Electronic Portfolios and Standards

Tel-Ed Conference - October 31, 1998

Helen C. Barrett, Ph.D.

Web Site on Electronic Portfolios

http://transition.alaska.edu/www/portfolios.html
Objectives: Participants will:

- Become aware of the planning issues when implementing electronic portfolios
- Become aware of the strategies for authoring electronic teaching portfolios
  - Authoring Software
  - Equipment
  - Process
This session will cover several technology options for organizing electronic portfolios around hypertext links between standards and digital artifacts, including:

» HTML
» Acrobat
» hypermedia programs
Why use technology?
Sheingold’s Reasons (1992)

- To make work in many media accessible, portable, examinable, widely distributable
- To make performance replayable and reviewable; it is important to see more than once
- To address ownership issues of student-created work
- To address storage issues
Why use technology? (Barrett’s assumptions)

- Today, many documents are initially created with a computer, anyway.
- Hypertext links allow clear connections between standards and portfolio artifacts.
- Creating an EP can develop teachers’ skills in using multimedia technology.
- Modeling: A teacher with an EP will be more likely to have students with EPs.
- It’s fun & easier to manage the process!
Why use Standards in Portfolios?

“Standards come alive when they are assessed through performance-based means such as portfolios.”

Assumption:

- As we move to more standards-based teacher performance assessment, we need new tools to record and organize evidence of successful teaching, for both practicing professionals and student teachers.

- This session will introduce a strategy for using Portable Document Format (Adobe Acrobat PDF) files to store and organize Electronic Portfolios.
Pre-Service Teacher Portfolio Process*

- Distinguish between a working and a presentation portfolio;
- Organize a working portfolio according to standards;
- Identify artifacts that denote accomplishments for each standard; and
- Produce a working portfolio.

Scrapbook or portfolio?

“...Tom Bird...asked us to think about the distinction between the teachers’ filing cabinet and the teachers’ portfolio. As teachers, we accumulate a great deal of documentation of our work. But depending on the case we have to make, we draw from the filing cabinet and create a particular portfolio.” (Shulman, 1998)
Electronic Portfolios Cross the Age Span

- Early Childhood
  (with Parent/Grandparent Involvement)
- Elementary School
- Secondary School
- Teacher Education
- Professional Portfolios
Questions

- What are the planning issues?
- What are the commercial options available?
- How can you build your own using “off-the-shelf” software?
- What is your experience?
- Where should we go from here?
Standards aren’t used

As I attend presentations at national and regional conferences, I see a lot of variations on the technologies used to develop electronic portfolios, but very little linkage to the actual benchmarks that students are supposed to be demonstrating.
New Systems Needed

- As we move to more high stakes performance assessments for high school graduation, it will become more critical to have a flexible recordkeeping system that can track these demonstrations of competency in a variety of multimedia formats.
No links to standards

- Too many of the current examples of electronic portfolios, both “classroom-grown” and commercial, focus on the glitz and glamour of high tech multimedia; very few commercial programs provide the capability of directly linking students’ digital portfolio artifacts to the standards for which they demonstrate achievement.
What is a Portfolio?

- A purposeful collection of students' work that illustrates efforts, progress, and achievement
Need to change focus

- The very definition of a portfolio implies a purpose, tied to progress and achievement...but of what? I propose that we need to begin focusing our attention less on the “electronic” and more on the “portfolio” -- the standards that our students need to demonstrate.
Organizing framework

Most states have adopted standards for both students, practicing teachers, and new teachers. These standards form an ideal framework for thinking about organizing an electronic portfolio.
A portfolio without standards:

- is just a multimedia presentation
- or a fancy electronic resume
- or a digital scrapbook
There is a place for that type of format in classrooms or in employment searches, but a savvy administrator will look for evidence that the candidate meets the teaching standards that have been set for the district or state;
● a savvy teacher will look for evidence that a student’s portfolio demonstrates achievement of at least one of the district/state/national standards.
Without standards as the organizing basis for a portfolio, the collection becomes just that...a collection, haphazard and without structure; the purpose is lost in the noise, glitz and hype.
High technology disconnected from a focus on curriculum standards will only exacerbate the lack of meaningful integration of technology into teaching and learning.
What is the best electronic portfolio program?

- It depends!
- on the assessment context
- and a variety of other factors, human and technological, that exist in a classroom, school or district.
## Resource Questions

1. What is the stakeholder’s experience using traditional portfolio-based assessment?

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Limited experience in storing samples of student work in file folders</td>
<td>Regularly uses portfolios as teacher-centered assessment tool</td>
<td>Students and teachers collaboratively select items to go into student’s portfolio, using well-defined rubrics to evaluate student work</td>
<td>Level 3 and portfolios incorporate standards (national, state or district) and stakeholder have access to exemplars for comparison</td>
<td>Level 4 and maintains student-centered assessment environment, including student-led conferences</td>
</tr>
</tbody>
</table>
2. **At what level are the teachers’ computer skills?**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
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<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Limited experience with desktop computers but able to use mouse and menus and run simple programs</td>
<td>Level 1 and proficient with a word processor, basic e-mail, and Internet browsing; can enter data into a predesigned database</td>
<td>Level 2 and able to build a simple hypertext (nonlinear) document with links using a hypermedia program such as HyperStudio or Adobe Acrobat Exchange or an HTML WYSIWYG editor</td>
<td>Level 3 and able to record sounds, scan images, output computer screens to a VCR, and design an original database</td>
<td>Level 4 and multimedia programming or HTML authoring; can also create QuickTime movies live or from tape; able to program a relational database</td>
</tr>
</tbody>
</table>
3. What is the level of student access to computers?

<table>
<thead>
<tr>
<th></th>
<th>1</th>
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<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Little or no access during a typical week</td>
<td>Access to a computer for at least two hours a week; 20:1 student-to-computer ratio</td>
<td>Access to a computer for at least half an hour a day; 15:1 student-to-computer ratio</td>
<td>Access to a computer for at least one hour a day; 10:1 student-to-computer ratio</td>
<td>Access to a computer for at least two hours a day; 5:1 student-to-computer ratio</td>
</tr>
</tbody>
</table>
4. What is the students’ level of technology competence and independence in using a computer? (Is it age-dependent?)

<table>
<thead>
<tr>
<th></th>
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<th>4</th>
<th>5</th>
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<td></td>
<td>Limited experience with desktop computers but able to use mouse and menus, and run simple programs</td>
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<td>Level 4 and multimedia programming or HTML authoring; can also create QuickTime movies live or from tape; able to program a relational database</td>
</tr>
</tbody>
</table>
5. **What technology is already available in the classroom?** Describe computers, including RAM and hard-drive storage capacity, and every 18 months look for the minimum technology capability to double and costs to decrease by half for the same power and capacity.

<table>
<thead>
<tr>
<th>Level</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>No computer</td>
<td>Single computer with 8 MB RAM, 80 MB HD, no AV input/output</td>
<td>One or two computers with 16 MB RAM, 250+ MB HD, simple AV input (such as QuickCam)</td>
<td>Three or four computers, one of which has 32+ MB RAM, 500+ MB HD, AV input and output, scanner, VCR, video camera, high-density floppy (such as a Zip drive)</td>
<td>Level 4 and CD-ROM recorder, at least two computers with 64+ MB RAM; digital video editing hardware and software. Extra Gb+ storage (such as Jaz drive)</td>
<td></td>
</tr>
</tbody>
</table>
### 6. What type of networking is available in a classroom, building, or district? Is there a server?

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No network, only stand-alone systems</td>
<td>Printer sharing and file sharing only via network</td>
<td>Dial-up PPP access to network through 28.8 modem</td>
<td>Ethernet network with 56K access to district server</td>
<td>Full TCP/IP (Internet access at T-1 or Ethernet speed); WWW server in building</td>
</tr>
</tbody>
</table>
7. How much budget is available for additional hardware and software?

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>$300 per classroom</td>
<td>$600 per classroom</td>
<td>$2,000 per classroom</td>
<td>$5,000+ per classroom</td>
</tr>
</tbody>
</table>
8. How much budget is available for staff development (time and cost) and support?

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>After-school workshop or credit class on own time (or both)</td>
<td>Inservice days dedicated to implementation</td>
<td>Release time for teachers to visit other classrooms</td>
<td>Release time and in-class support</td>
</tr>
</tbody>
</table>
Table 4. Commercial software programs that support electronic portfolios.

<table>
<thead>
<tr>
<th>Program</th>
<th>Manufacturer</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grady Profile</td>
<td>Aurbach &amp; Associates (<a href="http://www.aurbach.com/">http://www.aurbach.com/</a>)</td>
<td>Based in HyperCard; currently Macintosh only</td>
</tr>
<tr>
<td>Electronic Portfolio</td>
<td>Scholastic, Inc. (<a href="http://www.scholastic.com/home.htm">http://www.scholastic.com/home.htm</a>)</td>
<td>Based in Scholastic’s Point of View software; currently Macintosh only</td>
</tr>
<tr>
<td>Designer Software Electronic Portfolio Toolkit</td>
<td>Forest Technologies (765 Industrial Dr., Cary, IL 60013; 847.516.8280; fax 847.516.8210)</td>
<td>A HyperStudio template Latest version includes CD-ROM with templates for three age levels</td>
</tr>
<tr>
<td>SuperSchool Electronic Portfolio</td>
<td>SuperSchool Software (<a href="http://www.superschoolsoftware.com/">http://www.superschoolsoftware.com/</a>)</td>
<td>Publisher also has a family portfolio program.</td>
</tr>
<tr>
<td>Electronic Portfolio</td>
<td>LearningQuest (<a href="http://www.learning-quest.com/ephome.html">http://www.learning-quest.com/ephome.html</a>)</td>
<td>Required workshop to begin using program.</td>
</tr>
<tr>
<td>----------------------</td>
<td>----------------------------------------------------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>Persona Plus</td>
<td>PersonaPlus (<a href="http://www.personaplus.com/">http://www.personaplus.com/</a>)</td>
<td>A comprehensive performance-based assessment system</td>
</tr>
<tr>
<td>IBM's SchoolVista Assessment Suite</td>
<td>IBM Corporation (<a href="http://www.solutions.ibm.com/k12/solutions/tools/svasse">http://www.solutions.ibm.com/k12/solutions/tools/svasse</a> ss.html)</td>
<td>Windows only - includes the Authentic Assessment Tool (non-networked) and Traditional Assessment Products</td>
</tr>
</tbody>
</table>
Table 5. Construction processes: A comparison.

<table>
<thead>
<tr>
<th>Process</th>
<th>Multimedia Presentations</th>
<th>Electronic Portfolios</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decide</td>
<td>Decide on presentation goals</td>
<td>Determine portfolio goals based on learner outcome goals (which should follow from national, state, or local standards and their associated evaluation rubrics or observable behaviors)</td>
</tr>
<tr>
<td></td>
<td>Describe the audience</td>
<td>Determine and describe the assessment context (as determined above)</td>
</tr>
<tr>
<td></td>
<td>Decide which tools are most appropriate for the presentation context</td>
<td></td>
</tr>
<tr>
<td>Design</td>
<td>Determine audience-appropriate content and presentation sequence, construct flowcharts, write storyboards.</td>
<td>Determine audience(s) for the portfolio—student, parent, college, community? Who are the stakeholders?</td>
</tr>
<tr>
<td>--------</td>
<td>------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Determine audience-appropriate software, storage and presentation medium.</td>
<td>Determine content of portfolio items (by context) and the type of evidence to be collected.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Determine which software tools are most appropriate for the portfolio context.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Determine which storage and presentation medium is most appropriate for the situation.</td>
</tr>
<tr>
<td>Develop</td>
<td>Gather multimedia materials to include in presentation</td>
<td>Gather multimedia materials that represent a learner’s achievement (preferably linked to standards and in a relational database) and include them in the portfolio</td>
</tr>
<tr>
<td>---------</td>
<td>------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Organize in a sequence (or with hypermedia links) for the best presentation of the material, using appropriate multimedia authoring program.</td>
<td>Record student self-reflection on work and achievement of goals</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Record teacher feedback on student work and achievement of goals</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Organize the material using hypermedia links between goals, student work samples, rubrics, and assessment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Record portfolio to appropriate presentation medium and store</td>
</tr>
<tr>
<td>-</td>
<td>Give the presentation</td>
<td>Present portfolio to appropriate audience (by student in age-appropriate situations)</td>
</tr>
<tr>
<td>---</td>
<td>----------------------</td>
<td>------------------------------------------------------------------</td>
</tr>
<tr>
<td>Evaluate</td>
<td>Evaluate the presentation’s effectiveness</td>
<td>Evaluate portfolio’s effectiveness in light of its purpose and the assessment context</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Depending on portfolio context, use portfolio evidence to make instruction/learning decisions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Develop a collection of exemplary portfolio artifacts for comparison purposes</td>
</tr>
</tbody>
</table>
## Comparison of Construction Tools

<table>
<thead>
<tr>
<th>Common development tools</th>
<th>Relational database</th>
<th>Hypermedia “card” file (including templates)</th>
<th>Multimedia authoring software</th>
<th>WWW Pages</th>
<th>Acrobat Reader</th>
<th>Proprietary software</th>
</tr>
</thead>
</table>

| Structure & Links | Structured fields/records/files linked together by common fields | Electronic cards (screens) linked together by “buttons” | Icon-based or time-based multimedia authoring environment | WWW pages viewed with a Web Browser (Netscape or Explorer) using links created in HTML | Postscript-based pages that can be navigated sequentially, or using bookmarks, links, or buttons | Varied: Grady Profile has Hypercard base Personna Plus uses relational database engine |

| Player available | Yes | Yes | Self-contained | Browser (free) | Reader (free) | ? |

| Advantages | Flexible reporting | Network-friendly | Web accessible | Cross-platform | Most flexibility in development CD-ROM | Cross-platform | Web-accessible Cross-platform | Web-accessible Cross-platform | Create files from any application Ideal for CD-R | Pre-designed and structured |

| Disadvantages | Limitation of size of files Requires player | Not directly web-accessible View limited to screen size | Steep learning curve | Multimedia (video) not well integrated Complex authoring | Size of files Limited construction tools | Grady: not Web-accessible, Mac only, inflexible |

| Ease of Use* | 4 to develop 2 to use | 3 to develop | 5 | 2 with editor 4 without | 2 | 2 (Grady) ? (Personna) |

| Technology Required | 3 | 3 | 5 | 4 | 4 | 2 |

| Cost (with Ed. discounts) | $49 | $39-$199 | $150-$1,000 | $49-$79 | $49 | Grady $195 Personna ? |
# Electronic Portfolio Development Tools

## Software environment
- **Relational data base**

## Common Development Tools
- Filemaker Pro, Microsoft Access

## Structure and links
- Structured fields/records/files linked together by common fields

## Advantages
- Flexible reporting
- Network-friendly
- Web-accessible
- Cross Platform
- Most effective in tracking and reporting achievement of standards

## Disadvantages
- Limitation on size of files
- Requires player
- Requires higher skill level to develop

## Ease of Use
- **4** to develop
- **2** to use

## Technology Required
- **3**

## Cost with ed. discounts
- **$49-$199**

## Player available
- Yes - free

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**Electronic Portfolio Development Tools**

<table>
<thead>
<tr>
<th>Software environment</th>
<th>Hypermedia “card” file (including templates)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common Development Tools</td>
<td>HyperStudio, Digital Chisel, HyperCard, Toolbook</td>
</tr>
<tr>
<td>Structure and links</td>
<td>Electronic cards (screens) linked together by “buttons”</td>
</tr>
</tbody>
</table>

**Advantages**

- Widely accessible in classroom. Construction and display tools available in one program.

**Disadvantages**

- Not directly web-accessible. View limited to screen size. Effort required to link standards and portfolio artifacts.

<table>
<thead>
<tr>
<th>Ease of Use</th>
<th>3 to develop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology Required</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cost with ed. discounts</th>
<th>$39-$199</th>
</tr>
</thead>
</table>

| Player available | Yes - free |

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Electronic Portfolio Development Tools

**Software environment**
- Multimedia authoring software

**Common Development Tools**
- Macromedia Authorware, Director

**Structure and links**
- Icon-based or time-based multimedia authoring environment

**Advantages**
- Most flexibility in developing for CD-ROM publishing. Cross-platform.

**Disadvantages**
- Steep learning curve. Effort required to link standards and portfolio artifacts.

**Ease of Use** 5  
**Technology Required** 5  
**Cost with ed. discounts** $150-$1000  
**Player available** Self-contained files

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Electronic Portfolio Development Tools

Software environment

**World Wide Web Pages**

Common Development Tools

Adobe PageMill, Claris Home Page, Microsoft Front Page, many more

Structure and links

WWW pages viewed with a Web Browser (Netscape or Explorer) using links created in HTML

Advantages


Disadvantages

Multimedia (video) not well integrated. Complex authoring environment.

Ease of Use

2 with editor
4 without

Technology Required

4

Cost with ed. discounts

free - $99

Player available

Web browser - free
<table>
<thead>
<tr>
<th>Software environment</th>
<th>Adobe Acrobat Reader</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common Development Tools</td>
<td>Adobe Acrobat Exchange 3.01</td>
</tr>
<tr>
<td>Structure and links</td>
<td>Postscript-based pages that can be navigated sequentially, or using bookmarks, links, or buttons</td>
</tr>
<tr>
<td>Disadvantages</td>
<td>Size of file. Limited built-in editing tools. Requires another program to create files.</td>
</tr>
<tr>
<td>Ease of Use</td>
<td>2</td>
</tr>
<tr>
<td>Technology Required</td>
<td>4</td>
</tr>
<tr>
<td>Cost with ed. discounts</td>
<td>$49</td>
</tr>
<tr>
<td>Player available</td>
<td>Acrobat Reader - free</td>
</tr>
</tbody>
</table>
Any authoring application

Print to PDF Printer Driver

PDF Writer

Print to File

Postscript printer driver

Postscript file

Acrobat Distiller

PDF File

Edit/Links/Bookmarks
Acrobat Exchange
$40 ed. price

View/Print/Search
Acrobat Reader
(free)

Distribute
Browser
E-mail
Print
CD
File Server
Diskette
Software environment

**Proprietary Software**

Common Development Tools

Grady Profile, Personna Plus

Structure and links

Varied: Grady Profile has HyperCard base. Personna Plus uses relational database engine.

Advantages

Pre-designed and structured.

Disadvantages

Grady: not web-accessible, Mac only, inflexible layout. Personna: ?

Ease of Use

2 (Grady Profile) ? (Personna Plus)

Technology Required

2-4

Cost with ed. discounts

Grady $195

Player available

?
# Electronic Portfolio Development Tools

## Multimedia Slide Shows

### Common Development Tools
- PowerPoint, ClarisWorks Slide Show, Astound

### Structure and links
- Electronic slides, most often shown in linear sequence.

### Advantages
- Commonly-available tool.

### Disadvantages
- Availability of hypertext links between standards and portfolio artifacts.

### Ease of Use
- 3

### Technology Required
- 4

### Cost with ed. discounts
- $29+

### Player available
- None

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<table>
<thead>
<tr>
<th><em>Portfolio Software</em></th>
<th><em>Cost per Machine</em></th>
<th>Appropriate age level (by grade level)</th>
<th>Recommended Level of Technology Infrastructure</th>
<th>Recommended Level of Teacher Technology Competency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open Doc &amp; CyberDog</td>
<td>&gt;$50</td>
<td>4-Adult</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>HTML - Web Pages</td>
<td>$0</td>
<td>7-Adult</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>HTML with Web Authoring tool</td>
<td>~$99</td>
<td>5-Adult</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>HyperStudio</td>
<td>&gt;$129</td>
<td>K-Adult</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Designer Portfolio Template for HyperStudio</td>
<td>$65</td>
<td>K-6</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Grady Profile</td>
<td>$195</td>
<td>Pre-K-6</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>G P Newton Companion</td>
<td>$99</td>
<td>T</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>FileMaker Pro 3.0</td>
<td>~$199</td>
<td>T</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>HyperCard</td>
<td>$199</td>
<td>7-Adult</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Adobe Acrobat Exchange</td>
<td>$149</td>
<td>9-Adult</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Macromedia Director</td>
<td>$499</td>
<td>9-Adult</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Scholastic Electronic Portfolio</td>
<td>$299</td>
<td>K-12</td>
<td>4</td>
<td>4</td>
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<tr>
<td>Learner Profile</td>
<td>$299</td>
<td>T</td>
<td>3</td>
<td>4</td>
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<tr>
<td>Newton or Bar Code Reader</td>
<td>~$400</td>
<td>T</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>KidPix &amp; KidPix Companion</td>
<td>$39</td>
<td>K-4</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
Several Electronic Portfolio examples:

Faculty Portfolio (Adobe Acrobat on CD-R)
University of Alaska Anchorage
Truman State College
Grady Profile Teacher's Portfolio

Templates:
Ed Tech Endorsement
Alaska State Teacher Standards
Alaska State Administrator Standards
Other Examples

- Coalition of Essential Schools Model
- Kathleen Fischer - HTML on WWW
- RMIT (Australia) - HTML on WWW
- Student (Alaska) - HyperStudio
- Teacher (Alaska) - HyperStudio
Electronic Teaching Portfolios

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http://transition.alaska.edu/www/portfolios.html