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The Reformers Are Leaving Our Schools in the 20th Century

Why Barack Obama, Arne Duncan, Bill Gates, Jeffrey Canada, Newt Gingrich, Colin Powell, and most U.S. school reformers are on the wrong track, and how to get our kids' education right for the future

By Marc Prensky

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"We need to have the right education system in place."

— Barack Obama

"It's not the 'system' that we need to get right; it's the education that the system provides."

— Marc Prensky

This is an unprecedented time in U.S. education. Awareness that we have a problem has never been higher. Billions of dollars of public and private money are lined up for solutions. But I am convinced that, with our present course, all that momentum and money will be just thrown away and lost, and, when it is all spent, we shall end up with an educational system that is incapable of preparing the bulk of our students for the 21st century.

The reason so much time and money is being wasted is that all of the educational improvement efforts now in place are aimed at bringing back, and attempting to make successful the education that America offered students in the 20th century. Sadly, too many people assume this is still the right education for today—although it no longer works for most of our students. Practically no effort is being made, despite the many educational projects and programs now being funded and offered, to create and implement a better, more future-oriented education for all of our kids; an education that will enable them to deal with the issues and realities they will face in the 21st century.

It makes no difference how well-meaning the people who propose and fund today's educational reforms may be, because their aim is to improve something that is obsolete. And, in attempting to do so they ignore what is truly needed. Nor does it matter how much money they spend; because they are pursuing the wrong goal, their efforts are doomed to failure. Even if, as result of their efforts, some students do achieve better test scores, it will not solve our real educational problems, which are related not to test scores, but to the future. So, no matter how "innovative" any of the programs may appear on the surface—or be named—all of the money is being thrown away.

Fix the education, not the system

President Obama says that we need to put the right educational "system" in place for our students' future. What he and all the other reformers haven't yet understood is that it's not the "system" that we need to get right; *it's the education that the system provides*. The distinction is critical, because you can change almost everything about the "system"—the schools, the leaders, the teachers, the number of hours and days of instruction and so forth—and still not provide an education that interests our students and gets them deeply engaged in their own learning, or an education that teaches all of our students what they need to be successful in their 21st century lives.

Most politicians—along with many of our so-called educational reformers—believe, mistakenly, that our current public school education—designed for an earlier, industrial age, and which attempts to insert, through vocal presentation and explanation by teachers, a largely irrelevant and uninteresting curriculum into the heads of kids who don't want it—is, though currently poorly implemented, basically OK. If we can just get our students to go through it, these people think, they will do better in life as a result. But although that may once have been the case for most students, it no longer is. The context, the world, and our kid's educational needs have changed radically. We need something new.

Unless we change *how* things are taught and *what* is taught in all our classrooms—including by many teachers whom these people would consider our "best"—we will never get an education that has all our kids fighting to be *in* school rather than one that effectively pushes one-third to one half of them out of it. And this is true for all our kids, both advantaged and disadvantaged.

The educational medicine most prescribed today, the test-scores driven, tenure-busting, results-rewarding (in the words of Judith Warner of *The New York Times*) fix of Arne Duncan, Michelle Rhee and others, will not result in our kids getting the right education—even if it reaches whatever goals they set—because it treats the wrong disease. While their approach may successfully address some of our old problems, it is powerless against our new ones. Trying to do the old, 20th century, education "better" in today's context is a waste of everyone's time and money. Rather than trying to perfect the old approach to what and how we teach, we should be designing and implementing a new approach.

What about Charters, and 21st Century Skill-Building?

We hear a lot about charters as models of what our education could and should be. But even in that percentage of charter schools and other places where we *can* resuscitate the old system—i.e. get kids to sit attentively, listening to knowledgeable teachers lecture about the 20th century

curriculum—and, in fact, even if we could do this for every student in America—it would do little good. It may create students ready for further advancement in that same system, and it may even get them into a college, but it does precious little to prepare our kids for the rest of their 21st century lives. Not to mention that there is no way we could create enough charter schools to replace all our current schools, or that college may not be the right goal for every student.

Nor does it do our students much good to try to graft lots of “21st century skills” onto our existing school programs, while leaving our “core” education in place as is—the approach of The Partnership for 21st Century Education, for example. Yes, those skills are important, and adding them is fine in theory. But, unfortunately, our “core” is so overloaded with out-of-date content that it is already impossible to deliver all the things teachers are supposed to in the time they have. So just adding more skills to our list—even crucial ones—will not work.

Not the Teachers’ Fault

It is also crucial to realize that the fact that this 20th century approach doesn’t work is *not* the fault of our teachers, despite much of what we hear. While there are clearly some teachers who are not suited to the profession and should leave, in the main our three million teachers are people of competence and good will. And while there is certainly room for improvement, overall our teachers today are criticized unfairly. Most teachers are just trying to accomplish—often against their will and better judgment—what the old education asks and mandates of them, that is to “cover” the curriculum and raise test scores. The teachers I talk to are enormously frustrated by the fact that, seeing what they are told to do not succeeding, they are handcuffed from doing anything else. If we take off those handcuffs and provide a better alternative, most teachers will, I believe, be eager to implement it.

Fixing Existing Classrooms is Far Better (and Easier) than Creating New Schools

To get to where we want (and need) to go with our children’s education it is not necessary, I believe, to start up thousands of charter schools, creating a new complexity of choices for already confused parents. Doing so would mean struggling with a herculean task that is basically impossible, and would still leave us with the same basic problems of providing a real, 21st century education for kids. The charter schools that *are* succeeding—KIPP, Uncommon Schools, Harlem Zone, etc.—are essentially being successful at the old education. Of course, that’s what they have to do to be called “successful,” because that is all we measure. Unfortunately to “succeed” in this way, the charters cherry-pick and hire those teachers who are best at the old education. Bear in mind that every new charter that starts by hiring 20 excellent teachers removes those teachers from 20 existing schools, where they are often the best. So, systematically, the charter approach gets us nowhere.

Change *How* we Teach and *What* We Teach

Rather than start over with new schools, a far better, more effective (and I think far easier) approach is to change what goes on in our current classrooms. To change, that is, both *how* we teach and *what* we teach, in ways that reflect our current and future realities. Changing the “how” means creating a pedagogy that works for today’s students. Changing the “what” means creating a curriculum that is future-oriented and engaging to today’s students, while still remaining useful and rigorous.

The only possible way to accomplish these things is to enlist the competence, skill and goodwill of those three million teachers we already have, along with those that are entering the profession. We must give these people new directions for what to do and help them do it. And we can. Anyone who thinks our teachers can't—or won't—change should look at how No Child Left Behind has caused so many of them to quickly change their pedagogy to “teaching to the test.”

How to Teach – Changing Our Pedagogy

Changing how we teach for the 21st century means moving to a new, more effective pedagogy. This is not as hard as it may seem, because there is consensus among experts as to what that better pedagogy is. In my book *Teaching Digital Natives* I call it “Partnering” with our students. But that is merely a useful catchall term for many existing approaches, including problem-based learning, case-based learning, inquiry-based learning, student-centered learning, and others, which have up until now been seen as different. In reality, at their core they are all variations on the same idea—a re-distribution of work among the teacher and students. All entail a move from the teacher talking and the students taking notes, to the students researching, creating and using technology and the teachers asking the right questions and vetting students’ work for quality, rigor and context.

Under a variety of names, this better pedagogy is already being used successfully in many of our classrooms. What we need now is to systematically expand its use to *all* teachers, subjects, and classes. The good news is that this can be done immediately, with our current curriculum. Moreover, based on many users’ experience, it is almost certain to lead to higher test scores. All it takes to implement is an understanding of how the new pedagogy works, which can come to existing teachers through professional development training, and to new teachers via our schools of education. Teacher training needs to be refocused around effective pedagogy, and not just, as is currently too often the case, around particular technology tools. Far too much emphasis, in my view, is currently being placed on our teachers’ learning to use specific technology tools such as blogs or wikis. These tools are not only extremely fast-changing, but, educationally, are best used by students, rather than teachers. And as important as those tools are for our children to have access to, for them to be at all effective in the kid’s education the right pedagogy must come first.

What to Teach — Changing Our Curriculum

Changing *what* we teach, on the other hand, is harder. Not because it is so difficult to figure out to do, but because the needed changes face so many political and cultural hurdles. We need to create a wholly new curriculum, retaining the wisdom of the past, but reflecting the enormously changed needs of our 21st century students, as well as the needs of their eventual 21st century employers.

Because our curricula are already overstuffed, this new curriculum must begin with deletion—figuring out and eliminating things that are no longer truly needed, yet take up tremendous amounts of class time. Deletion candidates in elementary school, for example, include cursive handwriting, the long division algorithm, and—very controversially—memorization of the multiplication tables. Deletion candidates in higher grades include much (though certainly not all) of geometry, and many details (but not the broad strokes, of course) of history. I am not suggesting we totally abandon all these once-useful things—many of which are dear to educator’s and parent’s hearts— but it is now time to put them on the reference shelf, alongside the Latin and Greek we once taught, for retrieval only when and if needed by particular students.

To better employ the large amounts of time that will become available, we can add much-needed, and largely untaught behaviors and skills, including proper online behavior and etiquette, controlling our increasingly complex machines (i.e. programming), understanding and correctly using statistics (especially polling statistics), literacy in non-textual and mixed media, using technology to affect change, and the basics of communication in all the world's major languages—all from the earliest grades. Changing the curriculum in this way is just in its infancy, but is an urgent need. I will go into more detail about what to teach in a minute.

I strongly believe that if we are able to do these two things—i.e. change how we teach and what we teach in our current classrooms—our current and future teachers, with some training, are fully capable of delivering, and will deliver, the 21st century education our students so desperately need.

Our “Mainstream” Kids

As we begin thinking about all the changes that are needed and what to do, it is important that we do not let ourselves be fooled or distracted by looking only (or unduly) at our best and brightest students. For many of those students—i.e. the 5 to 10 percent destined to attend our best colleges and universities and go on to be our top scientists, doctors, lawyers, and other professionals—much of our current education *does* work (even if it leaves plenty of room for 21st century improvement) because almost anything would. America's belief and tradition, though—with which I am in total agreement—is that it is important to educate everybody. The success of many of our brightest students at the old education distracts many observers, and, paradoxically, sends them down the wrong path, because it holds out the false hope that if only our schools did what we currently ask of them better (i.e. if only they had a teacher with a master's degree in every classroom, for example, or longer school hours, or tighter discipline), then the existing system could be fixed for everyone. That is a false conclusion. Top students do well in almost any system at all. But the top students, important as they are—and their education is—are *not* the main thing we should be concerned about in getting U.S. education “right” for the future.

The Real Issue, and the False Assumption that Risks Our Kids' Future

Our main concern should be what to do for all the *other* students—those ninety percent who are *not* in the very top percentiles. The U.S. has 55 million K-12 students in all, so this ninety percent is a very large group—roughly fifty million kids. I like to call them our “mainstream students.” They include our “at risk” kids and our kids who have been “left behind.” They are the ones suffering the most from the education we currently offer in our schools.

It is often pointed out that China's and India's student-age populations are so large that their number of top students are bigger than our total (I will get to the issue of China's and India's students at the end of this piece.) Yet fifty million students is a sizeable number, and for us in the U.S. it is the number we are struggling to deal with. Although we have at least a temporary, workable idea of what to do for the top students (i.e. continue and refine the old education), we really do not yet know at all what to do with our mainstream students, i.e. with almost all of our kids. This is the group that is increasingly dropping out. They see their expected and careers jobs quickly changing and disappearing. They understand that today's schooling offers them a road not to their future, but only to the past, and they are very afraid. And, for the most part the education we currently offer them is not helping.

Just the Beginning

We are at the very beginning of even *thinking* about the “right” education and curriculum for our mainstream group. According to consultant Charles Handy, “Most people prefer to walk backwards into the future, [as it] allows them to keep looking at familiar things as long as possible.” Because we don’t yet know how to provide a future-oriented education for our mainstream students, most of our politicians and educational reformers are walking, or even running, backwards into the future, their eyes fixed, longingly, on what worked in the past. But what they perceive, and run after—and what appears to them as an oasis—is, sadly, a mirage.

The Dangerous Mirage of the Past

It is, in fact, a very dangerous mirage and illusion that these people see, and a dangerous, false assumption that these people make as a result. The illusion and false assumption of the current educational reformers is *that the “old” education is the “right” education, and we can—and should—make it work again*. If somehow, promises the mirage, all of our mainstream students could be made to achieve higher test scores, to graduate, and to be “successful” at this old education, it would lead these students to success in the job market and in life. Even better, the mirage’s genie suggests, it would help America’s long-term competitive prospects.

Sadly, none of this is true. Yet unfortunately, this mirage and false assumption underlies and deeply informs what Barak Obama, Arne Duncan, Bill Gates, and almost everyone else proposes for our fifty million mainstream students.

Their oft-heard proposition that “more education inevitably leads to success” has great pulling power. It has become common wisdom among politicians, parents, and others because, until not long ago, it was true—statistically, getting through school paid off, big-time. Historically, the further you got in the system, the better you did: averages from past years show large lifetime advantages in earning power for those earning bachelor’s or master’s degrees.

No Guarantee

But, unfortunately, the statistics of the past are no guarantee for our children’s future. Past statistics are reliable predictors *only if conditions remain roughly the same*, and in the case of education and jobs, almost everything is changing radically. The world will continue to change even faster as our students grow up, and, in this environment of hyper-change, all bets are off. Remember how many people believed (based largely on past data) that housing prices would always go up—until they fell.

The only way to ensure that the statistics showing the positive link between more education and better jobs applies in the 21st century is to make major changes to the education we give our mainstream students. Today, even if they stay in school to the end, our fifty million mainstream students will not currently get an education that prepares them for the jobs of the 21st century. Going through today’s schooling is less and less likely to get them to where they want to go, and where we, as a society, want them to be, i.e. having good jobs and improved lives. If we do not make major changes to the education we offer our mainstream students—changes that are far different from the ones currently being designed and funded—what once was the wise thing to do (i.e. get an education, go as far as you can) will likely lead in the future, for most of our young people, only to disappointment (and, for many, to unsustainable debt). This is the major issue that

today's students, educators and citizens face. In the words of Angus King, the former governor of Maine, "Our kids should sue us for the education they now get."

Only the *Right* Education Helps

Do not misunderstand me—I am a firm believer in education as a way to get ahead. I very much agree that getting the right education, and as much of it as possible, will help all students in life. But I do not believe that what we currently offer our students *is* the right education for their future. In fact, I already see the outdated assumption that more education improves lives—without the necessary changes being made—leading us to enormous, expensive follies. For example:

Reform Follies

The mirage and false assumption that more of our current education will help all students succeed in the 21st century has led to the folly of setting goals for a much larger percentage of our students to attend, and graduate from college. On the surface that goal sounds unattackable—surely no one can disagree with more of our students going to college. Until you realize that when those people do graduate, assuming they do, there are unlikely to be enough jobs demanding the skills that our current colleges have provided to them. Until you take into account that, having been designed for our top student population and another era, what most colleges offer today is inappropriate for the bulk of our mainstream students. Until you realize that it is less a degree that today's employers are looking for than appropriate skills. And until you realize that, already, many bottom-end college graduates are already struggling in the job marketplace, overburdened with inappropriate knowledge and educational debt. Suddenly the folly of that goal becomes more apparent. It's not that we should deny these people a good education, it's rather that our current offerings are giving the students an education that doesn't work.

The mirage and false assumption that our current education can be made to work for our mainstream students (without major revisions in how and what we teach) also leads many to the folly of thinking that spending a great deal of our time, energy and money creating charter schools is doing something worthwhile for mainstream students in the longer run. This ignores the fact that even if some of these alternative schools can and do bring some dropouts back into the old system—and, in some cases raise test scores—hardly any charter schools offer the 21st century education our kids need.

Worst of all, the mirage and false assumption that the 20th century education can work (if only people implemented it better) leads to the serious, continual, and unwarranted attacks on two of our most precious resources: our 55 million students, who are our future, and the three million adults who courageously choose to teach them. Talk about bullying! These are the people we should be nurturing and helping, rather than beating up on.

How Did We Get Here?

How have we arrived, as a society, at this dysfunctional situation in which so many of our leaders and reformers are in agreement on the wrong goals? Why are they, and we, expending so much precious time and energy working so hard on so many alternatives to achieve what is not needed, with so little effort on what is? Where do these false and misguided goals come from? These

questions—questions which are truly important for our future as a society and country—are, for the most part, not even being asked.

But let me offer some hypotheses.

The dropping out of so many of our mainstream students—from one-third to one-half—has led not to new educational ideas, but rather to nostalgia for the old ones. For some unexplained reason, most of those who acknowledge that the world is rapidly changing have not perceived a need for education to change rapidly with it. In fact, many believe the opposite—that education should somehow remain as it was to “preserve the past.” Most of these people assume that the basics of yesterday will be the basics of tomorrow. As the factory and other jobs disappear for our mainstream kids, and as our students’ former job opportunities are outsourced to other countries and new immigrants, these people suppose, as a solution, that our mainstream students can just “go to college” and get better jobs. But they are wrong. College, as conceived today, is inappropriate for many mainstream students, which is why, many of our college professors are complaining so loudly. But even more importantly—although some talk about all the advanced skills workers will need in the future—there are not, in fact, enough college-requiring jobs to go to a larger numbers of graduates. I will return to this hugely mistaken assumption in a minute.

Additionally, the current focus on ranking schools, rather than on improving our students as individuals, has scared many parents to death, and led them to seek comfort “Waiting for Superman” through the false promise of the charter movement.

And finally, the wide reporting of the U.S.’s decline in world rankings on test scores and other statistics has frightened many politicians and educators and led them to take actions that palliate parents and other constituencies without sufficiently analyzing what the numbers actually mean, and what the real underlying problems and solutions are.

Asking the Right Questions

While a great many well-meaning people have recently noticed our educational problems and have rushed into action, they have almost all failed to ask the right questions. For example: Is the right solution to the hyper-changing world to push everyone up to college, or to match our education with the needs of emerging jobs? Is the right solution to kids’ falling behind to demonize their schools and teachers with poor rankings, or to find ways to help each student individually? Is the right solution to America’s falling behind in comparisons to catch up on the statistics, or to take a different route to success? Is the right solution to the high number of dropouts to discipline our kids into getting an old education or to incentivize them into getting a new one? Is the right way to get kids to attend our schools to pay them, as some suggest, or to create an education that they fight to get into? Is the right way to spend our money and creative efforts to start or expand more charter schools, or to change what goes on in all our existing classrooms?

In almost all of these cases leaders and reformers have diagnosed the problem wrongly, and have therefore chosen the wrong solutions and actions to fix it.

Why is this so?

One possible reason that leaders and reformers choose wrong solutions is because practically all of them—whatever their ideology—received the old education themselves, and then succeeded in life. They may believe that since that education worked for them, it can work for everyone. But, or course, using oneself as a sole data point is one of the most elementary mistakes in reasoning.

A second reason is that many believe the old education, constructed around basics that many see as timeless, is the “right” education. But only a few of the basic skills a person needs are timeless—most depend heavily on environment and needs. The basics of yesterday or today—decoding squiggles, fine cursive penmanship, calculations on paper—are certainly not the basics of tomorrow or forever. Already, a great many of these old basics have, in the 21st century, been offloaded to personal machines such as watches, calculators, cell phones and computers, which should, theoretically, leave our children’s minds available for more higher-level tasks. A total reevaluation of what the “basics” will truly be in our children’s time is very much in order.

No Help from Business

A great deal of the blame for this wrong-headed thinking also lies, I believe, with the recent influx of business people, and “business thinking,” into education and educational reform. In New York City, for example, America’s largest school district, the mayor, who is a businessman, wrested control of the educational system (possibly a good thing) but then installed a businessman to run his schools. After that person’s seven years, the education of New York City’s kids, despite some tiny pilots, is hardly more oriented to the future than before. And now that that businessman’s tenure is over, the mayor has turned to another business person, whom he chose, because she is, in his words, a “superstar manager.”

What these people are expected to bring to education are, of course, “business management ideas”—and they do. So much so, in fact, that I watch in amazement the amount of money now being spent (and, from what I observe, mostly wasted) on things like “improving school management” “accountability” and “leadership,” rather than on improving our students’ education. Why? Because that is what the business people know. (Or, in truth, think they know—as I quickly learned as a student at Harvard Business School, business management is still a seat-of-the-pants, make-it-up-as-you-go art.)

Again don’t get me wrong. It’s not that school management, accountability, and leadership aren’t important—they are. But they are far from the crux of education, or of our educational problem. That problem is to change what goes on every day in every classroom in America, to change what we teach and how we teach it. Business people, unfortunately, have few, if any, useful ideas how to do this. In fact, their ideas have led mainly to our schools’ increasingly viewing students as fungible products, whose quality is measured only by their test scores, rather than as individuals with unique talents and passions to be nurtured as far as possible.

Business managers focus mainly on the behavior of their employees, typically giving short shrift to the opinions of the kids who are getting the education. They bring in all the latest management tools and fads—management has even more fads than education does!—and repeat incessantly a largely-irrelevant-to-education mantra of: “Accountability, Measurement, Data,” as if that might fix what is wrong in our classrooms. They spend enormous amounts of our limited and precious educational resources on systems to collect, compile and analyze huge quantities of data, insisting that all educational decisions be “data-driven.” Never mind that the data they measure is often

inappropriate for the real educational goals, that what they hold people accountable for is typically wrongly defined, or that they train leaders to lead in the wrong direction.

Better Management is Not the Key to Better Education

Bear in mind that while a school may be “better run” if it has an effective leader, it will not necessarily offer students a better education. The educational changes truly needed to do that will come not from better superintendents or principals, but only from changes in how and what we teach. While administrators can encourage this, they cannot make it happen. The only thing that will make the needed changes happen in sufficient numbers is a bottoms-up appreciation and recognition by teachers of the need for, and adoption of new approaches. And that will happen only when we create and promote them.

Sadly, what the influx of business thinking into education has mostly brought to education is our current, destructive, over-testing, and the poor pedagogy of teaching to the test. It has also led, I believe, to a huge gap in the types of educational innovations truly needed, and to an increasingly bleak future for our kids.

There have been some positive attempts by business people to identify new skills needed for future business jobs—particularly through the Partnership for 21st Century Skills, a consortium of business companies. But unfortunately, while this work is helpful in many respects, it avoids the most important issue regarding students’ actually learning the new skills. Yes, business support for teaching new skills is useful, but merely identifying the necessary skills is not the key task, or even the difficult one—many have figured these out. The difficulty, rather, is that teachers cannot just add these skills on to what they already teach (as the Partnership suggests) because the current curricula are so completely overloaded. The truly hard work, and the part that hasn’t been forthcoming from the business world, is to figure out what skills and information that we currently teach are no longer needed (except as reference) and can be deleted from the curricula with little or no loss in order to make room for the new skills. Perhaps the business people haven’t gone there because deleting is much more controversial than adding. But by not recommending and supporting specific deletions, they have essentially “punted,” and handed the tough task of making room for the new skills, and getting them taught and learned effectively back to the educators.

So, unfortunately, business does not have the answer to our educational problems or needs. The only way to change education is to change our expectations for what should happen in all our classrooms, and to empower our teachers and students to make it happen.

The Real Culprit: Stealthily Resisting Moving Forward

There remains, however, the much more important cause of our leaders’ and reformers’ mistaken diagnoses and misguided goals, a cause that I alluded to earlier. This is their deeply rooted—although likely-to-be denied—belief that the world needs to move backwards: back to “disappearing values,” back to kids with “longer attention spans,” back to teachers who stood up and “really taught.” In short, they want to return to an educational past that they think once worked (and is, therefore, the appropriate education for today’s students.)

These so-called “reformers” believe that the education we offer kids should remain essentially the same in today’s students’ lifetimes and careers as it was in theirs, because somehow we had

“gotten it right”. Whether couched in terms of values, character-building, behaviors, or something else, and whether or not they allow some contemporary technology to be squeezed in, these people fundamentally believe they can bring back “what once worked” (that it worked for all, of course, is a myth.) The way to fix our current educational issues, most of these people think, is to return to what they see as “the fundamentals of education,” i.e. to its 20th century incarnation. That belief is tragic for our students.

It is tragic *not* because certain things—such as character (which, sadly, we rarely teach)—are not important for the future. We can and should preserve, in appropriate quantities, the core values and most useful ideas from the past. It is tragic, rather, because so much of we *do* currently teach, and what so many want to preserve, is now *unimportant*. The reason those once-useful things have become unimportant is because the context for education has changed radically.

The assumption that we can return to the past is so wrong because, in the current environment, *every* field and job, from factory work, to retail, to health care, to hospitality, to garbage collection is in the process of being transformed dramatically, and often unrecognizably, by technology and other forces. And while most reformers do, in fact, recognize that society is going through dramatic changes (even though few truly get their extent, speed, and implications), they do not see the need for our education to fundamentally change to cope with them. Instead, as the world moves forward, they want our education to move backward. This makes no sense.

When people—politicians, administrators or even parents—believe that succeeding at our current education (i.e. from memorizing the multiplication tables, to mastering the long division algorithm, to being good at paper book reading, to studying science, history and civics in traditionally ways) is what is important for today’s and tomorrow’s students, they put those students at a huge disadvantage relative to the fast-changing future. When our leaders think that our job is to do the old education better and more effectively for today’s students, they deny our students the means to cope and thrive in the 21st century.

So What Do Students Need?

While no one can say precisely what the future will hold, we can certainly make some reasonable predictions. One we hear frequently is that the number of jobs our students will have will increase rapidly over their lifetimes—even the government is already saying that our students will have almost a score of different jobs over their careers, and is emphasizing the need to be able to learn new things quickly. But what we hear far less about is far more important: that is that the *nature* of what people will need to learn and do is also changing rapidly. The biggest change will be in *what will be asked* of these people, particularly of our mainstream students.

Few are really thinking about, or preparing students—even our top students—for these changes. The top students will likely succeed no matter what we do. But our fifty million mainstream students, with the education they get in our current schools—even if “fixed” as most current reformers suggest—will be left almost totally unprepared for the future.

And instinctively, they know it. That is a big reason one third to one half of our mainstream students, depending on the place, drop out. They leave school not because the work is too hard, but rather because they can see no connection between their schoolwork and any part of their current or future life. They feel they can do better on their own.

Creating a Connection

Our hardest educational problem is *not* raising test scores, but rather connecting kids' education to real life and the fast-evolving world of the future. It is our inability to make the material we are currently required to teach in school *real* and *interesting* for today's students—call it relevance, or engagement, or something else—that makes so many of our current efforts unsuccessful. And our teachers all know it.

What *is* real to today's kids is what they learn *outside* of school, from their TV, Internet, YouTube, Facebook, phones, games, peers, etc. Although this outside-of-school learning may be insufficient, incomplete or even inappropriate from our perspective, it is what our mainstream kids today know and consider useful. In school those kids find almost nothing that is of value to them, or that they can see will be of long-term use. So they retain practically nothing, either after—or in many cases for—the tests. It is often shocking to see how much many of them don't know.

The real tragedy, though, is that if we used the money and momentum now available with the *right* focus and effort, their education *could* be made real, valuable, and useful for the future. It wouldn't even take that much work to decide what should be done—most educators could, I believe, come to consensus. But to get those changes accepted by a majority of our citizens and to make them actually happen will require much effort and change on the part of our educational and political leaders. It will also require some new thinking by many, including parents. That is where today's educational reformers, in my opinion, should be focusing their efforts.

The “Right” Fix

Currently, we over-blame students and teachers for our educational problems. But they are not the ones to blame—the problems we have with education are really of our own making. Young people are biologically programmed to always be learning something, and they are. And the vast majority of our teachers are people of great goodwill and desire to help their students. So what has gone wrong, and how do we fix it?

First, and fundamentally, we must redesign our education to feel “real” for our students, i.e. connected to the world they see and know. Our educational offerings have become almost totally disconnected from reality, and the gap is widening daily. While students have always asked “Why should I learn this?” the answer, for most things, is now less and less clear. The real reason why kids have to learn most of what we teach today is only because “it's in the curriculum,” and not because it will be useful long-term. (This could be easily verified by having adults take the SAT's and making their scores public.)

Our educators have become so preoccupied with “getting through the curriculum” and raising test scores that even the most obvious connections with the real world are often ignored. I frequently visit districts that are building new school buildings or additions, shown off to me proudly by the principals or superintendents. “Have all the students seen the blueprints?” I ask. “Have they talked with the architects and engineers? Did they have any design input? Did they learn any architectural or construction skills as a result of living through this?” The answers are always no. That kind of stuff is “real” and therefore not part of our student's education.

Thousands of examples like that exist—all missed opportunities to engage our students in real learning. Why didn't all U.S. science classes, for example, analyze tar balls sent to them (by volunteers or the government) from the Gulf oil spill? How many math classes explored the reasons for the Minneapolis bridge collapse? How many classes are politically polling their neighborhoods, or helping get out the vote in election years? These opportunities and others like them are missed, generally, not because of lack of interest on the part of teachers, but because we have created an "educational system" that simply does not allow time for "real" education.

Worst of All Worlds

In fact, our system today combines the *worst* the educational world can offer students: a curriculum that is largely irrelevant and almost totally dissociated from the real world, plus a huge emphasis on tests to measure whether students have temporarily "learned" all of its details. In what way is this education preparing our kids—or our country—for the future?

And it gets worse. Our current education ignores almost entirely the thing that has always been America's greatest strength—the passion of our people. Amazingly, our current education sees no need to even know what our students' individual passions, or interests, are—most teachers never ask and don't know. And again, it's not necessarily because teachers don't care, but rather because they are so preoccupied with all the other required tasks, such as teaching for the tests, that they feel they have no time. But if we lack the time to find out who our student really are and what they like, it is hard to create an education that interests them.

A Better Way

I spoke earlier of a better way to teach our students, through the pedagogy of Partnering. This method of teaching, which has enough variations to be able to be made to work for all our teachers and students, is clear, well thought out, and is agreed to by almost all experts. How to do it is described in many books (including my own), and it can be implemented without changing the curriculum. It is imperative that we help teachers recognize the benefits of this pedagogy to our students and to themselves, and that we, as a nation, get started using it universally.

What to Teach

We need to show reverence for the past, but not live in it.
—Deborah Needleman

We also have a tremendously urgent need for a new curriculum for our fifty million mainstream students. (We need one as well for our top students, but this is in many ways easier, and is already under way.) It is not an easy task to figure out what the mainstream requires, but we must do it. And here I would like to offer some suggestions.

The first piece is to make education real, as already discussed. Everything we teach should be matched with a clear answer to students' constant questions of "why am I learning this?" Students should be taught to immediately use what they learn to affect outcomes in the world, and change it for the better. For example, students can use their learning to design a school of the future, or to redesign their current school. They can use the languages they learn to work directly with foreign students. They can learn to perform professional energy and environmental audits of

local businesses. They can use their knowledge and skills to create Public Service Announcements for local TV and radio stations.

To those who argue that patience and delayed gratification are important, I answer yes, but only if the students are convinced their efforts will truly pay off ways that are important to them. It is therefore crucial for our students that we create a curriculum that is based, beginning in the earliest grades and continuing throughout all the school years, almost exclusively on future reality, and on connections to today's and tomorrow's world; a curriculum that respects the past, but doesn't focus on it. While we might retain our current subject divisions in the short term to utilize our current teachers' expertise, the new curriculum should include much more cross-disciplinary and integrated material than is currently the case, because this is how the world actually works. Additionally, we need our new curriculum to focus much of its teaching on three areas that are currently not given any, or enough, systematic attention in our education. These are: Character and passion, Communication and problem solving, and Creation and skills—call them the “3C's” if you will. In the new curriculum all subjects would be taught in the context of these 3C's, rather than just being grafted on to an existing content base. Let me elaborate:

Character and Passion

Systematically focusing on character and passion will correct one of our current education's greatest failings: we now focus more on the content and subjects than on the people being educated.

Our current educational system—or at least the public portion, which is most of it—has an almost total lack of curricular emphasis on character, i.e. becoming a good person in addition to a good student. Teachers may work on this, but it is not “in the curriculum,” except in the earliest grades. When our current education was conceived, such character education was mostly left to the home and the family, a context that no longer exists sufficiently (or in any cases doesn't exist at all) for many of our students. We need to find ways of making character a cornerstone of our education—while still maintaining the secular values that characterize public education. Here we can look to some of our private and charter school successes for guidance.

We have also excluded almost exclusively from the formal part of our education our students' passions. Some of these passions get to be expressed in extracurricular activities, but our students will do far better if their personal passions can be much more integrated into our mainstream teaching. Students continually complain that too many of their teachers don't know them as individuals. At the very least, all our teachers should know what their students' passions are and help those students approach their school subjects through the lens of those passions. Our schools should be creating many more opportunities for passion-based education to flourish.

Communication and Problem Solving

Communication and problem solving are highly linked: most 21st century problem solving is done in groups, and even the best problem solutions are worthless when not shared. Yet we currently do not approach either communication or problem solving systematically and holistically in all subjects.

I believe almost every problem in life can be viewed (and most solved) though the lens of a common framework, a framework that we should teach all our students, from kindergarten to

college. This “Five Skills Framework,” can be seen in detail at <http://www.marcprensky.com/writing/framework>, and is the subject of my upcoming book. It consists of five main steps: (1) Figuring Out the Right Thing To Do, (2) Getting It Done, (3) Doing It With Others, (4) Doing It Creatively, and (5) Continually Doing It Better. Each step is further broken down in to component skills, such as, (for Figuring Out the Right Thing to Do): Behaving Ethically, Thinking Critically, Setting Goals, Having Good Judgment, and Making Good Decisions. The Five Step Framework for Problem Solving, if applied to all subjects, would create thousands of new problem solving and communication experiences over the course of an education, and become a useful tool in students’ 21st century lives. Other such frameworks can be useful as well.

Creation and Skills

Creativity, as several educational observers these days have noted, is often actively *discouraged* in our current education. Given that the tools our students have increasing access to—many right in their pockets—have enormous capabilities and power that were only dreamed about in the past, our 21st century students should, I believe, be the most creative students in history. Our future education should be about unleashing all our students’ creativity with these tools, in every subject and in every area of student passion.

Of course, it is not the tools themselves that we need to focus on, but rather the creativity and skills that the tools enable and enhance. In a “verbs vs. nouns” metaphor that many find useful, skills are the unchanging “verbs” of education. The “nouns,” or tools, of education—i.e. the technologies students use to learn and practice the skills—change, in the 21st century, with increasing rapidity. A future curriculum needs to focus on the underlying verbs, while providing students with, and employing, the best, most up-to-date nouns to do so. Using the latest tools—many of which are becoming so inexpensive that they can be supplied to all students at the beginning of each year in most places—students should be acquiring and perfecting ever-important skills such as thinking critically, communicating effectively, presenting logically, calculating correctly, and scores of others, across the curriculum, systematically and clearly.

Some of the “verbs,” or skills students need to learn are unique to our changing times. Skills like programming digital machines, video communication, statistics, and problem solving should be learning should be studied by all our students starting in kindergarten. While there are already many approaches to adding these “21st century skills,” our students need them not as add-ons to what we currently do, but rather as replacements for skills that have become outmoded. Particularly for our mainstream students, we ought to be weeding out as quickly as possible old, no-longer-needed skills—particularly ones that machines can do faster and better—and replacing them with more useful skills and behaviors for the future. When students are told that taking years of one thousand year-old geometry helps their logical thinking, our students must respond: “So does programming, and it will help get me a job.”

We should be spending far more money and thought than is currently the case on creating the new curriculum for our mainstream students, pushing ourselves to reach consensus, and then selling it to our population as quickly as possible.

In the Meantime...

But since, important as they are, all of these changes will take time, what can we do for our fifty million mainstream kids in the meantime? How can we make their current learning real and engaging for them, and not a waste of their time causing so many to walk out the door? For me, this requires a short term laser focus on the “how we teach,” i.e. on changing our pedagogy.

As noted earlier (and as is worth repeating) our three million teachers are almost all people of good will and exceptional effort. But our current education forces them to put their efforts in misguided directions that sap their energy and effectiveness. I believe that the number of teachers who would do a much better job if they were allowed to ensure the learning of the key parts of whatever subject they teach, rather than being required to “cover” their subject’s or grade’s entire detailed curriculum—and if they were not burdened by the kinds and amounts of high-stakes testing now required—is enormous. If our kids are to learn, we need to release, not destroy, our teachers’ creative energy.

Focus on the Kids

And just as we need to liberate and empower our teachers, we need to do the same thing for our students. Our current education is frequently demeaning and disrespectful to today’s students, too often subordinating their individual needs and desires unnecessarily to those of the system. While all teachers are acutely aware of their students’ test grades, most are unaware of those same students’ passions. Yet our kids are desperately looking for these kinds of “passion-based” connections with their teachers and their schoolwork as a motivation to work and learn.

When hiring our teachers, we have many requirements for “degrees earned” but few, if any, requirements for “empathy with students”. Unbelievably, our educational system never teaches nor tells teachers directly that the most important part of their job is *connecting* with students, not delivering content. Those teachers that do connect deeply with students (and, of course, there are many) typically find that out on their own. Still, too many of our teachers—given all the other pressures the system puts on them to cover the curriculum and prepare the students for tests—are never able to connect profoundly with enough of their students, and this is something we should require and facilitate.

“Easy” to do, Big Impact

If tomorrow, for example, every teacher in America spent twenty minutes of class time asking each student what her or his passion was, and then later used that information to understand each student more deeply and differentiate their instruction accordingly, our education would take giant positive steps forward overnight.

It is actions like this, steps that take minimal time and effort on the part of teachers but have great potential positive impact on kids’ education, that we should be looking for to improve our education in the short term, even as we work to reform it in the longer term. Other “easy to do/big impact” steps include: doing less “telling” by teachers (and having kids research the answers to guiding questions on their own); helping students distinguish the unchanging verbs of education from the rapidly changing nouns; always connecting what is taught with real-world outcomes; treating our students as partners; employing the students’ own tools (particularly video and cell phones) for learning; using more peer-to-peer teaching; offering students far more choices; letting students be the primary users (and maintainers) of all classroom technology; sharing of successes

via short videos posted on You Tube or Teacher Tube, and regularly connecting students with the world via free, secure, tools such as Skype and/or ePals.

What *Not* To Do

And there are also things that we should immediately stop wasting our time doing, and spending our limited funds on.

The first is putting such enormous attention and pressure on scores, i.e. on tests that do little or nothing to help students learn, and that are only good for ranking. We need to be inventing far better, gentler, ways of finding out where students need help and of getting it to them, methods based not on numbers, but on individual students.

The second is thinking that by building tiny models of a good 20th century school by poaching good teachers away from other places (i.e. by creating charter schools) we can reform a system of fifty million kids. All today's charter schools put together reach only one million students, and only a portion of those schools are good. And remember that the so-called "successful" charters are typically creating schools of the past, and not preparing mainstream kids for the future.

The third is to stop regarding pedagogies of the past, such as the "worksheets" that kids universally hate, as acceptable, and instead to show all our teachers better ways to teach and reach today's students.

And the fourth is to stop giving the bulk of our money to programs that, while perhaps capable of being called "innovative" in that they haven't been tried before, attempt only to do the old education better. These include such well-known efforts as No Child Left Behind. Without the changes to our goals and focus described here, the much-hyped "Race to the Top" is nothing but a race back to the 20th century.

Conclusion

It is sad for our children, not to mention America's future, that we are so focused on recreating and fixing the past. Our children deserve a 21st century, not a 20th century education, one that prepares our kids not just for the day they leave school, but for the next hundred years (remember, our kids will live much longer than us.) Certainly all today's students should be able to read and write, at least at some minimum level, but it is equally certain that those particular skills will be far less important in our kids' lifetimes than they are today, as new skills take their place.

Finally, I would caution those who might mock the ideas in this piece as just another incarnation of approaches that have been tried in the past and failed. "Some might see this," cautions Professor of Education James Paul Gee, "as just recycling project-based and other old progressive approaches, while failing to deal with the issues of standards that has bedeviled these approaches. But, in fact, this is not about old-style progressive approaches. It is about immersion in doing that is still well-structured by good design, about mentorship, and about resourcing from teachers and peers. It is about assessment that can be done inside learning all along and not just as the end in some 'drop out of the sky test.' It is a call for a fresh approach to 21st century education in America that is desperately needed."

I said earlier I would return to China and India, countries with more honors students than the U.S. has students. As a student at Harvard Business School I learned that when competing with such giants it is far better to have a different, more clever strategy, than to just work harder at doing the same thing they do. There is no point to our competing with the Chinese or Indians (or with the Finns or Singaporeans) on test scores—we should let them win (and brag about) those useless comparisons of the past. America should be building, rather, on our unique strengths: not on book-learning and standardized tests, but on the passion and creativity of our young people, and our well-deserved reputation for ingenuity and entrepreneurship. If we do this—and do it right—our young people will flock back into our schools, and the America of the future will remain the envy of the world.

Some things required to make this happen, such as a new curriculum, are still to be created. But much of what is lacking in our current educational offerings—particularly a better, more effective pedagogy—is already invented, proven, and needs only to be implemented. By not updating our pedagogy, not creating a new curriculum, and by focusing only on the decreasingly relevant metrics of a 20th century education, we are dooming our kids to lives of unpreparedness, and our country to failure.

Marc Prensky is an internationally acclaimed thought leader, speaker, writer, consultant, and game designer in the critical areas of education and learning. He is the author of three books: 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). 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 of a new curricular games company, Spree Learning Games. 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 marc@games2train.com.

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