



The 21st Century Classroom

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The Classroom of the 20th Century



Most of today's educators are products of a 20th century learning experience. These classrooms were driven by the teacher, and relied heavily on textbooks for content.

The learning process focussed on the memorization of information and facts, and was a largely passive experience.

Technology as we know it was not readily available. Students would look forward to watching an old film strip or slide show.

When learning about geography, teachers would use the pull-down map in the front of the classroom or share a globe amongst the students. Countries were easily differentiated on the globe with colors like pink, yellow, or green.

While this may not seem like an entirely positive experience, it reflected educators efforts to provide the best

education for their students using the resources available at the time.

These techniques and resources seem antiquated by today's standards and technology. However, many teachers still use them to this day.

As our culture, society and students change, it is important for teachers to change with it. Today's children have grown up surrounded by ever-advancing technology.

There is also new research that shows that the ways students learn have also changed.

So how does the teacher of today transition their classroom from the 20th to the 21st century? How can schools with limited resources best meet the needs of today's students? In order to do this, it is important for teachers to identify who today's students are.



Tools of the 20th Century

Who are 21st Century Students?

The students of the 21st Century are vastly different than any other generation of students. They have been raised in a digital age. Today's students do not know of a world without cell phones, the Internet, and cable TV. They are digitally connected to more people throughout the world than any other group of students before them.

With these technological advances and resources available to them, today's students are both socially and psychologically different than adults. These changes and differences are subtle, but are evidence of a gap between students and adults.

Digital Natives vs. Digital Immigrants

Author Marc Pensky believed he could best describe this gap by labeling the students of today as "Digital Natives" and labeling the teachers as "Digital Immigrants."

Pensky uses this analogy to illustrate that students are much like natives to a country. The fact that students are immersed and living in a culture makes it easier for them to be a part of it. Whereas the teachers, as immigrants, must adapt and assimilate to the culture.

This analogy can be used with the current technological culture. Students are so immersed that it is easy for them to adapt and accept new technology, whereas adults who are older, often find it challenging or may be unwilling to change.

In addition to cultural differences, the digital natives are also psychologically different than digital immigrants. Because of these differences, students have adopted new learning styles.

Learning Styles

Ian Jukes and Anita Dosaj of the Tech Info Group identify several areas where digital native students have adopted different learning styles than their digital immigrant teacher.

One of the first areas that these two differ is how information is received. Digital natives prefer receiving information quickly and from a variety of multi-media sources. This finding makes sense because of the amount of multi-media students have available to them. Many students have cell phones, cable TV and computers at their disposals, many times using all at once. They are conditioned to accept and receive information quickly and from a variety of sources. This also supports the idea that digital natives prefer parallel multi-tasking as opposed to digital immigrant teachers who prefer singular processing.

Digital natives also differ in that they are conditioned to interact and network simultaneously with others, as opposed to independent work.

Once again, it is easy to draw the correlation to students who often have multiple instant message conversations taking place at once, or who have multiple social networking accounts such as Facebook or MySpace.

The Digital Immigrant Immersion

How does an Immigrant adapt to a culture they are trying to learn? The best way for an Immigrant to assimilate is to immerse themselves within the culture. This is why immigrant teachers who have the ability to immerse themselves in technology and create a 21st Century classroom can provide the best learning environment for their students.



Creating a 21st Century Classroom

The Teachers' Role

In order to truly create a 21st Century classroom, the traditional role of the teacher must be changed. The teacher can no longer be the sole provider of content in the classroom, but rather become a facilitator of learning.

Acting as a facilitator takes the pressure off of providing all of the content and empowers the teacher to use multiple multi-media resources.

This role provides the opportunity for the teacher to work collaboratively with the students and encourages them to allow the students to explore both curriculum content and technology to assist in the learning process.

Student Generated Content

In the typical 20th Century classroom, student work was relegated to worksheets, bookwork, or an occasional project. With the teacher acting as a facilitator, a greater emphasis can be put on student generated content.

Teachers should encourage students to use technology mediums like podcasting or digital presentations to apply and demonstrate the knowledge that they have learned. It is important that students be given a variety of choices to demonstrate their knowledge

The teacher, in their role as facilitator, should not feel the burden of being the expert in the technology, but rather embrace the opportunity to learn from or with their students.

An ideal application of the student generated content is in Problem Based Learning. PBL's lend themselves to providing an opportunity to blend

several different content areas into one cohesive project.

Students are given a problem or task that they must solve either individually or in a group. The problem is often derived from a real world situation. The students are then provided with research materials and given the framework to find a solution for the problem. The students must then present their findings to the class. This does not always have to be done digitally, but this type of project lends itself to many different technological uses.

The important aspect of a PBL or any student generated content that is presented is that the students in the audience become active listeners and learners of what is presented. Essentially, based on their work, the students are teaching their topic to the class. This process helps to promote a collaborative and interactive environment in the classroom.

Interactive Environment

There are two ways in which teachers can make their classrooms interactive. The first way deals with content delivery. Traditionally, teachers used technology to deliver information by using an overhead transparency, or in some cases, a television mounted in the classroom. While these devices do help children see the content, they do little to allow students to interact with the content.

Interactive white boards have become increasingly popular over the last several years. These boards, when paired with a projector, allow teachers to present their computer's screens to the

classroom. The boards allow students to interact with the computer by either coming up and touching the board or interacting from their seat via a tablet.

In addition to content delivery, another way teachers can improve the interactivity of their class is to extend the classroom discussion to a blog outside of class. These blogs and or live web chats by the teacher, can extend discussion outside of the classroom and allow for students to interact with each other in an educational and safe place.

Not Just Pencil and Paper

Another way teachers can utilize technology to help them create a 21st Century classroom is to re-examine how they administer their assessments.

Traditionally classrooms have used Scantron or pen and paper tests to preform their traditional assessments. However, grading these test could prove to be difficult or provide little information about the scores and student results.

Now there are many web-based and software resources available to teachers for their assessments. Programs like Quia (www.quia.com) provide a multitude web-based testing and activity possibilities.

There are many other alternatives that can create and administer quizzes and tests, It is important to look for programs or websites that offer robust reporting features. These reporting features allow teachers to perform an item or standard analysis of their class or target certain students for interventions.

The data that these programs are able to collect provides teachers an

Creating a 21st Century Classroom

invaluable tool when collecting data for RTI. These online and computer assessments also help to provide the teacher and students immediate feedback on their performance, and can indicate for the student where they may have struggled.

In addition to software and web-based assessment applications, teachers can also continue the interactive model in their classroom by using Student Response Systems. The Student Response System utilizes hand-held controllers that the students use to answer or respond to questions on a Power-Point or a stand-alone application. When all of the students answers are entered, a graph will appear on the screen displaying results. Once again, this appeals to the students need and desire for immediate feedback.

Classroom without Walls

The final step to creating a 21st Century classroom is for the teacher

and students to look at their classroom as though it is without walls.

A classroom without walls allows students and teachers to make many global connections. By creating a blog, students can interact and share experiences with students all over the world. Websites like ePals encourage the process of connecting classrooms across the globe for teachers without their own website or blog.

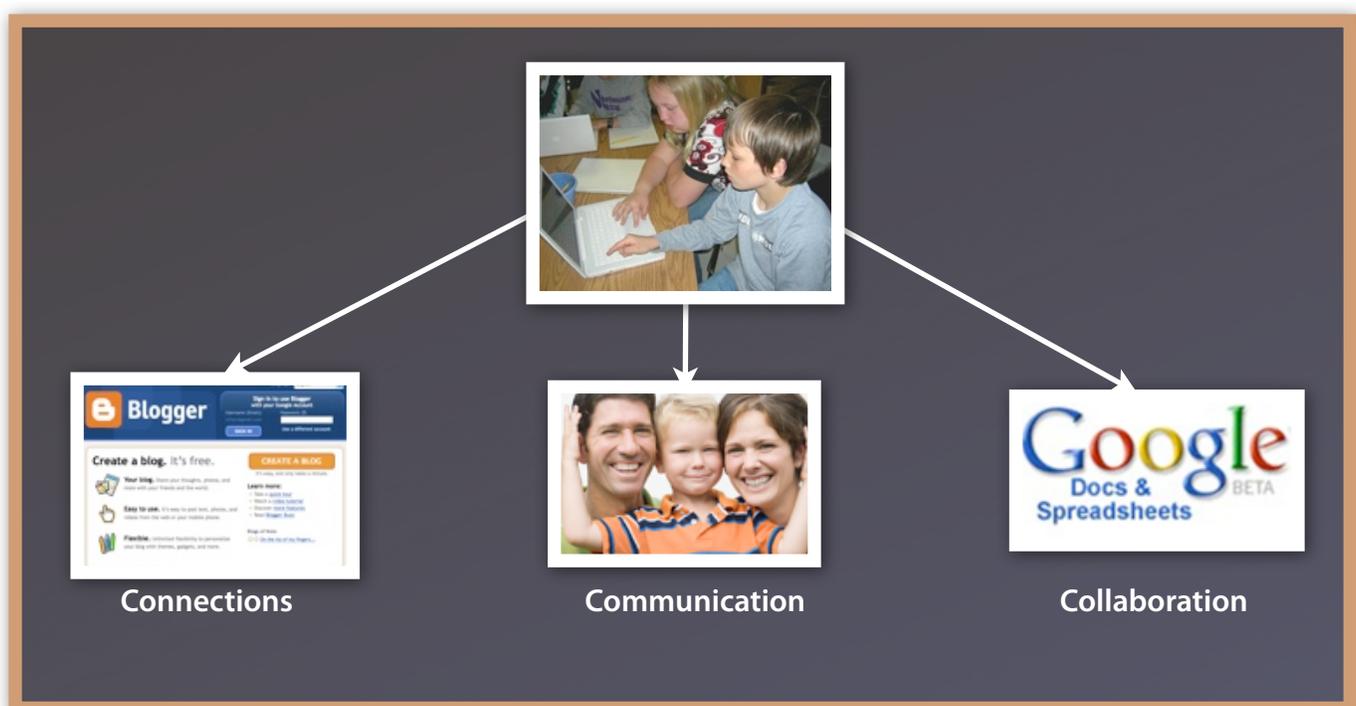
A classroom without walls allows students and teachers to make connections all over the world. By creating a blog, students can interact and share experiences with students from Australia. Websites like ePals encourage the process of connecting classrooms all of the world for teachers without their own website or blog.

Classroom and school websites are an invaluable tool for communicating information. These sites allow access for both parents and students to find and interact with information about curricular and

school activities. By posting student work or homework on the web, teachers encourage a shared learning experience between students, their parents, and their relatives.

Lastly, by using web-based resources, students and teachers collaborate with each other easier than ever before. Applications like Google Docs allow people to collaborate and share documents with anyone anywhere in the world. Programs like Skype or AOL Instant Messenger allow people to speak or video chat with others across the globe.

Many of these resources could have been not imagined in the peoples homes, let alone in the classroom less than 10 years ago, but because they are here, and readily available, teachers should take full advantage of these web-based opportunities to provide the ultimate learning experience for digital native students.



Out with the Old. In with the New.

20th Century Tool	21st Century Tools
Chalkboards	Interactive Whiteboards made by Promethian or SMART Technologies provide interactivity that allow students to physically touch the board. Mimio is a lower cost solution that makes existing whiteboards interactive.
Globes and Maps	Google provides many fantastic resources for maps. Google Earth is a free application that allows users to navigate 3-D versions of the Earth. Google Maps integrates satellite imagery with
Scantron/ Pencil and Paper Tests	There are many software or web-based alternatives to traditional assessments. Websites like Quia and Content Management Systems like Moodle and Joomla provide robust options for testing. Not only grading done automatically, but reports can be customized to provide full item or standard analyses. In addition to these applications, a Student Response System provides an interactive form of assessments that allowing students to click their answer along with a PowerPoint quiz.
Encyclopedias and Dictionaries	Free and web-based alternatives provide credible resources for students and adults. Apple's OSX provides a built in dictionary, and despite some concerns about credibility, Wikipedia provides over 2.5 million articles as opposed to World Book's 150,000 published entries.
Slide Projectors	Programs like Keynote and PowerPoint have become increasingly more multi-media friendly in the last decade. In addition to these paid applications, there are many web-based slideshow applications that are entirely free to use.
Overhead Projector & Transparencies	To save on copying costs, try converting documents to PDF and displaying them with a projector. Not only can students see better, but using by using a tablet or other interactive device, you can actually write on the PDF files, and save your notes for future use.
Tape Recorders	Listening centers are a very important part of an elementary classroom. iPods are quickly proving to be a more than capable replacement for the traditional tape player. Teachers can share listening libraries and student projects. Not only can the iPod be used as a player, but with a \$29 stereo headset for the iPhone it can be used as a digital voice recorder.

Not Just Pencil and Paper

4th Grade Desert Biome Test

Use the notes that you compiled from your webquest to help answer the following questions.

Question 1 of 12 Go to 1 - Not answered Go

Desert Descriptions

1. Deserts included all of the following except:

- Extreme Dryness
- Heat
- Cold Nights
- High Humidity

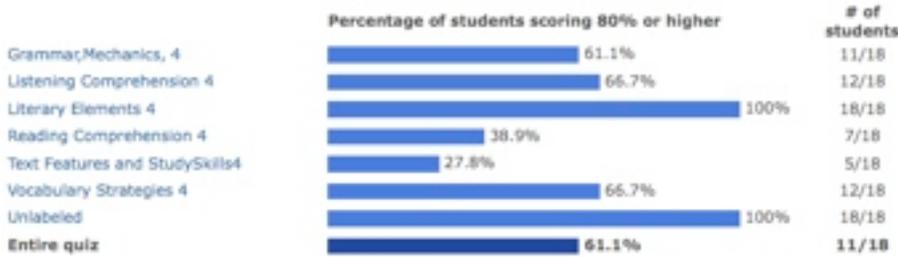
Quia (www.quia.com)

Quia is a web-based resource that is available on a subscription basis. Teachers have access to creating a variety of web-based activities that students have access to from either home or school.

In addition to the activities, Quia also offers teachers the chance to create online tests and quizzes. Students can be assigned a log-in automatically, or student information could be imported.

Once as student has logged-in and taken a test or quiz, the results are automatically saved for the teacher, and the student may be shown their score.

Proficiency assessment



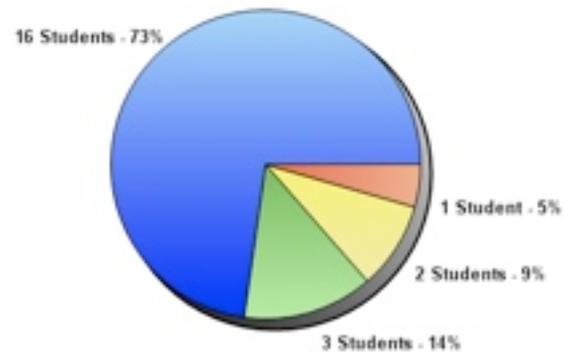
Assessment Reporting

One nice feature of web-based or quiz software is the ability to create reports. Depending on the program, the reports may have many options.

Many programs offer the ability to do an item analysis, or simply act as a grade book for your class.

Some advanced programs are aligned with state standards to measure the proficiency of the students based on the state learning standards. This data collection can be vital for RTI or identifying at risk students.

Proficiency Groups



School: Windsor
 Report Label: Strand Proficiency Report
 Curriculum: Treasures Grade 2

Treasures Grade 2
 Level 1
 Level 2
 Strand
 Standard

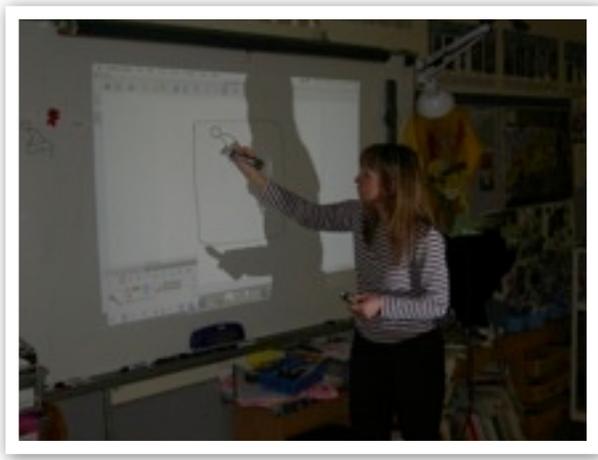
System Default Scale

Proficiency Levels

- Below Basic
- Basic
- Proficient
- Advanced

Name	Comprehension Skills	Grammar	Mechanics and Usage	Phonics and Decoding	Vocabulary Skills and Strategies
	Test	Test	Test	Test	Test
Cyr, Jodi	1	1	1	1	1

The Interactive Classroom



Mimio (www.mimio.com)

The Mimio Interactive White Board provides teachers and students the convenience of a SmartBoard at a lower price. Instead of touching the board, Mimio utilizes a stylus and software package that allow you to write on your computer as well as manipulating the computer like a mouse.



Turning Technologies (www.turningtechnologies.com)

The TurningPoint student response system allows teachers to turn a simple PowerPoint into a quiz or test. Each slide holds a multiple choice question, after the students answer the question, the class results are displayed graphically on the screen.



Edublogs (www.edublogs.org)

Edublog is a free resource for teachers that allows them to utilize WordPress blog software to create an interactive blog for their students.

Teacher can create class accounts for students and allow them to make posts, or simply respond and comment on other post. Security settings ensure that teachers can maintain full control over the blog for safety concerns.

Activity Ideas

Mimio Idea:

- Using the Mimio Studio software, or your favorite graphical organizer software, create a graphic organizer and allow the students to manipulate the pre-made content into an organizer of choice.

TurningPoint Idea:

- Utilize the student response system for your next pre-test to a unit. Create a quiz on the upcoming unit, and use the information collected to help you teach the unit, as well as preview the unit for students.

Blog Idea:

- Use the blog to create a book report blog where students post reports on books they have read, and have students post their comments or questions.

Student Generated Content

Using iPods and Keynote to Tell a Digital Story



iPod Nano



Apple Stereo Headset for iPhone



Apple Keynote '08 or '09

Digital Storytelling with the iPod Nano

Classrooms from kindergarten to fifth grade have been able to use the iPods for their own digital stories. To do this, use the iPhone stereo headset, and plug it into the iPod Nano.

Once the headset is plugged in, an options for voice recordings will appear. Simply record your information as a voice recording.

When all of the students are done recording, connect the iPod to your computer, and you can download the recordings through iTunes, or you can access the iPod as a disc, and simply copy the recordings out of the recording folder.

If the Keynote presentation is completed, drag and drop the matching recording to its slide. To save the presentation for the web, click on File, and then click Export.

Select Quicktime movie, and choose medium quality. Make sure to set the automatic timing to 5 seconds for any slide without the recordings. The slides will last the length of the recording. The file will be saved in a format that can be easily shared online.



Finished Quicktime Movie

Published online

3.7 mb

The 21st Century and Beyond



There is no one definitive way to design the perfect 21st Century classroom. Often times the class will be dictated by the strengths and skills of the teacher.

However, it is important that teachers possess the ability to think



Technology provides our students with very exciting opportunities for learning and growth. Today's students will be the professionals of tomorrow and teachers have the opportunity to create an educational environment that will provide them with the best opportunities for their futures.



outside of the box and look at technology as a way to help their digital native learners.

Technology is ever changing, and may be very different in a short time from now. This is why it is important to be flexible and willing to adapt to change.

