From Digital Natives to Digital Wisdom
Introduction

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I have a vision for education (and, of course, so do lots of folks ☺). But my vision differs from most people's in one very significant respect: My vision is bottom-up—it begins with the students—what *they* need and how we can give it to *them.* I want our young people to succeed in *their* 21st century, which will be, without a doubt, a turbulent one, characterized by variability, uncertainty, chaos, and ambiguity (what my good friend, former school superintendent David Engle, calls "VUCA") and by increasingly accelerating change.

Adapting to this new context of change, variability and uncertainty is the biggest challenge we are now facing—as educators and as people. It is something that almost none of us is used to—unless, of course, we were born in the 21st century. So I try hard, in my thinking and writing, to see education through the eyes of those who *were* born in this century (or almost)—through the eyes, that is, of the students who are receiving our education, rather than through the eyes of their elders who provide it. I have come to see clearly that the conclusions about education one draws from this alternative perspective are very different from the ones nearly all educators, politicians, and parents are currently drawing.

Listening to Our Students

The most important thing I have learned from carefully re-observing education in my later years is how little most educators *really listen* to the kids they teach (although a great many of those educators think they do). As part of my talks I conduct "student panels," in which a group of local students answers questions onstage as their educators first listen and then ask questions of their own—I have now done scores of these. Sadly, in most cases it is the *first time* that the students and educators in that district, system, state, or even country have *ever* had an student–educator dialogue about how they teach

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and how their kids want to learn (as opposed to about specific details and grades).

I believe strongly that if we did listen to our students' opinions on this, and did have such dialogues universally—and, more importantly, if we acted on what we heard—we would do things very differently. Not that our young people have all the answers—they don't. But they do have the educational needs. We adults have educational needs, too, but a very different set. Adults have needs such as being able to demonstrate "educational effectiveness" (that is, that we are "getting the kids up to grade") and "keeping our country competitive." (Actually, many of what adults call "educational needs" are far more about the adults than about the kids.) The kids just need and want the skills and tools to succeed in their own times and lives.

To the disappointment of some (and the delight of many), the vision I have is not just about technology in education. In fact, it is not even just a vision of better education. My vision is one of *better people,* better equipped to face the challenges of the world they will live in—that is, a world far different than yesterday's or even today's. Technology has an important place in that vision, because it has an important place in our future. But it does not dominate the vision; rather it supports it. As one of my student panelists put it brilliantly: "We see technology as a foundation. It underlies everything we do." In the end, I am far more interested in creating important, useful learning and life opportunities for our students than I am in promoting *any* educational technology. (Except, of course, when technology helps achieve those things.)

Inspiring Teachers

A key element of realizing and implementing my vision has become—increasingly—inspiring and motivating teachers. Although I believe that *all* adults should play a role in educating our youth, the greatest hope for the 55 million kids in America (and the billion+ kids in the world) lies with the people with whom they spend a great many of their most formative years. What our teachers offer our students—that is, how teachers view their students and how they see their mission with them—will have an enormous influence on the world to come. Despite what some critics may wish for, we are not going to suddenly recruit and retain a "better" group of teachers—we have, in the main, a group of highly dedicated people who have chosen education as their life's work. My goal is not to waste or destroy this precious resource but to support it and make the most of it.

Most of our teachers need neither punishment nor replacement, but rather new perspectives and ideas that work. Our educational context has changed, and a new context demands new thinking. This is what I try to provide.

It is critical, though, to understand that because the locus of "knowledge" has, in the 21st century, moved to a great extent from the teacher to the Internet, and because the personal passions of our 21st century students have become the kids' best (and often their only) motivation to learn, our teachers' job—in fact their very *raison'd'être*—is going through enormous change. Rather than trying to insert knowledge into our kids' heads, as

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in the past (and then to measure how much of it got there), today's teachers need to find ways to create 21st century citizens (and workers) who parrot less and think more. This requires fully integrating into our teaching "meta" skills like critical thinking, problem solving, video and programming, just as we now integrate reading and writing. To make this happen, teachers and students will need to work together in new forms of "partnering" in which students do what they do best—for example, use technology, find information, and create products that demonstrate their understanding—and in which teachers guide students by doing what they do best—for example, ask the right questions, put things into the proper context, and ensure quality and rigor.

Moving their practice into the new context for education can be—and is—exhilarating for most teachers. But it is also challenging.

Some protest that they are prevented from doing what they want to do, and know they should do, by the current atmosphere of proscribed curriculum and testing. I agree that this atmosphere is not helpful. Yet I believe strongly that there are ways to accommodate those requirements and still teach in a way that motivates our students to prepare themselves for the future. In fact, our success at doing this will be the strongest argument for removing those unhelpful barriers.

I truly believe that when most teachers understand that *the new context* is the cause of our educational problems—and that that is why many of their old practices no longer work as expected—they will figure out what to do differently. This is particularly true, I have seen, if they are offered good examples and suggestions. What our teachers need is the freedom to implement what they know to be right.

Certainly, the results of teaching in a modern way that connects with 21st century students can excite and stimulate educators. I receive many emails from teachers who have come away from my talks and writings newly energized and exhilarated. Many now say, as one teacher nicely put it, that "I used to teach my subject. Now I teach my students." Several have expressed that my ideas, particularly around connecting more deeply with students, have brought them back to the reasons they went into teaching in the first place. I am thrilled to find this happening.

I firmly believe that the new teaching roles that the 21st century offers are *so* much better, *so* much more powerful, and *so* much more interesting than what came before, that most teachers will, once they get their heads around those roles, rush to embrace them.

Not Easy

But getting one's head around new roles and approaches is not always easy. Change is difficult for all of us, particularly those not used to it. As psychologist Ron Evans points out, change involves not only learning new perspectives and behaviors but also grieving and mourning for those things we liked, found valuable, and were good at that no longer work (lecturing, for example). I believe, in fact, that what teachers need to do is best

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described not as "changing," but rather as "adapting" to the new context and environment we all find ourselves in. And I believe that to adapt most quickly and easily, teachers must search continually for the types of "easy-to-do/high-impact" steps I describe in the essay "Simple Changes to Current Practices May Save Our Schools."

Yet even as teachers *become* motivated to adapt and move forward, it is not always obvious how to change old habits. So this is an area where I try to provide help as well. For example, I have found that some of our best models of how to teach already exist in many of our classrooms. Good elementary teachers, good music and art teachers (and our best teachers in general) rarely lecture; they almost always let their students create "by and for themselves" with the teacher's guidance. We need to study and follow their prescient example.

All 21st century teachers must deal with the difficult issue that much of what educators thought was important in the past—and therefore put in place as things for young people to learn—has changed, and, in many cases, lost its value. Our kids certainly feel this, and so do more and more of today's instructors.

So as I progress and learn, I search for more and better ways to give teachers guidance—goals to reach for and paths to follow to reach them. My strong belief is that once teachers *understand* the new goals for our students, many—hopefully most—will, as they should, invent their own paths to reach them. "Just tell me where you want me to go, and let me get there in my own way" is something that I hear frequently not just from students but from teachers as well. Just as with students, some teachers require more help ("scaffolding" in schoolese) than others until they can do it on their own, so I try to offer this as well.

My main tool for encouraging adaptation is my writing. So I am extremely pleased to find this book in your hands, your mind open, hopefully, to the ideas it contains.
In these essays I write about what I think needs to be done to improve our kids' education. I try to say this in as straightforward and jargon-free way as possible, so that everyone—teachers, parents, politicians, and others—can understand my meaning, and, I hope, be inspired to make positive changes based on my ideas. I search for memorable words and phrases that will help motivate readers to put an end to our old education that no longer works, replacing it with something far, far better.

At the very center of this shift stand our teachers. This is because the true changes we need will not come from tweaking or changing "the system" (although in some cases that may help). The real changes our kids require will only come, in America and the world, *from what every teacher does differently in every classroom,.*

Thinking Long Term

This book unites many of the ideas I consider my most important. It includes my thoughts on the changing context of education and on what that implies about changing *how* we

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teach, and *what* we teach. My essays are intended to help people—not just teachers, *all* people—see education from a different perspective—I hope a more useful perspective—and, from that new perspective, to arrive on their own at new insights and ideas about what to do differently.

Whenever possible, I try to write (and think) about education for the long term. Although it is important, and often useful, to talk about what is currently going on, I realize that some of the things I talk about—specific technologies and products, for example—will soon be superseded (if they haven't been already), and that some of the seemingly urgent educational conflicts of the moment will go away. I try, therefore, as much as possible, to put forth educational ideas that I hope will last. I am honored that the terms "Digital Natives" and "Digital Immigrants" are still capturing people's attention—drawing both praise and criticism—more than a decade after I coined them ("Digital Natives, Digital Immigrants: Parts I and II"). In what I consider a huge compliment, someone recently emailed me that my piece about learning ("On Learning") "held up well" after nine years—an eternity in these times of change.

Some General Observations

As I have traveled and talked with hundreds of students and educators, certain "big" ideas have come into more and more focus for me and have taken a larger place in my writing. For example:

- Talking with students in the United States and around the world exposed me to how little students' opinions are listened to and taken into account. So I often now write in their defense (for example, "To Educate We Must Listen").

- Closely observing young peoples' game playing and other habits convinced me that what is taking place in education is not a "dumbing down" of this generation but rather a huge, continuous change to new and different things becoming important. I often publicly debate this with Mark Bauerlein, the author of *The Dumbest Generation* (a title, and term, that I find particularly disrespectful).

- Looking closely at how today's students learn led me to the unexpected observation that the very process of learning—the crux of what we are all about as educators—is still very poorly understood. I found that what people think we "know" about learning is based on a huge variety of often conflicting theories, many of which apply more to groups (i.e. to classrooms) than to individual students. So I continue to search for more understanding in this area ("On Learning").

- Observing what goes on in our classrooms and hearing kids talk about their experiences led me to the conclusion that there are huge problems

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with *how* we teach, which is still, primarily, through an outdated "lecture" or "telling" style very much at odds with how today's students learn. This led me to the concept of "partnering," which is the core of my book *Teaching Digital Natives—Partnering for Real Learning*.

♦ Reflecting on technology's role in education led me—despite my being a strong proponent of using digital technology for learning—to the distressing conclusion that our educators, in their push to get our classrooms and education up to date, too often add technology before the teachers know, pedagogically, what to do with it. Unfortunately, because of the speed with which our technology now moves, this often leads to the technology's becoming obsolete before it can ever add value. So despite huge financial investments, educational technology is often not realizing its great promise to improve our kids' education. I therefore think about the role technology *should* play in the learning process; my answer: technology only helps when it supports a pedagogy of "Partnering" ("The Role of Technology in Teaching and the Classroom").

♦ Above all, thinking about what students need to know and do in the 21st century has shown me clearly that the deepest underlying problem with our current education is neither how we teach, nor the still-missing technology—rather it's *what* we teach. Our educators and students are stuck—for many historical reasons—with a curriculum that is highly outdated and of very little use in preparing our kids for the lives they will be facing. The Herculean struggle to get our kids to learn this mostly "useless" stuff, and to get "up to grade in it," is taking up, and wasting, almost all our time and effort. As a result, much of what today is touted as "educational reform" is really just "rearranging the deck chairs on the Titanic": we are applying Band-Aids to an education that is in need of a blood transfusion. Even the many well-intentioned proposals to add on "21st century skills" are not truly helpful, since without first deleting we have no room to add anything ("The Reformers Are Leaving Our Schools in the 20th Century").

Have My Ideas Changed?

A question I continually asked myself when rereading each of these essays for the book is, "Have my ideas changed since I wrote this?" I found that, in most cases, they haven't—I still believe strongly what I wrote. But occasionally they have, and I find this good, because *some* ideas, like *some* parts of education, *should* evolve with the changing times and context. In the cases where my thinking has evolved, I have commented on this

in that essay's introduction. I have also, in a few places, gone back and done some minor rewriting in order to clarify points and to make the language more consistent with my current writing and thinking. This is indicated as well. But most of the essays stand as originally written.

Organization of the Book

The essays in the book are organized into two parts. The first, entitled "Rethinking Education," contains some of my more "philosophical" writings about what education is, what needs to change in the 21st century to improve it, and why. Although it is easy—and even fashionable—to argue that schools should disappear, I take the position that for many practical reasons they won't, and so we had better improve them. In the second part, entitled "21st Century Learning, and Technology in the Classroom," I get to more specific issues about what I think can, and should, be done, for the benefit—always—not of the test scores but of the kids.

The book starts with "The Reformers Are Leaving Our Schools in the 20th Century," an essay that I felt compelled to write as I watched more and more well-meaning people who want to "reform" education—from presidents, to secretaries of education, to many politicians and philanthropists—go down the wrong educational path, wasting huge resources in the process. Next comes "On Learning," an earlier essay that makes the point of how little we in fact know about what we educators "think" we do. (Surprisingly, this is true *not* just at the neuroscience level, where we are still near the beginning of our understanding, but, far more importantly, at the behavioral level, where educators *can* work and modify their practices.) The essay that follows, "Education as Rocket Science," offers a new, much more positive way to look at our students (and teachers) than the negatives we far too often hear. I discuss what is needed to get these "rockets" to take off and fly far in the essay "Turning On the Lights."

Next, in the now "classic" essays "Digital Natives, Digital Immigrants: Parts I and II," I present the idea that students have changed and discuss why. I then further develop the "story" of these Digital Natives in "The Emerging Online Life of the Digital Native," and in "Young Minds, Fast Times." I point to some challenges for educators in "Blame Our Young? Or Use Their Passion!" and in "To Educate, We Must Listen." Part 1 concludes with two further challenges, first to curriculum designers ("Bringing the Future to School"), and then to today's educational philanthropists, who, I am very afraid, are wasting one of our greatest educational bounties and opportunities of all time ("Open Letter to the Bill & Melinda Gates Foundation").

In the book's second, more "practical" part, I begin with the important question, What is "The Role of Technology in Teaching and the Classroom" in the 21st century? I emphasize that while technology is crucial for our kids' future, the understanding that too many educators have of its role is problematic. In a similar vein, the essay "Backup Education?" counters the oft-heard opinion from educators that we should continue teaching all the "old stuff" for those relatively rare occasions when technology breaks

down. The next essay, "Simple Changes in Current Practices May Save Our Schools," offers the powerful idea that there are a number of small changes that every teacher can make that will have an enormous impact on our kids' education.

The final essays in Part 2 deal with changes in our educational environment and context that don't receive, in my view, the level of attention and understanding they deserve. The first of these is the arrival of "short video" as a new two-way communication form ("Why You Tube Matters"). The second is the importance of computer and video games in our students' lives. Here I emphasize both the value the games bring to kids' learning and education ("Beyond the Lemonade Stand") and the problems kids often encounter when trying to get that learning acknowledged by their parents and educators ("On Being Disrespected"). I also offer a chart of "Types of Learning and Possible Game Styles" to aid in the design of better educational games.

In "Let's Be 'Digital Multipliers,'" I address the concern of many teachers about the so-called digital divide. In "Search Versus Research," I address teachers' fears about their students' unthoughtful use of the Internet. I conclude Part 2 with discussions of three additional technologies that I believe will shape our kids' 21st century education for the better: simulation ("Simulation Nation"), mobile devices ("What Can You Learn From a Cell Phone? Almost Anything!"), and programming ("The True 21st Century Literacy Is Programming").

The book's epilogue, "From Digital Natives to Digital Wisdom," presents a hopeful view of the quickly coming era when all students and educators will be born in the 21st century—and will therefore, by definition, be "Digital Natives." I suggest in that essay that the question we should ponder for that future is no longer *whether* to use the technologies of our time but rather *how* to use them to become better, wiser people.

Included at the end of each part are a dozen questions intended to encourage you to reflect on the material you have just read, and to look for your own solutions. These questions should also prove helpful to any individual or group using the book in "study" mode.

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While many today seek changes in our education, a huge question, mostly left unasked, is "What in education should evolve and change with the times, and what should not?" As we quest for a better, 21st century education for today's and tomorrow's children, figuring out the best solution to this thorny problem is perhaps our biggest educational challenge. In my view, most of today's education reformers, when they bother asking this question at all, get it wrong. In order for us to get it right we will need a lot more of what we typically call "wisdom"—perhaps even "digital wisdom." My hope is that—at least in some ways—you will find elements of this wisdom, both digital and otherwise, in these essays.

If you do, I hope you will take action based on what you learn. But if you don't, and you disagree, I'd like to hear from you as to where and why, because getting to a 21st century education requires not only new ideas but also dialogue and discussion—and, when we reach consensus, collaboration. Many smart people I know despair of ever getting public education to the place we require and are looking for different ways to prepare our kids for the future. But I remain an optimist. I believe that we *can* move public—and private—education ahead to something far better, even though, as we all know, there are many obstacles to overcome in order to make that happen.

Although some advocate just dumping all our schools and doing education completely differently, the insurmountable barrier to doing this, at least for now, is that we need to keep our kids safe while we—their parents—work. That is why, even with the introduction of more and more advanced technology, school is unlikely to soon disappear. (Eventually, I believe, we will figure out ways to accomplish this, and then all bets are off.)

But if school remains a requirement in our and our kids' lifetimes, and we *don't* change what goes on in each of our classrooms, we abandon America's 55 million kids, and their kids, and kids throughout the world, to the education of the past. This I am unwilling to do.

I have great faith in our young people. I see a great new educational day coming, *from* them, *for* them, and *with* them. If my ideas hasten that day in any way, I will be happy.

So welcome to this collection of my thoughts and ideas. I hope you enjoy reading them, and please always feel free to send me your feedback at marcprensky@gmail.com .

Marc Prensky, author of the seminal 2001 article Digital Natives, Digital Immigrants, *is an internationally acclaimed thought leader, speaker, writer, consultant, and game designer in the field of education and learning. He is the author of four books:* From Digital Natives to Digital Wisdom *(Corwin Press, in press)* Teaching Digital Natives: Partnering for Real Learning *(Corwin Press, 2010),* Don't Bother Me, Mom, I'm Learning *(Paragon House, 2006) and* Digital Game-Based Learning *(McGraw Hill, 2001), with two additional books under contract. Marc is the founder and CEO of Games2train, a game-based learning company, whose clients include IBM, Bank of America, Pfizer, the U.S. Department of Defense and the L.A. and Florida Virtual Schools, and is co-founder of Spree Learning Games, a new "curricular games" company. Marc holds an MBA from Harvard and a Masters in Teaching from Yale. More of his writings can be found at* www.marcprensky.com/writing. *Marc can be contacted at* marcprensky@gmail.com .