



# 8-Track Tapes, Covered Wagons & Textbooks There is a Better Way

Scott Kinney, Discovery Education



# Who's in the Room?



- Teaching before interactive whiteboards?
- Teaching before the internet in school?
- Advanced the movie after the “beep”?
- TIVO/DVR
- iPod or MP3 Player
- Remain standing if you had those devices seven years ago



...now for the quiz.

Discovery  
EDUCATION

Discovery  
EDUCATION  
streaming

Discovery  
EDUCATION  
EDUCATOR  
NETWORK

Discovery  
EDUCATION  
SCIENCE

Discovery  
EDUCATION  
Health

Discovery  
EDUCATION  
ASSESSMENT

Discovery  
EDUCATION  
MediaShare

# Quiz Questions



In March of 2009, one Texas district reportedly warehoused what estimated value of unused textbooks?

- A. 319K
- B. 720K
- C. 1.4M
- D. 4.6M

Source: Unmuth, K.L. (2009, March 26). Irving isd uses online textbooks, so unused copies state must buy sit in a warehouse. Dallas Morning News, <http://www.dallasnews.com/sharedcontent/dws/dn/education/stories/032609dnmettextbooks.3a33d62.html>.

# Quiz Questions

According to *Learning in the 21st Century*, what percentage of parents nationwide do not think online textbooks are a good idea?

A. 5%

B. 20%

C. 40%

D. 60%



# Quiz Questions



In 2006, what is the amount US K-12 schools spent on instructional materials?

- A. 76 Million
- B. 1.4 Billion
- C. 8.1 Billion
- D. 12.7 Billion

# Quiz Questions



What percentage of Americans younger than 30 say they get most of their national and international news online?

A. 15%

B. 37%

C. 59%

D. 82%

# Quiz Questions

Bonus Question - What publisher/provider is NOT on the Oregon state adopted 2010-2016 instructional materials contract for Grades K-5/6 Science?

- A. Discovery Education
- B. Houghton Mifflin Harcourt
- C. Macmillan/McGraw-Hill
- D. Pearson Education





# Why?

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# Students and Media



- Young people (8-18) today, spend an average of 7 ½ hours a day with media
  - 4 ½ hours a day watching TV
  - 2 ½ listening to music
  - 1 ½ hours on the computer
  - over an hour playing video games
- They are exposed to the equivalent of over 10 ½ hours of media a day

# Multitasking



## Central Connecticut State University

- Students were randomly assigned to take part in one of three groups
  - read the text on screen with no interruptions
  - answered instant messages first and then did their reading
  - multitasked, fielding instant messages as they read
- All three groups fared about the same on a test given later to check their understanding of the text

# As They Get Older



- What's "in" on Campus
- Spring 2005
  1. Drinking beer
  2. Drinking other alcohol
- Spring 2006
  1. ~~Drinking beer~~ iPods
  2. Drinking beer tied with Facebook.com
  3. Drinking other alcohol
  4. Text messaging



...want information...now

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# How Things Change



My 4-Year Old Textbook Still Thinks...

...George W. Bush is the president of  
the United States (January 2009)



## Indiana State Board of Education

Room 225 State House  
Indianapolis, Indiana 46204-2798  
317-232-6622

February 6, 2009

### An Open Letter to Indiana Educators about Textbooks, Computers and Instructional Materials

Indiana's students deserve effective instructional materials from which they can learn. This applies both to content and to format.

#### Content: Engaging Student Interest in Social Studies

As we noted in our [Statement and Action Regarding Social Studies Textbooks](#), taken as a group we perceive that many of the available social studies textbooks do not provide content that is interesting, engaging and supportive of effective and interested student learning. There are exceptions: we can identify, for example, an individual social studies text written to tell the story of the United States in a manner conducive to student interest rather than a lengthy amalgamation of facts for memorization.

But as a board we have expressed our concern that the now standardized form of social studies textbooks – jammed full of facts without interesting prose, racing through data without telling the story (good and bad) of our country – may impede effective learning of the country's principles and values.

You should feel no obligation to utilize any particular textbook. We urge schools to move cautiously and to select what book or other instructional material that both aligns to the state's standards and detail the complexity of the human experience and the values and principles important to the state and the fabric of its culture.

This is critically important in United States history and good citizenship. We believe the same is true for science.

#### Format: Technology in General

The State Board is required by statute to set criteria. Yet, after giving its local advisory committee the opportunity to advise, [Indiana Code 20-26-12-28](#) gives each school district the option to be served by not adopting a textbook or instructional material.

This provides considerable flexibility to local districts under Indiana Code 20-18-2-23:

"Textbook" means systematically organized instructional material for a subject matter category.

## DISTRICT VISION

Indianapolis, IN

Digital content to replace textbooks  
Focused professional development

Discovery  
EDUCATION



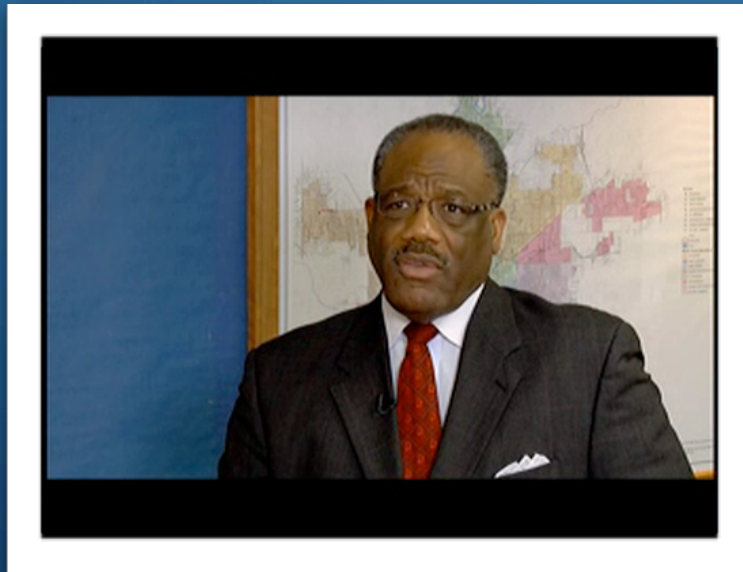
...does this make a difference?





I really love how the technology supports the curriculum.

Gives me some good sources to add variety and higher order thinking.



**My students loved it!**

**Students are more engaged.**

I've shown video clips and historical cartoons to go along with my social studies lessons.

Hands on/student interaction.

They thoroughly loved the lesson and I'm sure they will want to do it again.



## How Charlotte-Mecklenburg School District Dramatically Increased Science Scores

You often read about the challenges schools face in raising student achievement. One district in North Carolina implemented a program specifically designed for their goals, needs and educator skillsets.

44%

When North Carolina began testing for science, Dr. Peter Gorman, superintendent of his school district — Charlotte-Mecklenburg Schools (CMS)—was engaged in his kids in science. Somewhere along the way, his test interest in the subject had given way to the more pressing—and disciplines. “They would avoid the subject as much as possible,” Dr. Gorman, “and in some cases, not teach science at all.” Dr. G decided to change the district’s approach to science instruction teacher preparedness from the ground up.

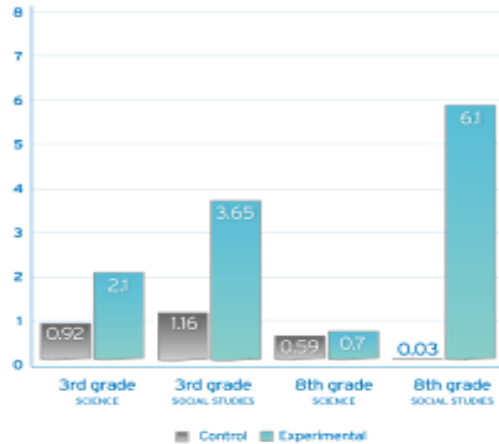
## PD REACTIONS & FEEDBACK

Charlotte-Mecklenburg, NC

Significant achievement gains

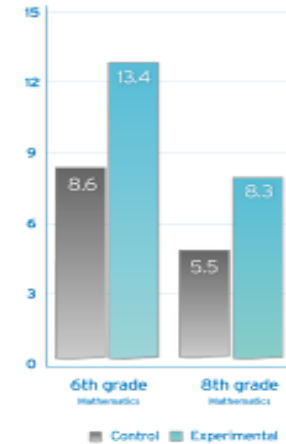
Increased engagement

# Proven Results



**12.6%**

average increase in achievement  
in Science and Social Studies



**5%**

average increase in achievement  
in Mathematics

# What Does the Research Say

A review of hundreds of studies investigating the effectiveness of multimedia in learning suggested that...

Source: Macaulay, Michael (2003). The Effects of Multimedia on Learning in Third World Children. Journal of Educational Multimedia and Hypermedia. 12, 185-198.





# What Does the Research Say

A review of hundreds of studies investigating the effectiveness of multimedia in learning suggested that... people who used computer-based multimedia instruction performed better in terms of test scores, compared to those who received instruction through traditional classroom lectures.



...not only about how our students prefer to consume content



# Children of Developing Countries

## Elementary Mathematics

- Research methodology
- Students were randomly assigned to take part in one of two groups
  - Learning materials using text only
  - Multimedia (text, images, animation & sound)

...the mean test score of the group that used the multimedia application to learn elementary mathematics was significantly higher than that of the group that used the non-multimedia application.





students learn differently

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MediaShare

# Learning Styles

## The VARK Categories

- Visual (V)
- Aural/Auditory (A)
- Read/Write (R)
- Kinesthetic (K)

Source: Fleming, N.D. and Mills, C. (1992), Not Another Inventory, Rather a Catalyst for Reflection, To Improve the Academy, Vol. 11, 1992., page 137.

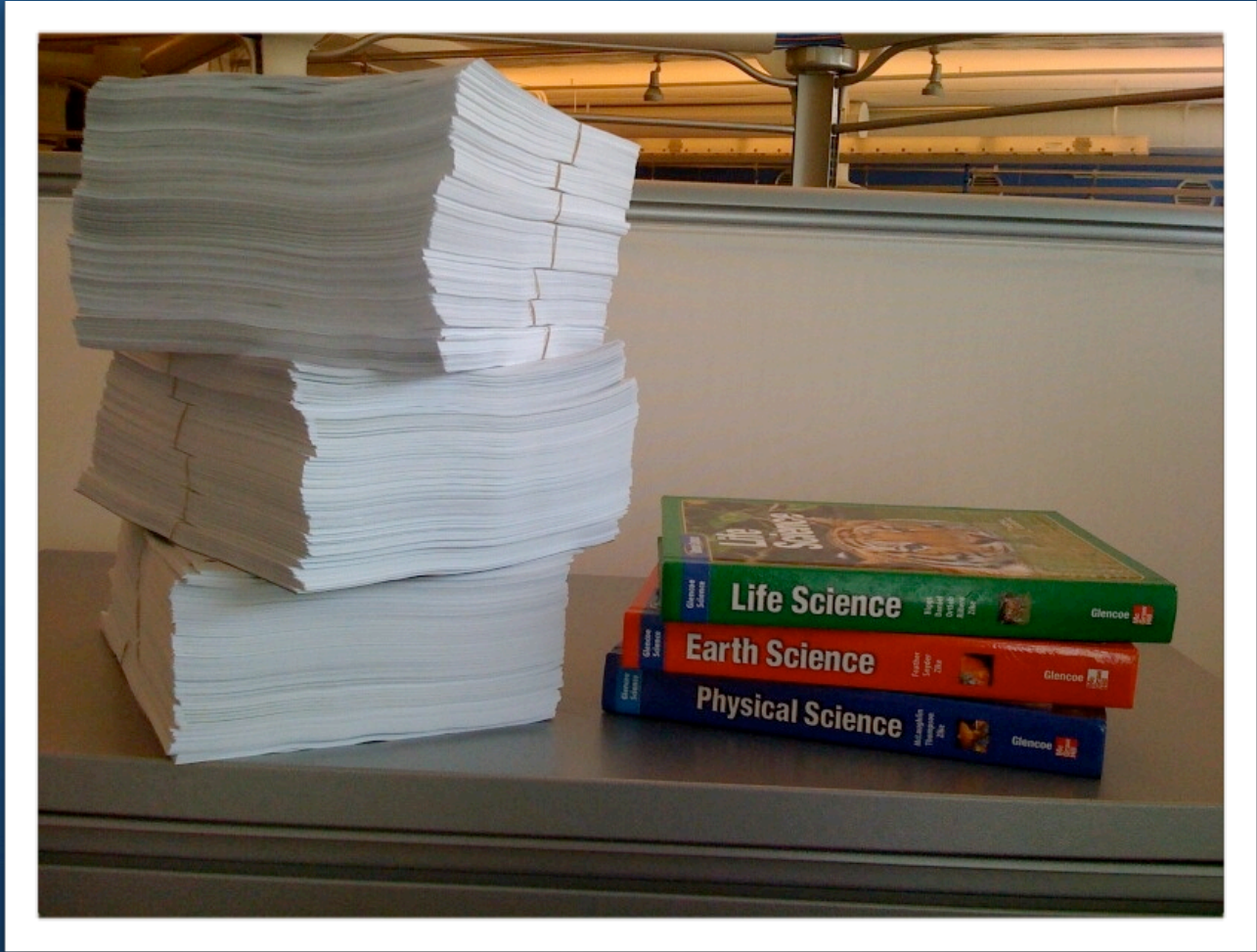


# Learning Styles



## The VARK Categories

- Visual (V)
- Aural/Auditory (A)
- Read/Write (R)
  - This preference is for information displayed as words.
- Kinesthetic (K)





How many types of flowering plants can you name? Roses, lilies, dandelions, apple trees, and oak trees are all examples of flowering plants. All flowering plants use seeds to reproduce.

Each flowering plant produces its own seeds. A seed contains a tiny new plant. The seed also contains stored food to give the new plant energy as it begins to grow.

Seeds can be *dispersed*, or moved around. This means that seeds can be moved away from the parent plant. Imagine if the seed simply dropped off the parent plant to the soil below. The new plant would have to compete for sunlight, water, and nutrients with the parent plant. If the seed is moved far away, it will have a better chance to survive. How do seeds get dispersed if plants cannot move?



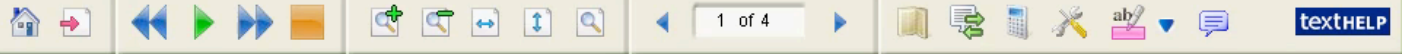
Fruits hold seeds inside.

Seeds can be dispersed in different ways. Some plants have fruits that hold seeds inside. Animals eat the fruit. The seeds pass through the digestive system of the animal. They pass out of the animal with the animal's wastes. By this time, the animal may be far from the parent plant where it found the fruit. Wind can spread some seeds. Maple trees have seeds shaped like propellers. Wind moves these seeds to new places. Cocklebur plants have seeds that get caught on animal fur and human clothing. As the animal or person moves around, it takes the seed to new places where it may fall off onto the ground.

Seeds have an outer covering that helps keep the seed from drying out. Many seeds can wait long periods of time before the tiny new plant starts to grow. Seeds need warm, moist conditions to grow. If a new plant started to grow from a seed in very cold or very dry conditions, it would have a hard time surviving. Waiting for better conditions makes it more likely that the new plant will be able to grow.



Seeds have a covering that protects them until they start to grow.



How many types of flowering plants can you name? Roses, lilies, dandelions, apple trees, and oak trees are all examples of flowering plants. All flowering plants use seeds to reproduce.



Fruits hold seeds inside.

Each flowering plant produces its own seeds. A seed contains a tiny new plant. The seed also contains stored food to give the new plant energy as it begins to grow.

# Learning Styles



## The VARK Categories

- Visual (V)
- Aural/Auditory (A)
  - This perceptual mode describes a preference for information that is "heard or spoken."
- Read/Write (R)
- Kinesthetic (K)



# Learning Styles



## The VARK Categories

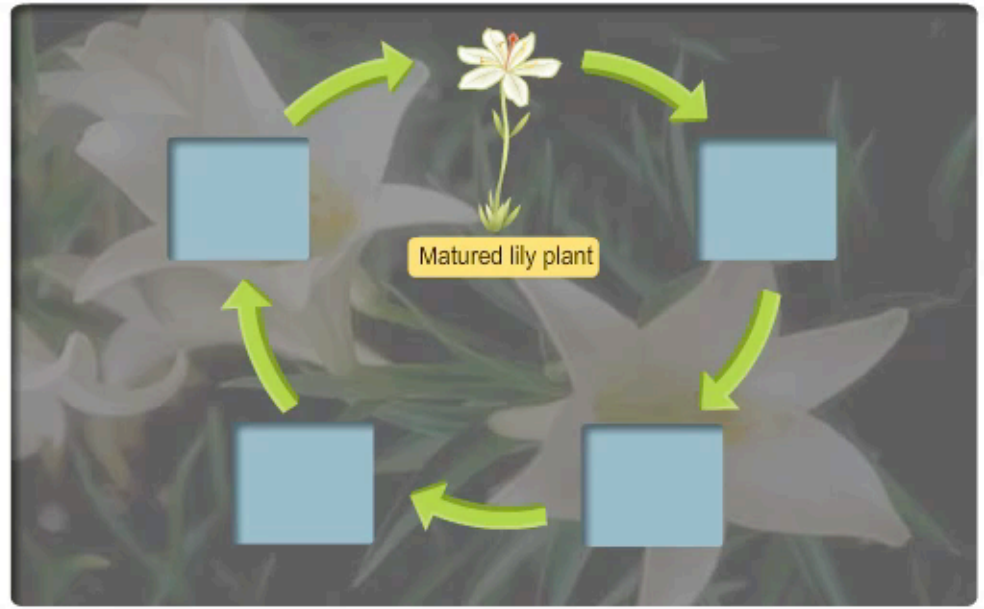
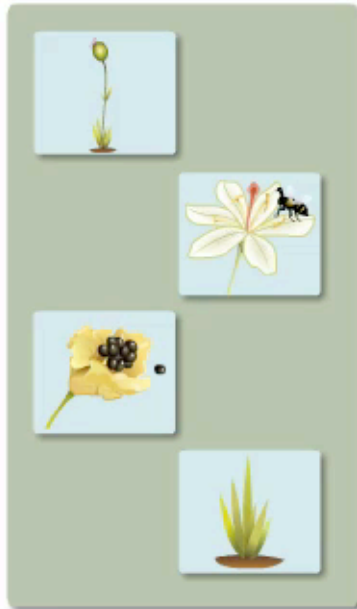
- Visual (V)
  - This preference includes the depiction of information in maps, spider diagrams, charts, graphs, flow charts, labeled diagrams, and all the symbolic arrows, circles, hierarchies and other devices, that instructors use to represent what could have been presented in words.
- Aural/Auditory (A)
- Read/Write (R)
- Kinesthetic (K)



## Life Cycles

[Start Over](#) | [Introduction](#) | [Help](#) | [Close](#)

A lily is a flowering plant. Drag and drop the pictures correctly to complete the life cycle of the lily.



# What Does the Research Say



Interactivity during learning has been noted by many to have a strong enhancing-influence on learning by improving retention and the speed of learning.



## How Charlotte-Mecklenburg School District Dramatically Increased Science Scores

You often read about the challenges schools face in raising student achievement. One district in North Carolina implemented a program specifically designed for their goals, needs and educator skillsets.

↑ 44%

When North Carolina began testing for science, Dr. Peter Gorman to a realization. After six years of intense focus on math and reading, his school district — Charlotte-Mecklenburg Schools (CMS) — was engaging his kids in science. Somewhere along the way, his test interest in the subject had given way to the more pressing—and disciplines. “They would avoid the subject as much as possible,” Dr. Gorman, “and in some cases, not teach science at all.” Dr. Gorman decided to change the district’s approach to science instruction and teacher preparedness from the ground up.

### DISTRICT VISION Charlotte-Mecklenburg, NC

Integrate digital media  
Focus on science

# Learning Styles



## The VARK Categories

- Visual (V)
- Aural/Auditory (A)
- Read/Write (R)
- Kinesthetic (K)
  - By definition, this modality refers to the "perceptual preference related to the use of experience and practice (simulated or real)."

Source: Fleming, N.D. and Mills, C. (1992), Not Another Inventory, Rather a Catalyst for Reflection, To Improve the Academy, Vol. 11, 1992., page 137.



## How Does Your Garden Grow? - Level 1

Directions

**Soil**  
Sand  
Clay  
Loam

**Light**  
Medium  
Dim  
Bright

**Water**  
Medium  
Little  
Heavy

**Trial #1**

Tomatoes: (per plant)	6
Size:	large



## The Mystery of Potter's Pond

Help | Close

### The Mystery of Potter's Pond

#### Introduction: ■

The fish in Potter's Pond are dying. So are the snails, salamanders, and frogs. Even the insects are dying. To make things more mysterious, Miller's Pond seems perfectly healthy — and it is just a mile away. The two ponds are about the same size in area. They get the same amount of rain each year and have the same underlying bedrock.

**What's going on at Potter's Pond?**



Intro ▶

Mission

Explore

Plan

Experiment

OPEN IN POPUP

+ Share ▼

Add To My Content ▼

GO

# Learning Styles

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Source: Fleming, N.D. and Mills, C. (1992), Not Another Inventory, Rather a Catalyst for Reflection, To Improve the Academy, Vol. 11, 1992., page 137.



# Differentiation

Differentiated Instruction is rooted in assessment (Tomlinson, 2001).



Home > Plants > How Plants Grow > Life Cycle


Intro to Plants   **How Plants Grow**   Plants and Their Parts


Life Cycle   Reproduction   Flowering Plants   Conifers   Ferns   Mosses, Liverworts, and Hornworts

## Life Cycle

🕒 5 minute preps   📄 ppt   🖱️ flash

[Learn](#) → [Explore](#) → [Demonstrate](#) → [Extend](#)

 Life Cycle  
Assessment

 Plant Life Cycle  
BCR [View Details](#)

### Glossary Terms

- cycle
- decay
- decompose
- life cycle
- mature
- plant
- seed
- spore
- sprout

## Assessment

1 Overview | 2 **Take Assessment** | 3 Results | 4 Recommendations

### Life Cycle

#### Question 5 of 5

Which organism is able to meet all of its own basic needs without depending upon another organism in the environment for its survival during the growing process?

- A) mushroom
- B) fox
- C) crab
- D) pine tree

Next Question



# Why Not?

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# Of Course... Cost/Access

Of all teens, what percentage use the internet?

– 94% +/- 5%

Who are the 6%? (Race/Ethnicity)

A. White 96%

B. Black 92%

C. Hispanic 87%



# Of Course... Cost/Access

Of all teens, what percentage use the internet?

– 94% +/- 5%

Who are the 6%? (Household Income)

A. < \$30,000 86%

B. 30K-50K 93%

C. Over 75K 97%



# Of Course... Cost/Access

Of all teens, what percentage use the internet?

– 94% +/- 5%

Who are the 6%? (Education Level)

A. < High School	37%
B. High School	72%
C. College	94%





# Of Course... Cost/Access

Of all teens, what percentage use the internet?

– 94% +/- 5%

Why?

19% Cost

50% Relevance

# Of Course... Cost/Access

To re-cap the argument

- 6% of students that do not have access
- roughly 77% of all future jobs will require technology skills

Our solution: withhold digital content to all students, widening the digital divide.



# Of Course... Cost/Access

## Can't blame the cost

- Instructional materials is an 8.1 Billion dollar industry
- Average of 6-year life cycle
- Average \$105 per student, per year
  - Bailey Mitchell, Forsyth County
  - \$19 per year



# Of Course... Cost/Access

Texas school warehouses over 4.5 million dollars in new textbooks.



Source: Unmuth, K. (2009, March 26). Irving isd uses online textbooks, so unused copies state must buy sit in a warehouse. The Dallas Morning News.

# Of Course...Cost/Access

“The state requires that we order a textbook for each student enrolled in the course...whether you need it or not”

Law passed in 1918

What else...the interrupter gear



# Of Course... Cost/Access

## Can't blame the cost

- Instructional materials is an 8.1 Billion dollar industry
- Average of 6-year life cycle
- Average \$105 per student, per year

Over the past year, a number of states have taken action allowing for the use of instructional materials dollars to be used for digital content.



# Change in Florida Legislation



1082 (1) DISTRICT SCHOOL BOARD —The district school board has  
1083 the duty to provide adequate instructional materials for all  
1084 students in accordance with the requirements of this part. The  
1085 term “adequate instructional materials” means a sufficient  
1086 number of textbooks or sets of materials that are available in  
1087 bound, unbound, kit, or package form and may consist of hard  
1088 backed or soft-backed textbooks, consumables, learning  
1089 laboratories, manipulatives, **electronic media, and computer**  
1090 **courseware or software that serve as the basis for**  
1091 **instruction for each student in the core courses...**

# California Digital Textbook Initiative



**High School students will have access to science and math digital textbooks by the beginning of the school year.** A list of standards-aligned digital textbooks for subjects such as geometry, algebra II, trigonometry, calculus, physics, chemistry, biology/life science and earth science courses will be released this August.

Phase two of the initiative is currently being developed. This includes making digital textbooks available for all grades, incorporating interactive content...



Donald M. Zimring, Ph.D., Superintendent -- Las Virgenes Unified Schols District  
Governor Arnold Schwarzenegger

# Texas Adopted Language

SECTIONA1.AA, Subchapter A, Chapter 31, Education Code, is amended by adding Section 31.004 to read as follows:

...the district provides each student with textbooks, electronic textbooks, or instructional materials that cover all elements of the essential knowledge and skills adopted by the State Board of Education for that subject and grade level.





## Context and Meaning

7 July 2009

ICT has made content abundant. However, precisely because of abundance, content is less meaningful than context and meaning. Teachers must therefore use the content, both current and future, in edumall2.0 in contextualised and meaningful ways so that learning will be enhanced.

In the next stage of the evolution of edumall2.0, besides the populating of content, attempts will be to provide guidance to teachers on how to contextualise content and make it meaningful for learning.

Best regards.

edumall2.0 team.

IT US **KOREAN**

Today

**Digital Textbook**  
School with Digital Textbook everywhere!!

[Detail >](#)

PILOT SCHOOLS TODAY

- 1 Introduction
- 2 Will Be Changed This Way  
Digital Textbooks VS  
Printed Textbooks
- 3 Digital Textbook  
Experience

### Digital Textbook Experience



### Information

Brochures, leaflets and movies (for 1 min, 2 min and 3 min) of Digital Textbook will be serviced on the web site from May of 2009.

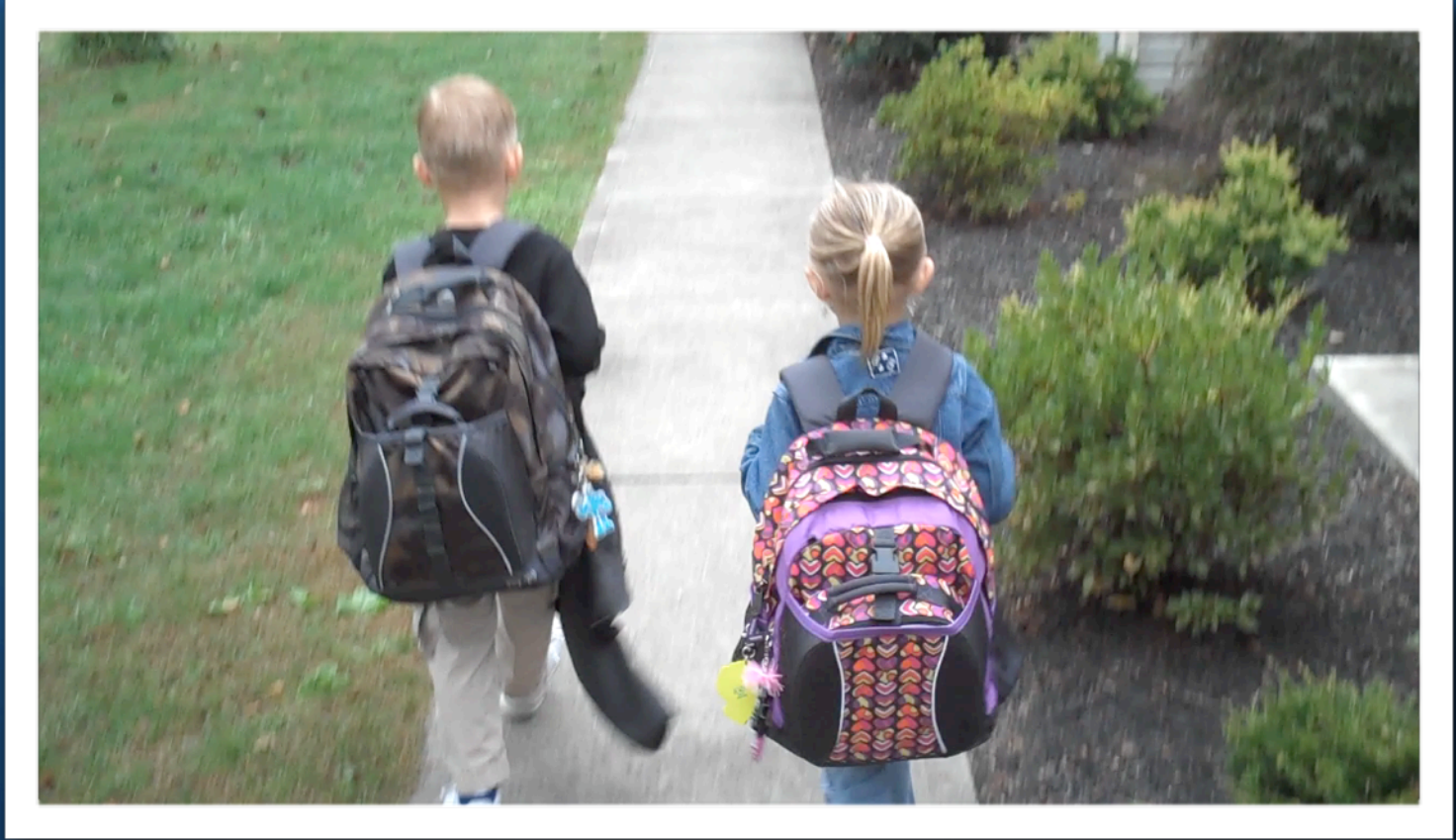
Digital Textbook Platform [go >](#)

Supporting System [go >](#)

Contents Management System [go >](#)



Source: Sabestian. (Producer). (2009). Joe's non-netbook [Web]. Retrieved from <http://www.youtube.com/watch?v=SkhpmEZWuRQ>





# Contact Information

Scott Kinney, Senior Vice President  
Global Education Outreach  
Policy & Professional Development

Email: [scott\\_kinney@discovery.com](mailto:scott_kinney@discovery.com)

## Websites

[discoveryeducation.com](http://discoveryeducation.com)

[discoveryeducation.com/pd](http://discoveryeducation.com/pd)

[discoveryedspeakersbureau.com](http://discoveryedspeakersbureau.com)

[community.discoveryeducation.com](http://community.discoveryeducation.com)



# 8-Track Tapes, Covered Wagons & Textbooks There is a Better Way

Scott Kinney, Discovery Education

