

How Technology Helps Address the Long Tail Problem in Education

On November 14, 2008, Karen Greenwood Henke, managing director of Nimble Press, presented “How Technology Helps Address the Long Tail Problem in Education” at the edIT conference in Las Vegas, Nevada. The following speaker notes are intended to supplement the presentation. To learn more about Long Tail Learners, please visit www.longtaillearners.com or contact Karen directly: henke@nimble-press.com, 888-867-7619.

1. My name is Karen Greenwood Henke and I am the managing director of Nimble Press.
 - 1.1. I’ve been writing and speaking about emerging technologies in education in 1998.
 - 1.2. I’ve worked for big companies and national non-profits
 - 1.3. My goal has always been to identify new technologies that will make a difference in teaching and learning and solve some of the persistent problems in our public education system.
2. Last year I presented research on Data-Driven Decision Making at a CTAP workshop in California.
 - 2.1. One of the participants asked me, now that we’ve picked the low-hanging fruit—we’ve helped those students on the edge move up a level—how do we apply data to help the rest of our students improve their learning?
 - 2.2. We all know the fruit on the lower branches is the easiest to pick. But the rest of the tree has fruit as well.
 - 2.2.1. If we pick it too early, it may not ripen.
 - 2.2.2. If we wait too long, the weight of the fruit may break the branches.
 - 2.2.3. But if we harvest the fruit at the right moment, we have the potential to turn that fruit into something more.
3. What we have in the fruit tree is potential. Each apple has the potential to become something greater.
4. About that time, I read a book by Chris Anderson:
 - 4.1. The Long Tail: Why the future of business is selling less of more.
5. When Anderson looked at the most successful new businesses he saw a Power Law Curve with a Long Tail.
 - 5.1. Traditional companies sell one thing to lots of people: blockbusters, best sellers, top 40 songs.
 - 5.2. Then there are specialty companies that sell to niche markets, but they still have to have a critical mass.

- 5.3. In companies like Amazon, Netflix and Google, Anderson found that they used technology to sell more titles to smaller audiences.
- 5.4. And that the aggregate of the niche audiences is greater than the mass market.
6. For example, the difference between Borders and Amazon.
 - 6.1.1. A Borders store has finite shelf space, set hours, and a customer base limited by location. Only 100,000 books fit on the shelves, so they choose from the millions of titles available.
 - 6.1.2. Amazon has infinite shelf space, is available 24/7, and has a worldwide audience. They can efficiently and effectively sell fewer copies of any book to many more niche audiences. As of 2006, 25 percent of the titles sold by Amazon were outside of the top 100,000.
7. So what does the potential in the fruit tree have to do with the long tail?
8. Let's take a look at the current education system.
 - 8.1. The US public education system comes down to this: a teacher in a classroom and a group of students.
 - 8.2. The highly qualified teacher delivers the predetermined curriculum and all students adequately achieve yearly progress.
9. What really happens.
 - 9.1. That teacher has a pretty arbitrary group of students.
 - 9.1.1. One speaks another language,
 - 9.1.2. Another works nights and is too sleepy to learn
 - 9.1.3. Another mastered the subject on his own
 - 9.1.4. Another has personal problems and is just angry.
 - 9.2. The teacher tries different strategies, but one person cannot customize every lesson for every student. It's just not possible.
10. We end up teaching to the middle
 - 10.1. The majority of students learn enough to get by.
 - 10.2. With professional development, teachers push at the edges of the middle and start to pick that low hanging fruit.
 - 10.3. No Child Left Behind asks teachers to be responsible for the whole curve, but we haven't changed the structure of our classrooms.
11. Let's look at the numbers in a different way, as a power law curve, instead of a bell curve.
 - 11.1. The head of the tail, or the mass market might be compared to the approved curriculum. We know that it works for most kids, most of the time.
 - 11.2. The fat middle or the specialty store is like an RTI method. It is the next best option for the most students.
 - 11.3. A typical group of 30 students has a very short tail, not too many students fall outside of the curve.
 - 11.4. However, because those students are often as different from each other as they are from the majority, when you aggregate the tail across the whole district, it keeps getting longer.

- 11.5. And if you aggregate this across subjects the tail gets even longer. I was a leader in my English and writing classes, but a laggard in math and physics class.
- 11.6. As I've presented this idea to people, I've learned that everyone can relate. Everyone has been a long tail leader or laggard at some point in their lives.
12. The long tail is telling us to break down the walls and aggregate the students and the teaching talent.
 - 12.1. As Chris Anderson put it, Long Tail businesses move inventory way in or way out.
 - 12.2. We see this happening in a very real way with virtual schools. Where enrollments continue to grow by leaps and bounds.
13. Why do schools start virtual learning programs? Who are the students served?
 - 13.1.1. AP courses
 - 13.1.2. Foreign language courses
 - 13.1.3. Credit recovery
 - 13.1.4. Students want to learn online for long tail reasons: to work at their own pace, to get extra help, to work on their own schedule.
14. At Florida Virtual High School only 58% of participants are taking the core courses.
 - 14.1.1. The next highest category is foreign languages with 9.4%
 - 14.1.2. All of the other courses offered fall into other. If we had these different titles, we would see a long tail start to form.
15. Online learning is not just for students
 - 15.1. Go to k12 online conference and join a global community of educators.
16. We come to our first Long Tail Learning Rule: Aggregation matters
 - 16.1.1. Virtual schools pool the teaching talent and the students so they can offer those more individualized, custom courses that would not be possible in the old system.
 - 16.1.2. Here's the secret about Virtual Learning. It's everywhere, but few students have access to it. And they want it:
 - 16.1.2.1. 1/3 of high school students
 - 16.1.2.2. 25% of middle school
 - 16.1.2.3. 1 in 5 elementary students.
17. Another key idea in the long tail theory: One method does not fit all.
 - 17.1. Students drop out of school incrementally.
 - 17.2. They become disengaged, or can't fit school into their schedule.
 - 17.3. What works for others, doesn't work for them
18. Technology can increase participation.
 - 18.1. A college professor used a blog and had twice the student participation rate with half the time.
 - 18.2. Lectures are broadcasts and emails are one to one.

- 18.3. With a blog, he still contributed the majority of the content, but, in aggregate, the student participation was close to 80% of the total contributions.
- 18.4. Every student participated
19. Blogs are pretty low-end technology. Animation Mentor is an online educational program that combines technology with really personal interaction.
 - 19.1. Created by animators who worked on ground-breaking animated films like Toy Story, Shrek, and the Incredibles.
 - 19.2. Most animation programs focused on learning software. Frustrated by the graduates coming out of the program, these animators decided to create more of a mentoring studio environment.
 - 19.3. Students enroll around the world. They use video cameras for chat and to film themselves, creating a rich interactive environment.
 - 19.4. They learn from top working animators in the field and have personal one-on-one mentors.
 - 19.5. They also receive critique from their peers.
20. Long Tail Learning rule #2: Niches are communities and technology has the power to bring people together.
 - 20.1. We talk a lot about “personalized” learning, but I believe what we really mean is social learning, finding that other person who shares your interest. Why are social networking sites so successful? Because you invite your friends then meet their friends.
21. Another observation about long tail companies is that they “let the customer do the work.”
 - 21.1. When you enter a search query into Google, you get your page of answers.
 - 21.2. Google also collects and uses that information to rank pages, sell ads, refine search, and more.
 - 21.3. As Google’s customer’s we’ve contributed to the system.
22. Social tagging is one way that schools are letting students “do the work”.
 - 22.1. An elementary school library enabled social tagging in the electronic catalogue and let students tag library book entries with words that made sense to them.
 - 22.2. The prolific readers essentially sorted the books for everyone else.
 - 22.3. If you like this “scary” book, try these.
 - 22.4. Circulation went through the roof.
23. OER Commons uses customer data all across their site.
 - 23.1. Members enter lesson plans as well as ranking and rating of resources.
 - 23.2. The system uses data gathered from users to surface topics, show tags.
24. Long Tail Learner Rule #3: Feedback is essential.
 - 24.1. How many of you have district web sites?
 - 24.2. How many of you use analytics to refine and improve the site?

- 24.3. How many have learning portals?
- 24.4. How are you using your learning portal analytics to better understand what teachers and students need?
- 25. Finally, one of the key ideas behind the Long Tail is to think “and not or”
 - 25.1. NCLB, standards, and high stakes tests have put teachers on a tight rope.
 - 25.2. Even though we know that teachers have different strengths and talents, we want them all to be anything a student needs.
- 26. We know that students need much more than just math, reading, and science
- 27. We have to start collecting data from the learning objects.
 - 27.1. Many districts have made a lot of progress with data-driven decision making
 - 27.2. But most systems fail to collect information about what worked for which student.
- 28. Imagine two students learning English.
 - 28.1. One is a native Chinese speaker and the other native Spanish.
 - 28.2. The interventions that work for the Chinese speaker are not necessarily the same as the Spanish speaker.
 - 28.3. A data-based system with common, integrated information should be able to learn those differences and begin helping us offer the right intervention.
- 29. Our final Long Tail Learner Rule: The data has the answers.
- 30. Why does this matter? Because the world we are preparing students for is fundamentally different from the past.
 - 30.1. The world has lots of problems waiting for solutions.
- 31. Our schools are full of potential.
 - 31.1. When technology scales a classroom of 30 to communities of millions:
 - 31.2. Students discover the pleasure of learning
 - 31.3. Students develop lasting relationships
 - 31.4. Teachers inspire and challenge students
 - 31.5. Schools prepare the next generation for the challenges ahead