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Exclusive to the Lexicon

Q & A with Marc Prensky

Lexicon editor Roderick Benns recently posed some questions to Marc Prensky, the speaker, writer, consultant, and innovator who spoke to many members of the Student Achievement Division in September. For those who do not wish to read Marc's detailed answers, he has also included the "tweet" answer to each of the questions at the end.

Lexicon: *In 'Eliminating the "App Gap"' (Educational Technology Jan-Feb 2012) you write: "If our school boards were smart they would be doing everything they possibly could to narrow or eliminate this "app gap," even at the expense of buying books and/or laptops. But how can an app replace a novel study, for example? Or shouldn't students be taking the time to study great books any longer? While you don't say books are of no value in the quote above, you do seem to indicate apps are more valuable, if given a choice.*

Marc Prensky: The idea is not for an app to replace a novel, it's rather to use an app to greatly enhance the reading and the study of any and every novel (or other book or subject). A 'book' is not just words or a story—a great book is also the interaction of the author's words

A "book" is not just words or a story—a great book is also the interaction of the author's words and ideas over time with readers, with scholars, and with culture and history.

and ideas over time with readers, with scholars, and with culture and history. We can now offer this expanded idea to students in a single, easily accessible (and extensible) place. An app can help bring any book—and all the study that goes on around it—out of the past and into the 21st century. It can do this by incorporating—in one place and in an appealing form—a combination of many things that, in the past, all great teachers have added. Let's say, for example, that I wanted to make an app for Moby Dick (a

favourite novel of mine). I'd start, of course, with the text (public domain), which the app would allow the reader to adjust to any font or size he or she prefers. Many different reading options can be offered: single pages, scrolling text (at any speed the reader prefers), even words appearing rapidly, one at a time, in the center of the screen—a surprisingly powerful and underused method known as Rapid Serial Visual Presentation, or RSVP.

I would include a built-in dictionary/lexicon, so that the reader could click on any unfamiliar word see its definition and hear it pronounced (there are lots of nautical terms in Moby Dick). I would enable the reader to highlight text, and add notes—and to find those notes easily, both by going to them directly and through a list.

I'd add as many of the useful commentaries ever offered—by critics, professors, other authors, etc.—as I could, all tied by hyperlinks to the relevant parts of the text, all available to the reader with a click. Those comments would be colour-coded to indicate source, or type of source, they come from.

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I'd have some fine volunteer actors (preferably several to choose from), reading some or all of the text (and acting out portions dramatically) as well as links to all the movies ever made of the book (and even, if possible, to graphic versions.) I'd include a way to have readers speak and record the most memorable lines themselves ("Call me Ishmael" and other soliloquies) and be able to upload and share them, with a contest. I'd include links to all the relevant art by Rockwell Kent and others, and lots of scientific and historical records on sperm whales and whaling history.

I'd include room for the reader/app user to add his or her own thoughts, and to review the book, in both text and video, with the ability to share those with others around the world through uploads to a special site or to YouTube. I'd include sections on Melville's imagery and metaphors, all the factual questions a teacher might ask (with answers and self-tests), and lots of non-factual questions for reflection, tied to various parts of the text. I would include assignments, graded at various levels based on age and understanding.

I'd also put into the app whatever changes Melville may have made while writing the book, any thoughts he ever produced about it, links to his life and to other works on which Moby Dick is based or which came out of it. I'd include a tracing of Moby Dick through popular culture, and close textual and stylistic analyses of important passages (many with computer-based word and meaning counts). Many of the features I described would be designed or formatted as fun games, quizzes, with points to be earned for deeper knowledge. Finally, I would include the means, and encouragement, for students to extend and amplify the original story themselves, much as fans have done with many widely-shared cultural properties.

In other words, instead of just the 'book' Moby Dick, the app would be the complete scholarly and popular package. There could be paths "into" the novel that might draw in readers



from a wide variety of interests (e.g. music, movies, history, sport, conservation, etc.)

Instead of a 600+ page book to carry around, our kids would get all of the above (along with thousands of apps of other books) on the device in their pocket—or on one that the school lent them as needed. Because apps get automatically updated, the app would be better each time a student accessed it.

The most exciting part is that we don't have to wait for this to happen, or for some "publisher" to make such apps and sell them to us. Making this kind of app is something that can be done by any high school English class as a year-long project. It takes only a few students who are interested in app writing and programming in the class, while the rest of the students can collect and format the materials, create and collect the visuals, contact local actors and professors (who wouldn't want to contribute to such an educational venture?), research necessary permissions, and much more.

Once the initial app were done it could be reused indefinitely by future students (for free, or perhaps for a tiny fee that

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would go back to the schools to help produce more). Apps would be continually improved, either partially through smaller, individual student projects or completely by other classes. Classes (not just in English), could take on, as app projects, all the books we want our kids to study—there are certainly enough to keep our kids busy. Any useful innovations created for one app would be in the public domain, and could be easily shared by all apps.

If every class took on such a project (in all subjects), much of what we need could be done in only a few years, allowing future students to move on to newer and more powerful tasks.

The best news of all is that it doesn't matter whether our teachers know anything about making apps or not. I would guess most don't (other than as users). But a great many of our kids already do, and all could learn quickly from each other and from the web.

Students could, and would, do all the work. The teacher's job would be reviewing the apps for quality and accuracy, and offering suggestions for making them better.

Sound useful? Sound like fun? Sound like learning? It would certainly be all of those for our kids!

THE TWEET: Students can make really useful apps out of all our books.

Lexicon: *In 'Teaching the Right Stuff, Not yesterday's stuff or today's—but tomorrow's!' (Educational Technology May-June 2012) you write that if you were starting out on a job today, "I wouldn't need any of those skills...I would write emails, not letters. I would make PowerPoints, not write reports." Is it not important to teach the foundations of writing (including letter writing) even in an age when email communication is the norm? Doesn't email, as the communications vehicle, simply*

serve the intent of the letter writer – which would sometimes involve the writing of a more formal letter, sent electronically?

Marc Prensky: Implicit in this question, I believe, is a common and fundamental misunderstanding about what is important for our kids to learn and why. What our kids need—and what we need to teach them—is less “the foundations of writing” and more “the foundations of communication,” of which writing is only one method.

Those foundations of communication include, as we all know, presenting ideas clearly and concisely, persuading, logical argumentation, use of metaphor and imagery, and much more. But the foundations of communication do not include the particular stylistics of any medium (e.g. writing, or letters). Those are, rather, the specifics of a particular time and context.

In-person conversation and debate and various forms of video, for example, can be equally good—and in some cases better—media for employing communication foundations. Without negating the importance of writing in a great many instances, I believe most would agree that “good speaking” is more critical to almost anyone's success than “good writing.”

Some may find this upsetting, but except in selected places and professions, good writing is just not as important as it once was—although adequate writing may still be. The decline of writing skills is nothing new—even when I was at Harvard Business School in the 1980s, the level of writing was quite low (as I observed in the remedial “writing” course through which they tried desperately to help students). Although some may have improved a bit in the course, most didn't—yet all of those people went on to highly successful business careers.

Today what we need to teach our kids is NOT great letter writing, or even email writing—yes, they should do both adequately—we need to teach great communication, especially

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verbal communication. And we need to teach this in an increasingly wide variety of situations and media, no longer focusing only, or even principally, on writing. Already, in many situations, and for many people, video has supplanted writing as the best communication medium (see TED talks Big Think, and the millions of how-to videos, for examples).

As much as we count on them and value them today, viewed from a long-term historical perspective reading and writing (i.e. recording and retrieving thoughts via squiggles on a page) are transitory steps in the ongoing history of human communication. Writing grew in importance for the general population up through the 20th century. But—starting perhaps with the advent of the telephone—writing has begun to become less and less fundamental than it was at its zenith—which includes the lifetimes of many of us. This decline in the importance of writing is likely to continue. Formal letter writing, for example paramount in our era, will be far less important in our kid's era. No form will completely go away entirely—nothing ever does. But already reading and writing are quickly losing ground as the best ways to communicate everything. Perhaps twenty years from now some people still may need to know how to produce a formal letter to survive and thrive, but most won't (and, if they ever do, they will be able to find out how rapidly). More and more already don't today—already, around the world, much formal letter-writing has disappeared as a needed skill. In many places (Japan and France among them) they publish books of formal “letters for all occasions” for those few occasions when such a letter is needed.

As these changes continue to happen, I believe what we

should emphasize for our students are the unchanging skills (or “verbs”) that people have always needed and will continue to need. These include, of course, communicating effectively in different circumstances and contexts, along with many others.

I was recently with a room full of kids who cared not a whit if paper books disappeared, an attitude that horrified most of their teachers. Perhaps most important for educators to realize and understand is that while reading remains foundational in education today, technology has now become equally foundational to our kids' education.

But we also must recognize that in our times, the ways we learn, practice and use those verbs—what I call the “nouns”—change very rapidly. We already see paper books changing to electronic books, blackboards to electronic boards, laptops to tablets and smartphones, PowerPoints to Prezzis. We are in a huge transition period from the communications era

most adults grew up in to a far different era in which our kids will live. While many of us might prefer the older “nouns” (of letters, paper books, etc.) and judge them important—as they were for us—we must recognize that for our kids new nouns are coming into place and supplanting the old for the identical verbs (i.e. skills).

In order to prepare our kids for their future, as new nouns for communicating (and for learning, practicing and using other verbs) come into wider use, we need to focus more and more on those new ones and less and less on the old. I was recently with a room full of kids who cared not a whit if paper books disappeared, an attitude that horrified most of their teachers. Perhaps most important for educators to realize and understand is that while reading remains foundational in education today, technology has now become equally foundational to our kids' education. Just as we would rarely do a day, a unit or a lesson in any subject or grade without incorporating some reading, we should also rarely do anything in school without

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incorporating technology—used powerfully and not trivially. If we do not do this, our kids will not be getting what they need from our education.

THE TWEET: In an age where our modes of communication are changing rapidly the particulars of writing are less important than the underlying fundamentals of communication.

Lexicon: *Jaron Lanier writes in his book 'You Are Not a Gadget' that the Internet is anathema to fostering critical thinking or even assuring the transmission of knowledge. Yet he is hardly Luddite in his thinking, as a pioneer of digital media. How would you respond to that?*

Marc Prensky: Fortunately, since Jaron's book is on my iPhone with all my notes, I was quickly able to review it. Jaron is a very wise person—and a friend— but I disagree with him on many things. His main argument is that the forms and structures we establish in our technology can constrain people's thinking and creativity. This may be true in extreme cases. But, as Lanier himself admits, we need to make tradeoffs, balancing such limits against gains. Lanier loved the initial web, which he writes fostered great creativity. But he doesn't like some of the choices that have been included in Web 2.0, such as the option of anonymity. My own view is that, while in some cases other choices might have been better, the gains of the current Internet far outweigh its constraints.

And, in addition, we can, and will, invent new things, to overcome even the Internet's limitations. The rigid rules of baroque music were constraining to some, but a genius like Johan Sebastian Bach figured out how to take those very constraints to levels of creativity never before seen. And musicians who came after Bach totally broke those constraints and did wonderful new things. It will be the same, I believe, with computers and technology.

Lanier's criticism, though, does bring up an important point that should greatly concern us all. That point is that one can pick apart—and focus overly on—particular details of the Internet that we may find distasteful—or dangerous—and ignore the bigger, far more positive, picture of its helpfulness. This is already happening, with a great many educators' portrayal of the Internet to students as a "dangerous place" with "information that might not be true" and "sites that may not be what they seem."

While all those things are true in limited cases (as they are in the book world and in every world), it is false and destructive to give our kids a negative picture of the Internet, rather than focus their attention principally on the limitless possibilities that having an Internet in their generation opens up for today's students. Used well and powerfully, the Internet is the greatest tool ever invented for education. And although some of our technology choices will always also constrain us, people with great creativity—like Lanier—will always find ways to go beyond the constraints.

THE TWEET: I believe Jaron Lanier worries overly about being constrained by our technology choices. We should focus our students' attention instead on the Internet's phenomenal benefits for learning and education.

Lexicon: *Mark Bauerlein is the author of The Dumbest Generation: How the Digital Age Stupefies Young Americans and Jeopardizes Our Future. He says that "using search engines and clicking 20 websites" is all that is prized now, "not the plodding 10-hour passage through a 300-page novel." He also writes that this so-called 'screenmindedness' is about searching "for information, fast, too impatient for the long-term acquisition of facts and stories and principles..." and that "...the model is information retrieval, not knowledge formation, and the material passes from web to homework paper without lodging in the minds of the students." How might you respond*

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to Mr. Bauerlein's concerns?

Marc Prensky: Mark Bauerlein is also a friend of mine, but I disagree with him so vehemently that I debate him publically whenever and wherever I can. I do not deny that many good things require mental effort, and that such effort often includes struggle and persistence. But I see no value in plodding, either metaphorically or in life. Motivation for all effort must come from passion and from goals we want to reach.

Because I asked, I know Bauerlein agrees with me that almost all existing books are too long and would benefit greatly from editing. In fact, when I asked him to name books he wouldn't cut at all, he could think of only five. (Personally, on re-reading, I think we could even cut even some of those and not lose anything of importance). Of course in the realm of fiction, artistic expression is at the discretion of the artist. But just because an author writes something of a certain length, that doesn't make it good—we also have editors to make things better.

And in the realm of non-fiction, I believe almost everything we produce today is far too long and in dire need of summary and cutting. Non-fiction is typically full of too many details which, in today's world, are far better placed in backup (where, with hypertext, they are instantly available to those who want or need them). This is, of course, a more 21st century version of the footnotes of the past, but we should employ it far more extensively.

I do agree with Mark that we want to preserve the “long-term acquisition of principles.” But I believe we no longer need all of the old methods we used, before technology, to do so. “Story,” for example, is a hold-over from a much earlier time when people required a “memory hook” and an emotional connection to remember things. Stories are still appealing, and still help us remember. But we no longer require them functionally. Once you know the moral, you don't really need

the fable. Faced with far more information to take into account, and less time to do than we may have had in the past, we now have an urgent need to become shorter and more concise in all our communications. I initially saw little value in Twitter, but now I realize that being constrained to resume one's ideas in one or two pithy sentences can be incredibly useful. I often ask students to give me the “tweet” (i.e. the gist, in one or two sentences) of whatever book they are reading. Most students are incapable of doing this, because their educators are not yet emphasizing this kind of concise, pithy communication. But they should be—summary and cutting are key skills we should be teaching our kids. Very long writing may never go away, but it will just become a smaller and smaller niche in the world, used by fewer and fewer people, and replaced increasingly by modern methods.

Will anything be lost as our communication tools and style changes? Certainly, old “styles” will be pushed aside, and older people's personal comfort will become less. But preparing our kids for shorter rather than longer forms will greatly help those kids in their future.

One important reason that our becoming more concise is not necessarily a loss is that “length” and “depth” (i.e. “meaning”) have no necessary correlation. We have aphorisms and haiku (short and pithy—good) and we also have verbosity and padding (long and unnecessary—bad). I believe today's kids need much more of the shorter forms and less of the longer. Logic, yes, length, no.

Returning to Bauerlein, his biggest complaint is that many kids today don't have all the “old” skills that he remembers college and university kids having in the past—and he is right. But the skills students lack today are not necessarily the skills they will require for their future—they are the skills required for the times in which Mark (and I, and many of today's adults) grew up.

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And if the kids do lack skills Mark thinks they should have, shouldn't we be blaming not the kids, but rather Mark and his fellow teachers for not successfully teaching those skills? One reason I find Bauerlein's epithet of "the dumbest generation" so incredibly disrespectful is because he is complicit, as a teacher, in producing what he criticizes.

And far worse, Bauerlein is, I believe, very wrong in his assessment. Our students are not dumb. They are, rather, in transition to a newer, more relevant skill set. Even though they may not as yet be perfect at either the old or the new, they are, to a great extent, adapting to the new context in which they live and will live. The old context is fading a lot faster than we think. Educators need desperately to keep up with the new context, while preserving the most important values from the past. Bauerlein offers little help here.

THE TWEET: Mark Bauerlein's complaints focus on skills of the past. But he is neither fostering those old skills nor producing the needed new ones, which is an unhelpful position. His calling students "dumb" is both inaccurate and insulting.

Lexicon: *At your recent presentation for the Ministry of Education you said that teachers need to engage with students, not engage students. How do we support teachers to adapt their thinking so they have that kind of permission?*

Marc Prensky: I see two issues here. One relates to how change happens and the other to its speed. The Ministry is extremely top-down in its methods and orientation—far too much, I believe, for today's context. Any detailed top-down approach is far too slow and inflexible for today's educational context. There is a huge need to put in place "bottom-up" mechanisms for listening more carefully to our students about what they want and need from their education, and for collecting and sharing that information. We should, today, be actively involving our students in the design and critique of how we teach and of what we teach. Excluding them from this de-

cision-making process is little different, I believe, than our excluding women from decision making in the past—this needs to now change. We now have the technological tools to collect student ideas and act on them in ways that were impossible to do in the past, and we should be using these means, and, with the students, inventing and implementing more of them.

In a similar "bottom-up" way we must also listen far more carefully to our innovative teachers who are sharing their good ideas and practices.

Many don't yet understand that change today is not just faster, it is accelerating. Because of this accelerated pace of change, we have to implement things quickly, and always provisionally, with the expectation that the context will continue to rapidly evolve. Importantly, in a context of accelerating change there are NO enduring "best practices" that can be gathered into a whole and passed down from the top. There are only "good" practices, and an urgent need to invent better ones every day. The Ministry should therefore empower and encourage teachers to invent and to make their own decisions about what to do differently, rapidly sharing what works (and doesn't). Especially if teachers are sharing those creations and innovations with each other and with students, and continually self-critiquing and working together to do the best things for the future, teachers' doing this is bound to help our kids' education tremendously.

Top-down, the Ministry should be providing only extremely general guidelines, although very important ones. Those guidelines should require that all teachers put more focus on the future, and that teachers pay more attention to our kids' individual passions rather than forcing the same curriculum on every student. The guidelines should allow teachers wide judgment and latitude as to what "old" things can be de-emphasized in order to make room for the new. The guidelines should insist on teachers' making technology as foundational to the students' education as reading. This does not mean only

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buying, bringing in or using technology in classes. It means encouraging teachers to think carefully, every day, out loud, with their students about how they would powerfully use modern technology (from iPads to supercomputers) if they had access.

Ministerial and administrative “support” should equal “permission and encouragement to innovate,” “collecting good ideas” (including all those apps produced by the kids!) and “assistance in rapidly sharing good ideas,” particularly via short videos—which they ought to require from all teachers on a regular basis.

THE TWEET: The Ministry should insist on teachers emphasizing the future, focusing on students’ passions, and implementing powerful uses of technology—making technology as foundational to teaching and education as reading. The Ministry should be empowering all teachers to decide what to emphasize and do for individual students in our new context of accelerated change.

Lexicon: *If a teacher wanted to start doing just two things differently about the way they were teaching today, what would you recommend that they change?*

First, I believe that what teachers need to do is not change because someone tells them to, but rather to do what smart humans have always done—adapt to the changing environment in which they live and work. Here are the two biggest adaptations I think are necessary for teachers (and all educators):

The first is to put their prime focus on people—i.e. students—and their individual passions, rather than focusing primarily on curriculum and classes and standards. The problem with “standards” is just that—they are standard for all. Unless we want to produce the identical workers that were needed in the past, it is crucial for today’s education that teachers listen to, and get know, all their students as individual people, and NOT just as “learners with individual styles,” or as “class mem-

bers,” or as “test takers.” The approach we currently offer—a standardized curriculum—is not the education our kids need for the future. As one student put it, “Outside of school I think and make decisions. In school I just follow directions.” What teachers really need to help our kids learn is not just the curriculum, but to value and follow their own interests and passions in order to work hard toward goals that are fulfilling to them personally, useful to society and, in the long run, sufficiently remunerative to support them.

Because I hear it from both students and teachers, I know teachers rarely ask each of our kids about their personal interests and passions. This happens not, I believe, because of lack of interest, but because teachers have been taught that those things are irrelevant to our curriculum and test-score-based education, and think they don’t have the time to do this.

But if tomorrow every teacher, in every classroom, took 15 minutes of class time to ask each kid in the class individually what he or she was passionate about—and wrote it down, and acted on it over the school year to differentiate their instruction by interest—in addition to ability—I believe all our education world move light years ahead.

The second key adaptation I believe teachers need to make in the current context is to understand that teaching a class through talking and explaining is no longer effective pedagogy (and to act on that understanding). “My teachers just talk and talk and talk” is the number one complaint of all the students’ I have ever met around the world. A great many have already tuned their teachers’ voices out.

It should be clear to every teacher that the time of “direct instruction” (that many of us learned from) is now over. Counter as it may be to the past, teachers no longer need to spend ANY time talking to their class as a whole. What today’s teachers need to do instead is to focus their attention and comments on individual students and teams of students. Contrary

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to how many teachers were trained (and to what they all experienced in school growing up) kids don't need to be "told" ANYTHING in order to learn. Particularly in today's world, all learning can happen by students teaching themselves and learning from their peers—guided, mentored and coached in the right directions by their teachers. Most of today's kids—far more than in the past—prefer this and perform better in this environment. The teacher's job, today, is to show students how to teach themselves, and to help them do it.

So, contrary to what teachers did in in their classrooms in the past, teachers today must continually REFRAIN from talking to the whole class, so they can direct their attention where it belongs, which is to individual students and teams. Even directions don't have to be spoken—they can be written, and posted and/or recorded (and thus never have to be repeated by the teacher, as they can be referred to again and again.)

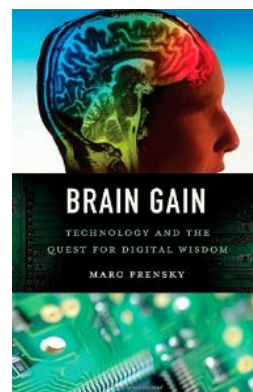
Already in many places, this is how school works. The students arrive, check their assignment, and get to work (individually or in groups)—without the teacher ever saying a word. The only time the teacher speaks to the class as a whole is when they are having a discussion—and then the teacher is not speaking as the "authority" of the classroom, but as an equal partner with an opinion. Even such formerly teacher-led tasks as moderating discussions, formulating questions and summing up are all roles students can learn to take—and they benefit greatly from doing so.

This newer form of pedagogy—partnering and coaching—is very different from the "tell-test" model of the past, but it is where all our teachers need to get to if they are to adapt to the needs of the 21st century. Many teachers, to their credit, are already on their way. They should be encouraged by their peers and administrators to continue along the route to 21st century pedagogy. When they feel fear—as many no doubt will—they need to do what is needed anyway—this is, in fact, the definition of courage. Today's teachers must have great

courage, and, as well, must encourage those of their colleagues who may be less far along in their transition, and are struggling to adapt to the new teaching context.

Finally, although you asked for two ways I'd recommend teachers adapt to the new context, I'd like to add a third. I think it's crucial that all of today's teachers understand that technology is as fundamental as reading in their students' education, and act on that understanding. All teachers must figure out—daily, and in partnership with their students—how to use technology powerfully in everything they teach and do. This does not necessarily mean all teachers' mastering new technology, or learning many new skills. It does mean all teachers thinking about teaching in new ways, about where a human-technology symbiosis can make our students better and wiser, and about including new tools in their students' thinking and doing.

THE TWEET: The two most important adaptations teachers need to make are (1) knowing about and utilizing their students' individual passions, and (2) understanding that talking or explaining to the class as a whole is no longer good teaching. The third is to think about and encourage a new, powerful, human-technology symbiosis in everything they, and students, do.



Marc Prensky's latest book, *BRAIN GAIN: Technology and the Quest for Digital Wisdom* is available here and wherever fine books are sold.

The Lexicon thanks Marc for his thoughtful and in-depth contribution to this week's newsletter.