

Notes on the Northwest Council for Computer Education 2008 Conference

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Introduction

This report is based on the author's notes¹ from 2 workshops and a plenary address presented at the annual Northwest Council for Computer Education (NCCE) Conference held in Seattle in February 2008. The workshops, the *ABCs of Web 2.0* and *Our Children are Not the Students Our Schools Were Designed For*, were led by Annette Lamb and Ian Jukes, respectively. The plenary speech, titled *Engage Me or Enrage Me: Educating Today's "Digital Native" Learners*, was given by Marc Prensky. The author hopes that these notes will provide readers with a greater awareness of the current issues and resources related to education in general, and computer education specifically, in North America.

The Northwest Council for Computer Education (NCCE)

The NCCE website (www.ncce.org) offers a short description, vision, and mission of their organization:

ABOUT NCCE

NCCE is a non-profit organization dedicated to supporting effective uses of technol-

ogy in education. In addition to hosting the largest educational technology conference in the Pacific Northwest, NCCE provides its members with resources and professional development opportunities throughout the year.

Vision

Technology plays a fundamental role in lifelong learning and is used in all aspects of education such as teaching, learning, assessment, evaluation, record keeping, personal productivity, and communication systems. Hence, an ongoing need exists to provide engaging, effective, and diverse professional development opportunities for educators extending across geography and methodology. Educators seek opportunities to employ technologies and their application in education.

Mission

The mission of NCCE is to promote and support the effective use of technology in all aspects of education. (“Northwest Council for Computer Education,” 2008)

***ABCs of Web 2.0: Avatars, Blogs, and Collaborative Wikis* • Annette Lamb**

Introduction from the conference handbook

Explore web-based social, collaborative, and interactive technologies including social networks, virtual worlds, blogs, and podcasts. Build online collaborative projects using wikis, Google tools, concept mapping tools. Help students locate, evaluate, cite, create Web 2.0 projects. Try out each technology and learn realistic, practical applications across the k12 curriculum.

Annette Lamb began by introducing Web 2.0 — defined as the second generation of web tools and resources — and explaining that many educators “feel left behind” as the Internet has evolved. There has been a shift from traditional (static) web media to contemporary (dynamic) media. We now find ourselves at times in a unique situation where the teachers are the beginners and the students are the high-end users. Student are now involved in interacting with the web-pages, making many educators nervous. The nature of content, who contributes to it, and who is responsible for it is evolving. There are new concerns for “age appropriateness.”

Lamb presented these differences between Web 1.0 and Web 2.0: 1) one computer vs. multiple devices, 2) static vs. dynamic, and 3) a taxonomy vs. *folkson-*

omy (see further explanation from Lamb at <eduscapes.com/sessions/abc>). Now students are familiar with the new tools and want to publish their own work. How can we provide access in a responsible way? This begins with an understanding that copyright and public domain exist. Because 98% of students in the United States have access to computers, collaboration can become the norm.

To help participants understand how to collaborate online, Lamb led us through a collaborative project, called a *collaborative wiki*, on WikiSpaces.com. She noted that a video clip introducing collaborative wikis is available at <eduscapes.com/sessions/wiki>. All participants were able to access the website and create a user ID, then they were assigned a page and asked to choose an insect to write a short introduction about. After approximately 15 minutes, participants were able to see others' pages, including pictures and text.

There are many collaborative websites. An example of a collaborative wiki can be seen at <thewright3.wikispaces.com>. The purpose of this site is to "tell others about Frank Lloyd Wright and the book, *The Wright 3*." Pandora.com is a collaborative site, a folksonomy, that allows users to contribute their music to a "music genome." (This site is currently unavailable outside of the US.) The Bug Guide <bugguide.net/node/view/4348> is "an online community of naturalists who enjoy learning about and sharing our observations of insects, spiders, and other related creatures." GoogleDocs <docs.google.com> allows users to collaborate in creating and revising documents.

Besides collaborative web tools, there has been numerous social networking sites appear recently. "Social networks are virtual spaces where people of all ages can make contacts, share information and ideas, and build a sense of community. Like all technologies, they are built with tools that can serve many purposes" (www.eduscapes.com/sessions/abc/abc2.htm). One such

network, Second Life (secondlife.com), is the most popular with educators. Lamb noted that she runs her university courses through Second Life from a motorhome with a satellite dish that she and her husband drive around the United States. Her *virtual* office is on the top floor of a building. Students create a virtual identity, an Avatar, which is described as a “persona in the virtual world.” Because students are becoming increasingly involved in such virtual worlds, educators “need to be aware of them” and help students when there are questions of appropriateness. A collaborative wiki for sharing ideas for using Second Life in teaching can be seen at slurl.wikispaces.com.

Other social networks include MySpace.com (open access) and Facebook.com (closed access). Imbee.com is a social network for young people, Think.com is a global community for learning, and Myfamily.com is a place to “share photos, videos & stories” about your family. This are similar to Mixi (ミクシィ; www.mixi.co.jp) in Japan.

Other Web 2.0 tools include blogs (blogger.com), internal wikis (using ptpwiki software), RSS feeds (Really Simple Syndication), Audacity (sound editor), and bubbl.us (online brainstorming).

With all the new tools on the Internet, what does the future look like? Sites like metaLIFE (www.metaversemart.com), “a social networking platform” and Ning.com, a place to “create your own social network for anything,” will provide online environments for increased collaboration and ownership of content. Educators first need to think about the needs of students and the tools that will best achieve objectives.

Our Children are Not the Students Our Schools Were Designed For: Understanding Digital Kids • Ian Jukes

Introduction from the conference handbook

Today’s world is not the world we grew up in; and today’s world is certainly not the

world our children will live in. Because of the dramatic changes our world has undergone, today's digital kids are not the students our schools were designed for; and our students are not the students today's teachers were trained to teach. This workshop examines the effect digital bombardment from constant exposure to digital media has on digital kids in the new digital landscape and considers the profound implications this holds for the future of education.

Ian Jukes had a series of provocative images appearing on a screen as he was preparing for his presentation. He noted that these are available from <www.ianjukes.com>.

He began by saying, "My job is not to educate you, it is to irritate you, provoke you, to help you look at things from a different point of view." Most people are sitting in the *Educentric Box*. They have terminal PP (*paradigm paralysis*). When we put our hands together, or fold our arms, we always do it the same way. Why? Because *That's The Way We've Always Done It* (TTWWADI; pronounced "twadi"). TTWWADI stops us from seeing from another point of view. "The strongest force *against* curricular change is TTWWADI." Why are educators still struggling? We are expected to be too many things. We do not really know what our roles are.

Story of the Five Apes

A researcher did an experiment with a banana, stepladder, apes, and cold water. When an ape tried to reach the banana, it was sprayed with cold water. When another ape came in the room, it tried to get the banana, and was also hit with cold water. When another ape entered the room, the two other apes would not allow it to go up the ladder. The first ape was removed, and a fourth ape introduced, but the others kept it off the ladder. The second ape was removed, and the fifth ape was forced to stay off the ladder, even though none of those apes had ever been hit with cold water! This is the TTWWADI effect. In short, social systems have a natural tendency to solidify. They are extremely resistant

to change.

Think of some ways TTWWADI contributes to the way your school runs now:

- ❖ desk placement
- ❖ periods
- ❖ evaluation
- ❖ textbooks
- ❖ buildings
- ❖ hiring procedures
- ❖ teacher training
- ❖ subjects
- ❖ school months
- ❖ FFL (*full-frontal lecturing*)

In 1937, American students were in school for 150 days, averaging 5 hours. Japanese students at the same time were in school 125 days, averaging 2.5 hours. In 2007, students in the US were in school 175 days, averaging 5.5 hours and the Japanese 268 days, averaging 10 hours! This is extremely important to consider because it shows how much students are changing. There is a place for traditional teaching methods, but we cannot close our minds to how students these days learn.

Students today mature 2.5 years faster. Because of *digital bombardment*, their minds are adapting. They are *screenagers*. Their screens are a place to interact in, where they have an identity. These people are *digital natives* (DNs). (“So, do we speak digital as a foreign language (DFL)?” — author). We are *digital immigrants*. We came from another time. We have old country assumptions. Some of us are better than others at adapting.

The brains of the DN's are changing. They have *hypertext minds*. What do we know about this from current research? The brain is always changing based on: 1) input, experience; and the 2) intensity, duration of the experience. The mea-

surable intelligence is dynamic — *neuroplasticity*. In this way, kids are smarter now! Games and movies are making them think more deeply. They are already sophisticated thinkers, but these skills are not tested!

We live in a left-brain society. This has long been the mind-set of education. We are “educating creativity out of our kids.” Left-right need to work together. Kids need to be whole-brained thinkers and our education system should support that development. To develop neuroplasticity, they need extended stimulus, like reading, watching TV. Today, millions of students spend a lot of time in game worlds, the environment of *digital bombardment*.

Think of the brain as a tree. Seldom used pathways are pruned. “If your students are doing x game this or x online that, those are the ones that become ‘wired,’ enhancing visual memory, increasing processing skills.” The Human Brain Project explores *neuroinformatics*. Using FMRI, researchers can see which parts of the brain do particular tasks. Their imaging technology creates the *brainbow*. These show that our brains and our students’ brains have different brainbows, showing they process information differently.

So, how quickly do we need to retool for this new generation? First we need to retool our thinking. For example, Attention-Deficit/Hyperactivity Disorder (ADHD) kids are not disabled; they are other-abled. DNs, for instance, can recall 90 of 100 photographs, digital immigrants recall 60, our parents’ generation recall 10. The eye is 60,000 times faster recalling images than text. The brain is 30% visual, 8% tactile, and 3% auditory.

The eyes of DNs move differently across pages. Page hot spots differ for this generation. We tend to do better with black on white text while they do red, pink, green, and orange better. Black is last. Eighty-seven percent of students in the US are *visual kinesthetic* because they are wired differently, but 85% of tests are based on our generation.

“Do you think this has an impact on the way they engage, learn, and interact

with the world? Of course! It is hard to fully understand because we cannot get into their heads, but it is obvious we need to rethink education! Why do we keep trying to do things that don't work?"

Recommendations: Book — *Teaching for Tomorrow*, by Ted McCain; Website — *Committed Sardines*, <web.mac.com/iajukes/thecommittedsardine/Sardines.html>.

Students do not just need a 4-year degree; they need 40 years of ongoing learning. There is a place for traditional literacy but only that would prepare students for the 20th century.

People often try to change too much, too fast. We should focus on doing less, but doing it better.

National Center for Education Statistics (NCES, nces.ed.gov) notes that 60% of minority students are not graduating. Over 2,500 US students drop out *every day*.

Jukes believes that this is, in large part, because “their learning preferences are not matching with our teaching and evaluation.” Why are the kids in our classrooms? We need to create compelling classes. There is a huge gap between digital and non-digital targets. Kids know in 10 minutes whether or not a teacher is digitally aware or not.

Major Changes to Engage Digital Natives

- #1. Time for educators to catch up. Traditional literacy approaches are not enough. Take time to see what is happening with your students. What do *thumbsters* do?
- #2. Understand the effect of Moore's Law, technology doubling in sophistication every 12 months. We need to base our direction on what we think learning will look like.
- #3. Consider Edgar Dale's learning curve: we remember 10% of what we read, 50% of content from multiple media, 70% of discussions, teaching someone else, and 90% when we teach a new concept and apply that.
- #4. Avoid contributing to a *Culture of Dependency*, in which students are waiting to be

told what, when, and where. After *progressive withdrawal*, students become good at “making it through the class.”

- #5. Encourage students to become independent. When they graduate, they should not need us anymore. Are we creating a generation of highly educated stupid people?
- #6. Be aware that in the US, people have an average of 10 careers before age 35.
- #7. Understand that new tools — cell phones, iPods, laptops, handhelds, and the like — don’t represent a problem, they represent untapped potential.
- #8. Need to fit the school culture to the kids and not vice-versa.
- #9. “Headware has to drive hardware!”

Effective lessons would include the following aspects:

- 1) Define the problem.
- 2) Develop solutions. (Make a proposal)
- 3) Do it! (Theory into practice)
- 4) Debrief and assess. (What happened here?)

Changes are happening so fast we do not understand the present until it is gone. We keep telling students they need to prepare for the future, when we should tell them to be prepared to be surprised. We need to get away from the *rubberband mindset*, where people change temporarily and then snap back.

For handouts related to this and other Ian Jukes presentations, please go to www.ianjukes.com.

Engage Me or Enrage Me: Educating Today’s “Digital Native” Learners • **Marc Prensky**

Introduction from the conference handbook

All educators are struggling to find ways to engage and connect students with learning. Marc Prensky is the leading expert on how today’s students (whom he refers to as Digital Natives) learn even when it is not apparent to digital immigrants. Join Prensky as he explains and demonstrates not only how today’s students have changed, but how educators can deal with the changes and learn from them. The key, says Prensky, is not curriculum, certification, or testing, but rather engagement. Today’s students are in need of more engaging approaches, more understanding and 21st century skills.

The learning that motivates them the most is where students are already involved the most — in their games.

Prensky began by having the audience consider students and themselves as *digital natives* and *digital immigrants*, respectively. While listening to his introduction, the author noted the following questions: Is this analogy useful? Are not traditional notions of native-ness being broken down? Do adults learn digital as a second language (DSL) or as a foreign language (DFL)? Why digital? How about technological? How do we take what we know about language learning in particular, and apply that to new technologies more appropriate for digital kids? What about the language issues related to using websites like *MySpace*, *Facebook*, *SecondLife*, and similar sites in Japanese? What are the effects of having teachers invade students' *identity space*?

Prensky emphasized the importance of using new real world tools for communication. His interest comes from his work with *edugames*, which he referred to as games to train and digital gameware learning. He supports reinventing education in an article called *Digital Natives, Digital Immigrants* (Prensky, 2001), the first step being student-centeredness, thinking of education from the point of view of the students. He related a comment from a mother whose child said, "Don't bother me, Mom. I'm learning," while using edugame software. Prensky believes that gaming can help kids prepare for life in the 21st century. The biggest concerns right now are helping students feel: 1) their time spent in classes is valuable and 2) confident they are learning effective communication skills.

Prensky continued speaking of today's students: Their passion is about the future. They will cry (or laugh) about the education they got in 2008. They already think, "email is for old people." In 30 years, technology will be 1,000,000,000 times more powerful. Unfortunately, most educators are walking backward into the future so they can feel comfortable looking at the familiar.

Students are approaching their lives differently. *Project Tomorrow* is preparing students for the future (www.tomorrow.org). Computers will become more powerful than the human brain in our students' lifetimes. Kids are great at sharing and teaching each other. The digital divide exists but educators can be part of the solution.

Pensky then spoke of his vision of the future: There will be ubiquitous broadband, rugged computers, and software that actually helps students learn. In the past few years, we have watched *Yahoo* be replaced by *Google*, email by instant messaging (IM), and TV by *YouTube*. Today's students were born with the idea of rapid change. *They* are comfortable but most educators feel threatened. Experts are no longer the font of knowledge; the new font is the Internet. The future is uncertain but we will without question need to invent new tools.

The job of educators, Pensky noted, is to help students make sense of this new font of knowledge, to help them learn practical skills for the future, and help invent new tools. We are missing many opportunities to engage students. Almost every student has a powerful computer at home or, at least, access at educational institutions, and we should be mining this resource. Ask them the capital of Sri Lanka and you would have an answer within minutes, perhaps seconds.

To prove his point, Pensky then asked the audience to use the resources at their disposal at that time to answer these questions: Who is Craig Venter and why is he important? What has he been collecting from around the world and why? If you already know the answers, find something more about him you did not know. We were asked to pair with others if we did not have a cell phone. Then people were encouraged to share what they found out and how they did it. Many phoned sons or daughters. Some were able to access the Internet. We discovered that Craig Venter founded The Institute for Genomic Research (TIGR) and he is collecting seawater from around the world to add new information to the genome.

Prensky elaborated on this activity by explaining that the task could be adjusted — making it more difficult or appropriate — for students. Many students are already able to do these kinds of activities and should not be asked to adjust to the past. These students like projects, working together, using new tools, and being global. Many already *are* global citizens so how do we educate them? We should ask ourselves if we are helping them to or hindering them from connecting with their world for learning. We have to get used to the idea of rapid change. They see technology as a given, a foundation, not as something added on or exceptional.

Is it any wonder, Prensky continued, that so many students are disinterested in classes? Simply put, they are *bored*. They have to *power down*. In past generations, students grew up in the dark and school gradually showed them the light. Educators could be proud. They were illuminators. Now, students grow up in the light. Why do we have them turn off their connection when they walk into our classrooms? The idea that we can or should be the ones responsible for providing students with the information to learn is obsolete. We can, however, help students develop skills — critical thinking, decision-making, problem-solving, self-evaluation, collaboration — and the ability to communicate with people right next to them or around the world.

Concerning curriculum, the presenter suggested that many educators are teaching information that students forget anyway. He argued: There needs to be a new paradigm for learning. Students can teach themselves with the teacher's guidance. Schools now have competition for learning. Much learning happens after school. Are schools just keeping kids safe so parents can work? Technology alone does not help students engage. Educators need to reconsider the way they teach. Asking students to use technology without a fundamental change in pedagogy will also fail. Do not stick new tools in the old paradigm. Educators should not try to keep up with the technology because they will just

“look stupid.”

In conclusion, Prensky asked, Why does digital technology change things so much? The new generation is programmable. We can customize it. (See, for example, mabryonline.org) Programming will be the key for the 21st century. At this time, we do not know what will be the best to help the next generation of students. It is clear, however, that teachers need familiarize themselves with tools current students are using, and following a new paradigm of collaboration and self-discovery that uses the Internet as the font of knowledge, guide students in learning the skills that will best prepare them for the future.

Conclusion

The Northwest Council for Computer Education (NCCE) is an organization that supports effective uses of technology in education. This report provided information from 2 workshops and a plenary address presented at the NCCE 2008 Conference held in Seattle. Both the workshops — the *ABCs of Web 2.0* and *Our Children are Not the Students Our Schools Were Designed For* — and the plenary speech — *Engage Me or Enrage Me: Educating Today’s “Digital Native” Learners* — offered valuable insights into the state of technology in education and the nature of contemporary learners, especially those in the Northwestern United States. Interested readers can follow the links provided to increase their awareness of current issues, digital tools, and pedagogy for possible application in their educational setting.

Notes

- 1 Because the information presented in this report is based on notes and may contain errors, readers are urged to refer to primary sources when referencing.

References

- Northwest Council for Computer Education. (2008). Retrieved May 17, 2008, from www.ncce.org
- Prensky, M. (2001). Digital Natives, Digital Immigrants [Electronic Version]. *On the Horizon*, 9, 1-6 from <http://www.marcprensky.com/writing/Prensky-DigitalNativesDigitalImmigrants-Part1.pdf>