of 2012, the question on teachers' lips was, "What do we do with these?" Eric calls this a "crisis of imagination." Some teachers who were taught in traditional ways simply carried on those styles and course structures. They could not imagine how teaching or, more importantly, learning could be different. As the school's educational technologist, Eric's job became one of helping teachers imagine how schooling could be improved.

Paul began teaching a course called Nature/Nexus, looking to help students write poetry by introducing them to the natural world. The course grew beyond that original purpose. Students went on weekly field trips and did practical work as stewards of the environment.

They still wrote poems and prose and read powerful works, but they also removed non-native plants and replaced them with native plants. They started a composting program at their school and enhanced the recycling program. They followed their water supply from the Hetch Hetchy Reservoir in Yosemite National Park to their faucets in San Francisco and glued signs to curbs asking neighbors not to dump oil or other toxins in the corner drains. (Read more about this class later in the book.)

As we interviewed the teachers in this book, we began hearing the same words again and again: Empathy. Resilience. Iteration. The beauty of failing. Authentic and meaningful. These teachers realized that students were growing in their ability to care more about others in their classes and

the people in their neighborhoods, and they were becoming more careful about their work, more dedicated to seeing their projects succeed. Teachers noted that students came early and stayed late. They wanted to succeed not to impress their teacher but because they saw value in the tasks at hand. They weren't filling out worksheets to help understand an aspect of trigonometry or a lesson in rhetorical parallelism (both valuable, by the way). Typically, they were working on their projects to solve problems that they themselves had identified.

We also want to sing the praises of project-based learning (PBL) and design thinking, both of which you'll find in this work. We applaud these approaches to education; however, we hope to encourage all to think beyond PBL. It's one thing to add a project to a biology class, it's entirely something else to teach a course that combines statistical analysis with environmental science and ask students to count species in an up-and-coming national park, as Kevin Gant does in Albuquerque, NM.

Organizing this book was challenging. We settled on sections devoted to social science, literature and composition, computer science, mathematics, art, environment and ecology, engineering, public health, and administration. However, individual stories cross many of these boundaries, given the interdisciplinary nature of the courses. Our own organizational system belies the point we're making. We did this to help teachers in traditional schools see a starting point for changing their own courses.

We know how hard it is to introduce new thinking and new classes into most schools. We also know that resilience, empathy, and iteration are tools not limited to our students. We need to keep working with parents, department chairs, academic deans, principals, heads of schools, and district administrators to show them what 21st-century schools should look like and how far they can take students toward solving the enormous problems we face today and will encounter in the decades to come.

Once you open the door and see the technicolor glory of students learning in living color, you'll be hard pressed to teach any other way.

—*Eric Castro & Paul Tolah*



The purpose of this book is to encourage teachers and administrators to move beyond traditional course structures and to ask them to consider designing experiential curriculum that is interdisciplinary and focused on solving real-world problems. Why do this? Both authors believe that the current model of education falls short in preparing students to think creatively, to work collaboratively, and to engage actively as problem solvers. An educational sea-change is needed more than ever given the problems that face our world now and that threaten to worsen in the next few decades.

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