LoTi Framework

Assessing Teacher’s Use of Technology

Level 0

Category: Non-use

Description: A perceived lack of access to technology-based tools or a lack of time to pursue electronic technology implementation. Existing technology is predominately text-based (e.g., ditto sheets, chalkboard, overhead projector).

Classroom Observations:
• There is no visible evidence of computer access in the classroom.
• Classroom computers sit idle during the instructional day.

Teacher Comments:
• “I really don’t have the time to deal with computers anyway.”
• “They are still figuring out a way to get me hooked up to the Internet. I can’t start using this stuff until I know that I am connected.”
• “Using computers is the least of my problems this semester. Have you seen my class enrollment?”
• “Using computers gets in the way of what I am suppose to be doing.”
• “My computer crashed and burned on me a few years ago. I am still waiting for someone to fix it.”
Level 1

Category: Awareness

Description: The use of computers is generally one step removed from the classroom teacher (e.g., integrated learning system labs, special computer-based pull-out programs, computer literacy classes, central word processing labs). Computer-based applications have little or no relevance to the individual teacher’s operational curriculum.

Classroom Observations:
- Available classroom computer(s) are used exclusively for teacher productivity (e.g., email, word processing, grading programs).
- Multimedia applications (including web-based) are used to embellish classroom lectures or teacher presentations.
- Curriculum management tools are used extensively to generate standards-driven lesson plans.

Teacher Comments:
- “This grading program is fabulous. I can generate an average for each student or print out any outstanding assignment. Computers are great!”
- “I basically send my kids to the computer lab where they learn how to use it. The kids love it.”
- “I designed my own web-page so that students can view their weekly assignments.”
- “My students go to the lab each Tuesday. This frees me to catch up on my grades or meet with parents.”
- “Our staff attends a bimonthly computer camp with our technology coordinator. This month we are learning how to design a web page. I’m hoping that I can put all of my recipes on this page. That would be great!”
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Level 2

Category: Exploration

Description: Technology-based tools generally serve as a supplement to the existing instructional program (e.g., tutorials, educational games, simulations). The electronic technology is employed either as extension activities or as enrichment exercises to the instructional program and generally reinforce lower cognitive skill development (e.g., knowledge, comprehension, application).

Classroom Observations:
- Student projects (e.g., designing web pages, research via the Internet, creating multimedia presentations, creating graphs and charts) focus on lower levels of student cognition (e.g., creating a web page to learn more about whale species).
- There is greater emphasis on the technology rather than on the critical content (e.g., “My students’ project was to create a WebQuest using Inspiration and HyperStudio. The topic was the California Gold Rush.”)
- Computer use serves as a reward station or as a digital babysitter.
- Students were gathering weather data and keyboarding the information into a wide-area network database (e.g., GLOBE project).

Teacher Comments:
- “My students have built some very sophisticated and impressive multimedia applications during the year. Some of their projects even look professional.”
- “When students finish their packets early, they often go back to the computers and practice their computer skills.”
- “My students created our school’s web page.”
- “My kids graphed some data from an AIMS activity last week. They love the way the graphs look on the screen.”
- “We are running a school-wide contest on the best HyperStudio presentation this month.”
Level 3

Category: Infusion

Description: Technology-based tools including databases, spreadsheet and graphing packages, multimedia and desktop publishing applications, and Internet use augment selected instructional events (e.g., science kit experiment using spreadsheets/graphs to analyze results, telecommunications activity involving data sharing among schools). Though the learning activity may or may not be perceived as authentic by the student, emphasis is, nonetheless, placed on higher levels of cognitive processing (e.g., analysis, synthesis, evaluation).

Classroom Observations:

• Student use of tool-based applications such as spreadsheets/graphing, concept mapping, and databases is used primarily for analyzing data, making inferences, and drawing conclusions from an investigation or related scientific inquiry.
• Students are involved with different forms of “WebQuest” projects that require students to research information, draw conclusions from their research, and either post them to a web page or incorporate them into some form of multimedia presentation.
• Students use the web for research purposes or interact with selected software applications that require them to take a position or role play an issue (e.g., Tom Snyder Productions’ “Decisions, Decisions”).

Teacher Comments:

• “My students just completed a research project investigating why many middle school students never use the school’s drinking fountains.”
• “I designed a culminating performance task for my 4th grade students that required them to conduct web-based research and related data gathering to support their predictions for the upcoming Presidential election.”
• “My students created a multimedia presentation that analyzed the issue of poverty among 18-25 year old adults.”
Level 4A

**Category:** Integration (Mechanical)

**Description:** Technology-based tools are integrated in a mechanical manner that provides rich context for students’ understanding of the pertinent concepts, themes, and processes. Heavy reliance is placed on prepackaged materials and outside interventions that aid the teacher in the daily operation of their instructional curriculum. Technology (e.g., multimedia, telecommunications, databases, spreadsheets, word processing) is perceived as a tool to identify and solve authentic problems perceived by the students as relating to an overall theme/concept. Emphasis is placed on student action and issues resolution that require higher levels of student cognitive processing.

**Classroom Observations:**
- Students designed a school-based information kiosk to assist their classmates with various “safety” issues including map directions to school based on the time of day, neighborhood watch sites, and “just-say-no” strategies to use with strangers. The information collected for the information kiosk was supplied from student-generated surveys, field investigations, and personal interviews.
- Students organized a school fund-raiser to raise money for one of the international “solar cooker” societies based on their research, experimentation, and data gathering with homemade solar cookers.
- Students created a travel brochure for families traveling within the state of Florida that included: (1) a guide for selecting the best modes of travel based on the time of year, (2) recommended lodging based on information collected from various travel sites, and (3) a listing of the best destination sites based on criteria established by the students.

**Teacher Comments:**
- “The creation of the information kiosk idea was based on an existing unit that I borrowed from one of the 5th grade teachers.”
- “I used an existing unit design published by a software company that provided an easy way to design my culminating performance task and the student experiences leading up to the fund-raiser.”
- “The travel brochure which we used as a part of the culminating performance task was developed by a consultant with assistance from the 4th grade teachers.”
Level 4B

**Category:** Integration (Routine)

**Description:** Teachers can readily create Level 4 (Integrated units) with little intervention from outside resources. Technology-based tools are easily integrated in a routine manner that provides rich context for students’ understanding of the pertinent concepts, themes, and processes. Technology (e.g., multimedia, telecommunications, databases, spreadsheets, word processing) is perceived as a tool to identify and solve authentic problems relating to an overall theme/concept.

**Classroom Observations:**
- Based on the rise in student violence on campus, students prepared a multimedia presentation highlighting their recommended mediation strategies using data synthesized from school-wide surveys and from the Internet.
- Students created a web site devoted to exploring solutions to the steady increase in solid wastes entering the local landfill.
- Students prepared a multimedia presentation highlighting the misconceptions and omissions in history text books concerning the contributions of their specific ethnic group. Presentation was later burned onto a CD for submission to the various textbook publishers for consideration.
- Students investigated options for salvaging the local “fish ponds” as a way of preserving their native Hawaiian culture. Students prepared a community campaign including the creation of a web-page to persuade the voters not to approve a local housing tract proposal that would jeopardize the integrity of these ancient fish ponds.
Level 4B (cont.)

Teacher Comments:
- “Our student mediation unit was prompted by the recent rise in fights on campus. Many students expressed concern for their personal safety and the safety of others at school.”
- “I first converted several digital images into a Power Point presentation to get my students thinking about the waste disposal issue and asking questions.”
- “I presented students with an assignment to read different accounts of a historical event which later lead to a lively discussion on how history is presented in various textbooks.”
- “We took the students on a field trip to a local fish pond to investigate the potential impact of the proposed housing development on the preservation of this ancient site.”
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Level 5

Category: Expansion

Description: Technology access is extended beyond the classroom. Classroom teachers actively elicit technology applications and networking from business enterprises, governmental agencies (e.g., contacting NASA to establish a link to an orbiting space shuttle via Internet), research institutions, and universities to expand student experiences directed at problem-solving, issues resolution, and student involvement surrounding a major theme/concept.

Classroom Observations:
• Students created an actual online business venture involving cosmetics and jewelry as a culminating performance task in their marketing class.
• Students started their online consumer awareness clearinghouse that provided up-to-date information on “best prices” for travel, goods and merchandise, and services based on data collected from their research and online surveys with other schools.
• Using video cameras, NASA and NOAA images, and related weather and mapping data, students assisted a hiker in his goal to conquer the Continental Divide Trail from Mexico to Canada. Communicating via email, students were able to provide daily information on the best routes based on projected weather reports and various typographic information.

Teacher Comments:
• “Students got the idea for starting a business venture online after they read a series of articles discussing the pros and cons of online businesses and their success rates.”
• “It was amazing! Many of the students already knew how to use these Internet tools such as Any Forms and writing simple CGI scripts.”
• “Assisting their hiker friend was the highlight of the day. Since we were limited on time in class, students did the majority of their research online at home.”
Level 6

Category: Refinement

Description: Technology is perceived as a process, product (e.g., invention, patent, new software design), and tool toward students solving authentic problems related to an identified “real-world” problem or issue. Technology, in this context, provides a seamless medium for information queries, problem-solving, and/or product development. Students have ready access to and a complete understanding of a vast array of technology-based tools to accomplish any particular task.

Classroom Observations:
- Students designed an interactive web site for bilingual children to expedite their English language proficiency. The site included options for real-time conversations, tutorial sessions, and bilingual online bulletin boards.
- Students created a new type of housing design using some sophisticated CAD programs to improve the amount of heat transfer in future homes.

Teacher Comments:
- “Every student has access to computers, video cameras, scanners, Internet, and any other technology-based application at any time during the instructional day. Doesn’t everyone?”
- “We have computers embedded in every desk and in every classroom on campus. Students can use them at any time.”
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LoTi Framework Notes