Creating Assessment Instruments for Technology Products

By Jennifer Drumm

In today’s technology-filled schools, many students complete assignments and prove their understanding of curricular units by creating “technology-generated products.” These “products” fulfill the same purpose as yesteryear’s reports, research papers, etc., but do so with a visual flair and content complexity that wasn’t dreamed of a decade ago. Using desktop publishing programs, students can create brochures, newspapers, and similar products; using other computer applications, they can create multimedia projects, Web pages, videos, and even animation. Such products, when well done, effectively communicate the breadth and depth of a student’s grasp of a subject.

Creating such products has value beyond the academic, however. Using technology to conceive and complete these products helps students make connections between the types of assignments they’re asked to do in school and the real-world work that will be required of them in their professions.

As schools increase the availability of technology to their students, most states are providing guidelines for technology implementation (e.g., Texas Essential Knowledge and Skills for Technology Applications at www.tea.state.tx.us/rules/tac/ch126toc.html). Given the influx of technology into our schools and numerous states’ guidelines for the use of that technology, more and more teachers are becoming familiar with the various types of tools that students can use. Some teachers, however, haven’t yet become technologically proficient themselves and are uncomfortable with their level of technological skill. Not surprisingly, these teachers will have difficulty scoring or assessing their students’ technology-generated products. Hopefully, the ideas presented in this article will help such teachers with that assessment process.

Assessment

When creating assessment instruments to evaluate student products, it’s important to determine what constitutes acceptable evidence that a student has achieved the desired results. In Understanding by Design (ASCD, 1998) Jay McTighe and Grant Wiggins stress the careful planning of instruction and student products. Teachers should design assessment instruments before designing activities, so that lessons and activities are aligned with assessment. Assessment instruments also should align with curricular priorities.

Time is a critical issue when determining the type of instruction and assessment to use. Some topics can be learned quickly and assessed with tests or quizzes, while others demand time for student-material interaction so that students may gain a complete understanding of the subject. Traditional quizzes and tests should be used to evaluate students’ retention of straightforward information such as vocabulary, dates, people, and events. Performance tasks that are open-ended and complex are more appropriate for assessing students’ comprehension of “big ideas” and the connections that occur among different content areas.

If teachers or students select technology as the mode for communicating the depth of the students’ learning and understanding, it’s important for the resultant product to be focused.
Some students get hung up in the design aspects (animation, graphics, etc.) and don’t pay enough attention to a product’s content, the communication of information. This often happens when students are learning how to use a new technology tool and want to play with its features.

When designing an assessment instrument for a technology project, include sections that evaluate the use of the technology as well as the content. Also, construct the instrument so students can learn from the evaluation and can improve their skills or competencies for the next project.

Technology Components of an Assessment Tool
Some considerations for the technology components of an evaluation could be:

Appropriate selection of software tools
- Did the student select the most logical software tool to create the project, and does the project show sufficient evidence of the student’s knowledge of the tool’s use?
- Was the selected tool the most effective and efficient for the task?

Effective use of input tools
- Did the student use the input devices available (microphone, digital camera, scanner, etc.) to enhance the product?

Copyright issues
- Did the student use appropriate citations and follow the rules regarding copyright?

Information validity
- If resources were used in the creation of the product, were they checked for validity?

Communication
- Were text, audio, video, and graphics used effectively to communicate information and make the product interesting?
- Was the layout appropriate to the product’s topic and the audience?
- Were the selected fonts appropriate to the audience and topic?
- If the product was meant to be viewed on multiple computers, was a font selected that was easily readable and common to different operating systems or viewers?

If our goal is to have students create advanced academic products using technology tools available to them then we, as teachers and librarians, have an obligation to create correlative assessment instruments to help students grow and improve.

These suggestions also are components of the Texas Essential Knowledge and Skills for Technology Applications at www.tea.state.tx.us/rules/tac/ch126.html and may be similar to your own state’s guidelines.

Online Assessment Tools and Resources
Online assessment information and tools can help teachers create appropriate instruments for evaluating student products. Listed below are some of these resources.

- Kathy Schrock’s Guide for Educators at school.discovery.com/schrockguide/assess.html provides links to rubric information and articles on the assessment and rubric information page.
- The Rubric Builder at landmark-project.com/classweb/tools/rubric_builder.php3 enables teachers to format and create their own rubrics. Rubrics created by others can be accessed through key word searches.
- The Project Based Learning site at 4teachers.org/projectbased/index.shtml offers an interactive checklist creator for writing, science, oral presentation, and multimedia projects. Teachers select one of the suggested areas, open a menu that allows them to check items to be included, then print the completed checklist.
- Rubistar at rubistar.4teachers.org offers rubrics that can be customized. The templates include content areas such as research and writing, multimedia, work skills, art, and music. Once a template is selected, teachers choose a rating scale and categories to be included, and the site automatically inputs the information. Specific descriptions in the rubric can be modified and saved.
- The Staff Room for Ontario’s Teachers at www.odyssey.on.ca/~elaine.coxon/rubrics.htm has many sample assessment instruments for teachers.
- A basic rubric template that describes each evaluative category can be found at edweb.sdsu.edu/triton/july/rubric/Rubric_Template.html.
- Houston ISD sponsors a Young Authors’ Digital Publishing Fair and has published the rubrics at dept.houstonisd.org/tdprojects/BookFair/Forms/rubrics.htm.

Online sources of rubrics and checklists can help teachers feel less as though they’re starting from scratch. In addition, many of these sites supply examples of already-created rubrics that teachers may use as is or as a foundation for their own rubrics. When seeking online templates, however, keep in mind that different sites are appropriate to different levels of knowledge. The Project Based Learning checklists, for instance, are easy to use and create online, while the Rubie Builder provides only a basic checklist format,
Rubrics vs. Checklists
Rubrics tend to be more specific, and thus, perhaps more useful, than checklists. When a project is assigned, a rubric can provide students with detailed information about a teacher’s expectations for their work. When projects are completed, a rubric’s descriptions of each area of assessment can help students analyze their work and improve future products. Students can even evaluate their own work based on a rubric’s categories and levels.

Look at the following examples of a checklist and of a rubric for a student-created Web page.

Our Solar System
- Working knowledge of the html editing program is exhibited.
- Colors and fonts are appealing.
- Graphics add interest to the site.
- Information on each planet is included.
- Student-documented resources.

The checklist above is limited in what it allows teachers to indicate about a student’s work. Essentially, it records only whether a student did or didn’t complete (or include) various project requirements.

A rubric for the same product is more descriptive and thus gives students much more information about their degree of completion and mastery.

As you can see, rubrics can contain different sections for content objectives and technology-use objectives, making them quite useful to students and teachers. Furthermore, providing students with detailed rubrics before they begin a project can help them determine important aspects of their product and stay focused. Points could even be distributed to represent the focus of a project, with points awarded appropriately.

If our goal is to have students create advanced academic products using technology tools, then we, as teachers and librarians, have an obligation to create correlative assessment instruments to help students grow and improve. The resources discussed in this article can make this task easier by providing guidance for the creation of such instruments.

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