
Instructor HIGH-TECH Toolkit



**Created by Cathy Jenner and Cheryl Culwell
UDL Project, 2002-2008
June 2007**




Renton Technical College



Table of Contents

Opening	3
High-Tech Multi-Modal Teaching Strategies	4
Auditory Technologies	4
Visual Technologies	5
Kinesthetic Technologies	6
High-Tech Multi-Modal Learning Technologies	9
Free Stuff	11
High-Tech Lending Banks – “Try Before You Buy”	11
Instructor Resource Room	12
What about Other Colleges?	12
Collaboration is the Key	13
For More Information	13

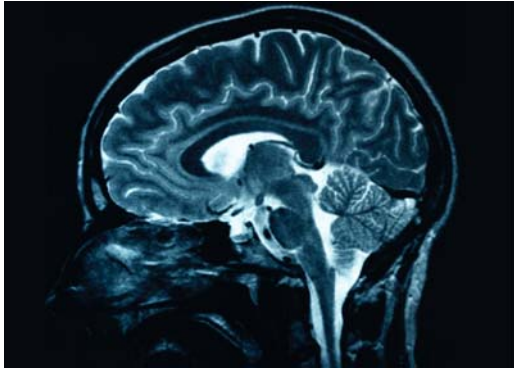
If you are reading this on a computer and the link doesn't work or if you are reading this on paper and you want to try the link, copy the link and paste it into the URL address box of your internet provider.



This publication including introductions to assistive technologies and closed caption video clips of interviews with administrators, counselors, instructors and students is available on CD upon request. See page fourteen for Contact Information.

This publication and the UDL Project are supported by the D.O.E.'s Office of Post Secondary Education, Demonstration Project: ESDRQE, 2005 and the Washington State Board of Community and Technical College Best Practice Innovation Grant.

Renton Technical College does not discriminate on the basis of race, color, national origin, sex, disability, sexual orientation, or age in its program and activities. The following person has been designated to handle inquiries regarding the non-discrimination policies: Human Resource Development Director, 425-235-7873



Since 2002, RTC has been training faculty and staff on the use of Universal Design for Learning (UDL). UDL is an emerging technology based on brain research, which promotes **providing increased accessibility for ALL students**. A main tenant of UDL is the use of multi-modal teaching: **using tools and technologies to include as many different senses or modalities as possible when teaching**. Research has shown that using multi-modal teaching techniques, both low and high-tech, greatly increases the chance for

students with learning challenges to succeed. **With the use of UDL, these effective strategies are applied to ALL students**. For more information on UDL, go to the Center for Applied Special Technology website at www.cast.org.

At Renton Technical College, over the last two years, more than 40 instructors have increased their use of multi-modal teaching. Twenty assistive technologies are available for students to use on campus. **RTC uses two Lending Banks, one for instructors and one for students, to make using high-tech tools cost effective and easy.**

We don't often use the senses of taste and smell in the classroom, but we should! They are very powerful in the learning process. Most of us can think of a smell or taste that very vividly brings back a memory. Imagine if you could harness that strong learning catalyst for the classroom!

There are both high and low-tech ways of increasing accessibility to learning. **This publication will discuss**



some of the high-tech tools available to RTC instructors through the UDL project and the Office of Instructional Improvement, with support from the Information Services Department and others.

If you are an RTC instructor and would like to try out some of the technologies you read about in this publication, please feel free to contact us through the Office of Instructional Improvement in Building H211. Contact numbers are provided at the end of this document.

For more background information on using UDL and **low-technology** strategies, please refer to ***Using UDL for Community and Technical Colleges*** on Renton Technical College's UDL webpage: [http://webs.rtc.edu/ii/DSDP Grant/UDL Manual for RTC-pdf.pdf](http://webs.rtc.edu/ii/DSDP%20Grant/UDL%20Manual%20for%20RTC-pdf.pdf)

● High-Tech Multi-Modal *Teaching* Technologies ●

Multi-modal teaching engages as many senses as possible in the learning event. Whatever the lesson content, the best chance for information to “get in” is if the instructor gives it:

- 1) **Auditorily** -through lecture or discussion
- 2) **Visually** -this can be power points, handouts, books, graphs, illustrations, models, etc.
- 3) **Kinesthetically** -through activities and movement

Following are some examples of multi-sensory teaching tools that instructors at RTC are using:



Auditory Technologies:

Podcasting

This is a way to post and distribute electronic media files online. Podcasts provide an easy way to get engaging multimedia content out to a dispersed group of people, who can listen to it whenever and wherever they like.

This site describes Podcasting: <http://www.k12handhelds.com/podcasting.php>.

Two great sites for “how to” make podcasts are: <http://gregspoddingadventure.blogspot.com/> and <http://engage.doit.wisc.edu/podcasting/teaching/index.html>

Digital Recorders

A recorder can digitally record meetings, lectures or dictation. Roland Andersen, Pharmacology Assistant Instructor, uses his digital recorder to record hard to pronounce vocabulary words. While this is helpful to students with dyslexia, it’s also good for students with ESL issues or with any student.



To hear Roland using his recorder, go to this link:

<http://webs.rtc.edu/ii/DSDP%20Grant/DM200010.WMA>

This site describes Digital Recorders <http://www.ahernstore.com/voicerecorders.html>

Screncorder

Captures and records all your desktop activity in minutes - ideal for creating training and support videos or powerful demonstrations!

Click on the following link to see how Beth Hale, Educational Technology Specialist at Renton Technical College, used Screncorder to set up tutorials on how to use a software program called Quia: <http://webs.rtc.edu/ii/Ed%20Tech/quiavideos.htm>

Here is the Screncorder website: <http://www.matchware.com/en/products/screncorder/default.htm>

Speaker systems

Did you know that a majority of listeners with adequate hearing can only understand 75% of the words read from a list? Poor acoustics and distracting background noises can adversely affect a listener's ability to clearly hear oral instructions, which is a decisive factor in comprehension, on-task behavior and ultimately, student performance. Sound field amplification supports better teaching and learning opportunities. For more information, go to this website:

http://www.califone.com/catalog/Installed_Audio-2007.pdf



Visual Technologies:

The most common high-technology strategy for visual augmentation is to use a PowerPoint presentation along with lecture. This involves hooking up a computer to an LCD projector. Instructors using this strategy must be careful to **make the PowerPoint slides supplement the auditory information, not reiterate it.**

Digital Magnifier or Document Display Magnifier

A slightly more sophisticated tool for visual teaching is the Document Display Magnifier. This connects to an LCD projector and can magnify as well as capture the image digitally into memory which can be downloaded to a computer. Instructors use this tool to “blow up” a small 3D object for the whole class to see or to quickly display a written document that hasn't been digitized. The added benefit of the object being scanned into the computer allows for handouts or use in a future presentation.



On the UDL project website, you can view a short video clip of an instructor showing a digital magnifier in use: Click “See Instructor Jack Devine” video or click here:

http://webs.rtc.edu/ii/DSDP%20Grant/Jack%20Devines%20close%20caption%20final_0001.wmv

For more information about the Magnifier go to this link: <http://aver.com/ppd/mechanical.html>

Interactive Whiteboards

Capturing board notes for later review or replay is another easy-to-use high-tech visual strategy. In this case, a large electronic whiteboard is attached to the wall and the instructor uses either specially designed pens or “virtual pens” to write in different colors and take snapshots of the whiteboard screen. These screenshots are downloaded to the computer for replay by students or instructor. Anything that can be projected onto the computer can be recorded and annotated. In addition, the computer can run from the whiteboard so that the instructor can go out to the internet or run a video or PowerPoint presentation, all from touching the whiteboard. This is a wonderful teaching tool for the instructor who likes to stand in front of the classroom, write on the board and move around quite a bit.



To see an interactive whiteboard in action, go to the UDL website and click on “See Instructor Mike Biell” or click here: <http://webs.rtc.edu/ii/DSDP%20Grant/%20Mike%20Biell-Close%20Caption%20Final.wmv>

Want to know more about Interactive Whiteboards? Go to the following two links for more information: <http://www.polyvision.com/products/ts.asp> and http://www.electronicwhiteboardswarehouse.com/front_projection.htm



Mimio

This is another high-tech device for capturing notes and information projected onto a whiteboard for playing later; however, Mimio has the advantage of being highly portable. It is smaller than a laptop and attaches to any whiteboard, wall or writing surface. It can be used with or without an LCD projector and has most of the same features as the interactive whiteboard described on the previous page. It's a less expensive option

than most of the other tools for capturing board notes.

For more information on Mimio, go to <http://www.mimio.com/>

Tablet Laptop or the Hitachi Starboard

Some instructors at RTC prefer the Tablet Laptop or Hitachi Starboard.

Both use a stylus for annotation and capture the images digitally, as well as allow for projection through an LCD projector. The Tablet Laptop also contains an optical character reader for changing handwritten notes into digital text that can be edited. Instructors can write their board notes out in long hand but end up with a word-processed copy! These are both very portable and easy to use with lots of options for color. Another good feature is that because the instructors are

always facing the class, s/he can be better heard. The "down side" is that that the instructor has limited movement since s/he has to stay by the screen.



For more information for the following products click on the websites listed

Tablet PC: http://www.laptopmag.com/Review/review_category.htm?category=tablet

Starboard:

http://starboard.hitachisoft.com/jsp/hitachi/hitachisoft/icg/products/education/index_t.html#???higher

Kinesthetic Technologies:

Teaching through high-tech activities has gotten much easier with the advent of the Internet. There are many free interactive learning activities on the web for instructors to use. Following are 10 links to show you some learning activities:

- <http://www.pbs.org/teachers/>
- <http://www.flashlearninggames.com/>
- <http://flashgames.umn.edu/>
- <http://www.fscreations.com/puzzleview.php>
- [Hollywood Squares User Manual](#)
- [Hollywood Squares PowerPoint Template](#)
- [Who Wants to Be.. User Manual](#)
- [Jeopardy PowerPoint Template](#)
- [Who Wants to Be A Millionaire PowerPoint Template](#)
- <http://teach.fcps.net/trt10/PowerPoint.htm>

Quia

At RTC, Quia is one of the most widely used technologies for creating learning activities. Here is a description from the Quia website: "Quia, located at <http://www.quia.com/web>, is one of the world's most popular educational technology Web sites. It pioneered the "create-your-own" concept, giving instructors the ability to create customized educational software online, built around their own course materials and made available to students over the Web. Quia also offers assessment and analysis tools and classroom management features, like class pages, calendars, and grade books. All features are intuitive and learn-as-you-go—no special training is ever required."

RTC Instructors: To sign up for an account and get some training, contact Instructional Improvement in H211.

Click on the following link to see an example how the RTC Student Success Center uses Quia to help students learn math: <http://www.quia.com/pages/sscmathresources.html>

Eggspert

Is an economical way to add game show excitement to learning. This buzzer system features two modes of operation:

Jeopardy Mode: each of the six colored lights connects to an Answer Button held by a student. Students "buzz in" with their answers and the fastest 'squeeze' lights up the corresponding light and the question goes to that student.

Wheel of Fortune Mode: the teacher squeezes the Control Button, setting Eggspert's lights into motion. The eggs light up in sequence, blinking and beeping one at a time, first rapidly and gradually slower and s-l-o-w-e-r, until only one egg remains lit. The student (or team of students) assigned that color answers a question or completes an activity.



For a link to find out more about Eggspert go to:

<https://www.trainerswarehouse.com/prodinfo.asp?number=GABUZ>.

	Purpose	Pro's	Con's	Estimate
Hitachi Starboard Panel	Functions like a monitor -hooked to LCD projector- writes notes that can be projected to whiteboard, saved to computer, annotated with color, not mobile, stationed at a desk.	Very visual w/colors, captures handwriting, good for instructors who want to save board notes to distribute or re use; pretty intuitive learning.	Instructor not actually writing or standing at whiteboard; expensive!	\$1,764.00
Hitachi Starboard Tablet	Similar to Panel but small and mobile; display is on whiteboard only.	Same as above but also is mobile with wireless interface to projector; allows instructor to walk around classroom while "writing" on whiteboard.	Display is not located on tablet so instructor has to get used to writing while looking at whiteboard. Other 'con's' same as Hitachi Starboard Panel.	\$495.00
Polyvision Board	Large wall mounted interactive whiteboard connected to computer and LCD projector that allows for capture of board notes. Uses "virtual" color pens.	Instructor stands at the whiteboard and uses stylus or finger to write. Very visual. Can run computer from whiteboard to go to internet; captures all screens.	Takes time to learn. Expensive. Not mobile.	\$1,250.00
Mimio	Small portable tool which attaches to any whiteboard or easel and captures notes written with special mimio pens. Can be connected at a later time to computer for download or can function with computer and projector to project and annotate.	Similar outcome as Starboard or Polyvision but less expensive and portable. Includes audio for connecting lecture to board notes. Instructor stands at board or easel.	Possibly not as durable due to portability; steeper training curve. Not as obvious what is being recorded at the time.	\$870.00
Document Display Magnifier	Magnifier which connects to LCD projector and shows objects or documents and captures the display onto hard drive.	No preparation of materials needed; portable; easy to use; good for magnifying paper and technical parts/tools.	No board annotation available.	\$600.00
Tablet Laptop	Laptop with moveable top which turns into a writing area. Captures handwritten notes and turns into text. Allows annotation in colors. Connect to a LCD projector to use in classroom setting.	Portable; Instructor can capture notes projected onto screen and annotate; Same functionality as Starboard.	Not as portable as Hitachi Tablet. Expensive but also includes computer. Doesn't capture notes manually written on a board.	\$2,100.00
LCD Projector	Connects to computer and tools above to display on large screen.	Greatly assists multi-modal teaching by showing computer or DVD's and videos.	Expensive. Easily stolen and highly attractive. Needs to be secured.	\$1250 (includes mounting hardware)
Digital Camcorder with Tripod	For creating demos, videoing student work and lectures; video captured onto computer for easy editing and downloading.	Portable, usually fairly easy to use; students can take come CD's or DVDs.	Easily stolen.	\$550.00
DVD/VCR Player	For playing audio/visual media.	Provides another interesting way of teaching or showing students work.	Easily stolen.	\$130.00
Scanner	For digitizing materials that are in hard copy.	Easy to use.		\$250.00

● High-Tech Multi-Modal *Learning* Technologies (Assistive Technologies) ●



High-tech multi-modal *learning* technologies can be the same as assistive technologies: tools and software programs developed to help a person with a disability or, they can be any software program that incorporates visual, auditory and activities into learning. The UDL project differentiates between high-tech *teaching* technologies (described above) and high-tech *learning* technologies, although there is a great deal of overlap. We consider a teaching technology one that instructors use with the whole class whereas a learning technology is one that a single student uses, possibly as an accommodation.

An example of how these teaching and learning technologies can overlap is found in Richard Nicholls Basic Studies classroom. Richard uses Wynn Reader, a program developed for students with dyslexia or other reading disorders. It has a built in screen reader, masking tools, a talking dictionary, word prediction, color and size-changing capabilities and other features for helping students with visual or dyslexia problems. However, with the UDL paradigm, Richard has his whole class use Wynn Reader to help improve reading skills. This is an example where a technology that is designed for a single student is being used as a teaching technology for the whole class.



For more information on Wynn Reader, go to the website listed below:
<http://www.freedomscientific.com/LSG/products/wynn.asp>

Below are some additional high-tech learning technologies found at RTC. Most of these technologies are pretty intuitive and easy to learn. Students can often teach themselves. Some, however, do require a large training time investment. We've tried to indicate that below.

Text Help Read and Write



This program has many of the same features as Wynn Reader but adds a larger more sophisticated dictionary and editing features. This helps students who need to augment their reading and writing with auditory feedback and who need help building vocabulary. For a description of TextHelp go to this website
<http://www.synapseadaptive.com/texthelp/RW/read & write 1.htm>

Inspiration



This program is a graphic display and organizer for writing with colors, pictures and templates. It's great for students who freeze up at the thought of writing but are good with pictures and art. It's also good for people who "think in charts". They can design their writing projects in boxes and move the boxes around to create the final written product. The templates help students who need to learn how to organize their thoughts. Here is a website with more information on Inspiration: <http://www.synapseadaptive.com/inspiration/default.htm>



ZoomText

A screen reader and magnifier for people with visual problems. This sophisticated program takes some time to learn so is best reserved for those students who really need the magnification and will put the time in to learn the “hot keys”. It’s important to have someone available for training. For more information go to this website: http://www.synapseadaptive.com/aisquared/zoomtext_9/zoomtext_9_home_page.htm



Test Talker

A software program that helps instructors design and offer tests to students who need to have the test read to them. This program takes some time for an instructor to learn and set up tests but it’s very good for students who need that support. A link to Test Talker is: <http://www.synapseadaptive.com/testtalker/testtalker.htm>



Dragon Naturally Speaking

This program allows students to type from speech. It’s a very sophisticated program that requires an initial investment of time to learn and for the computer to “learn” your voice, but many people feel its well worth the time! For more information, follow this link: <http://www.nuance.com/naturallyspeaking/home/>

Assistive Technologies	Purpose	Pro’s	Con’s	Estimate
Wynn Reader	Reads aloud, colorizes, easily changes display, dictionary, word prediction.	Very intuitive and colorful; good for low vision, ESL, reading problems.	Expensive, only reads computer documents converted to Wynn.	\$275/user
Wynn Wizard	Same as Wynn Reader but includes an OCR scanning feature.	Very easy and reliable scanning.	Expensive, only reads computer documents converted to Wynn.	\$945/per
TextHelp Read & Write	Floating tool bar reads screen, extensive dictionary, homophone search, thesaurus, Talking calculator , word prediction.	Works reliably with most other programs, easy to use, site license makes it cost effective.		\$3195 site license
Zoom Text	Enlarges screen, screen reader, colorizes.	Excellent for low vision readers.	A little difficult to learn.	25 user site license=\$4775
Inspiration	Writing tool, graphic organizers, uses pictures and diagrams.	Great templates, good for people who are visual and not good at writing.		60 user site lic.=\$2125
Dragon Naturally Speaking	Computer types while user speaks.	Hands free; good for people with writing difficulties.	Difficult to learn; takes practice; expensive!	8 for \$3680
Test Talker	Converts any test into a spoken format	Good for students with visual problems; ESL students --can help augment visual.	A little difficult to learn; Expensive!	\$400 per
Talking Dictionary	Students can look up words and hear and see them spelled.	Very mobile and easy to use.	Easily stolen.	\$82.00

Free Stuff

Most assistive technologies (AT) are not site licensed and therefore expensive to use for an entire class or large amounts of students. This may change over time as UDL promotes the use of AT for all students, not just those with disabilities. A way around this problem is to use some of the free downloadable (“freeware”) programs that are online.

A site license, as opposed to a single license, refers to a license that allows multiple users to access the program at the same time, usually at a much lower price than paying for the same number of single licenses.

Read Please

This easy to use screen reader can be downloaded for free or bought at a very low price for individual users. Go to this link for more information or to download: <http://www.readplease.com/>



Lens

Lens is a free, easy to use magnifier by ABF software, Inc. This is a great option for people with vision impairment. More information can be found on line at <http://www.abf-soft.com/lens-magnifying-glass.shtml>

Windows Accessibility

Windows has many accessibility features built in including a magnifier, a text reader and even a speech to text device that are easy to use. More information on Window accessibility features can be found at <http://www.microsoft.com/enable/default.aspx>



Because RTC encourages the use of Universal Design, **students do not have to have a disability to access most of the assistive technology available on campus.** Instructors can request to try out a tool, or several, to see if they work for the student. Or, students can access most of the high-tech learning technologies in the Library, Student Success Center and/or Technology Resource Center Open Lab.

Link to the Student Success Center: <http://www.rtc.edu/StudentServices/StudentSuccessCenter/>

Link to the RTC library: <http://www.rtc.edu/library/sitemap.htm>

High-Tech Lending Banks - “Try Before You Buy”

RTC maximized its use of technology by creating two lending banks, one for **teaching technologies** and one for **learning technologies** or assistive technologies. This approach has several benefits:

- 1) Students get their needs met for assistive technology much quicker than if the technology is purchased on an individual basis.
- 2) Both instructors and students can try out several types of technology to find the one that works best for their type of classroom, content and teaching style, at no cost to them and within a very short period of time.



- 3) Campus experts in technologies are created to help mentor other users
- 4) The “fear of commitment” is removed—in other words, instructors or students having to spend large amounts of their budget without a certain return on investment.

To try a technology, instructors at RTC contact the Office of Instructional Improvement and request help. It’s not necessary to know which technology you need; the staff in Instructional Improvement can help instructors figure that out and of course, they can try a variety of different tools at no expense! The UDL grant even has a computer support technician position funded to help instructors get comfortable with some of the more complicated tools.



The Lending Bank also plays an important role for students with disabilities. The Special Needs Population Counselor at RTC, often called the Disabled Student Services counselor (DSS), can access the AT Lending Bank for students with disabilities when working out accommodations. This means that a student can try out several types of AT before the DSS office or funding source ends up buying the one that will help the student at school and on the job. Along with software, the AT Lending Bank includes electronic adjustable workstations, ergonomic chairs and keyboards, voice amplifiers and more.

It’s easy to try before you buy!

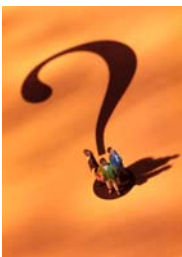
Instructor Resource Room

Another resource available to instructors is the Instructor Resource Room in J214. This private office contains a robust computer with a DVD burner and a high speed printer and scanner. Instructors can go to this office to create handouts on Adobe, scan in old handouts in order to edit them, create captioned video clips, use Screencorder to make computerized demonstrations, access most of the assistive technologies and more. For a complete look at the programs available in the Instructor Resource Room go to this link:



<http://webs.rtc.edu/ii/DSDP%20Grant/What%20is%20in%20the%20Instructors%20Resource%20Room.doc>

What about Other Colleges?



All colleges can improve their abilities to serve students by using the UDL paradigm and increasing multi-modal teaching and assistive technologies. To create a Lending Bank, an initial purchase of equipment must occur but colleges purchase this equipment on an individual student or instructor basis all the time. Diverting some of these funds to create a Lending Bank is extremely cost effective over the long haul in that it reduces “mistakes” in buying technology that doesn’t fit well with the instructor’s or student’s needs. It encourages those who would typically be fearful to buy a new technology to be able to try several since there is no financial risk.

When creating a Lending Bank, start with the tools and technologies that get the most use:

- Teaching Technologies: Digital magnifier and an interactive board/screen capture device and an internet platform for sharing, like Quia, Blackboard, etc.
- Learning or Assistive Technologies: screen readers, magnifiers, standing sitting work station, digital recorders, voice amplifiers, ergonomic keyboards and chairs

Collaboration is the Key



For the UDL and Lending Bank concepts to work successfully, it is important to have good collaboration among several departments. At minimum, the departments who oversee Computer Services, Instructional Professional Development, Student Services and Instruction need to be involved. The leaders of these departments need to discuss the ways that people can be trained to use UDL and how the Lending Banks will function. It may make sense to have the college's Library be the broker of the lending equipment with support from

computer services for installation and removal. There are as many different ways to approach this as there are colleges, but no one department can do it alone!

For more information contact:

Cathy Jenner, (425) 235-2352, ext. 5639
Disabilities Services Project Coordinator
cjenner@rtc.edu

Judith Frey, (425) 235-2352, ext. 2434
Director of Instructional Improvement
jfrey@rtc.edu

Kimberly Loreen, (425) 235-2352, ext. 5750
Administrative Assistant
kloreen@rtc.edu

Cheryl Culwell, (425) 235-2352, ext. 5724
UDL Grant Project Specialist
cculwell@rtc.edu

Susan Clark, (425) 235-2352, ext. 7905
Curriculum & Technology Specialist
sclark@rtc.edu

Eric Depusoy, 425-235-2352, ext. 5702
Computer Support Specialist
edepusoy@rtc.edu

Renton Technical College Website: <http://www.rtc.edu/>

UDL Project Webpage: <http://www.rtc.edu/AboutUs/DSDPGrant>

UDL Project Faculty Webpage: <http://webs.rtc.edu/ii/dsdp.html>