

APPENDIX

Technology Assessment Instruments

This Appendix contains rubrics and checklists to help teachers assess their uses of technology in the classroom. Each instrument has been selected as the best and most useful of its kind. The following are included in this Appendix:

- A.1** Rubric for Assessing School/District Technology Plans 336
- A.2** Rubric for Assessing Cooperative Group Work 339
- A.3** Technology Impact Checklist: Is the Activity Working? 340
- A.4** Technology Classroom Impact Rubric 341
- A.5** Essential Criteria Checklist for Evaluating Instructional Courseware 342
- A.6** Rubrics for Self-Assessing Personal/Professional Productivity Skills 343
- A.7** Criteria for Evaluating Commercial Multimedia Software Products 345
- A.8** Criteria for Evaluating Multimedia Projects 346
- A.9** Rubric for Assessing Interactive Qualities of Distance Learning Courses 347
- A.10** Rubric for Assessing Middle School Web Pages 349
- A.11** Checklist of Criteria for Evaluating Web Sites 350
- A.12** Web Page Evaluation Rubric 351
- A.13** WebQuest Rubric 352

Figure A.1 Rubric for Assessing School/District Technology Plans (Kimball & Sibley, 1998)

Criteria	1	2	3	4
Broad-Based Support Contributions (Administration, Teachers, Students, Community, Staff)	A list of contributors is not provided.	A list of contributors is provided but does not describe their constituencies. Equitable representation is not apparent because of a lack of detail.	A comprehensive list of contributors describes their constituencies. Representation is provided by at least three of the objective's, five areas. The principal is included.	A comprehensive list of contributors describes their constituencies. Representation is across all five areas of the objective. The principal is included.
Broad-Based Support Process	No process for equitable representation is described.	The process to ensure equitable representation is briefly mentioned, not emphasized.	[blank in copy]	The process to ensure equitable representation is emphasized and mentioned in detail.
Breadth of Needs Assessment	A needs assessment is not provided.	A needs assessment is referenced but covers only one element of the school environment (equipment or staff development, but not both).	A needs assessment is referenced and more than one element is analyzed, but it does not completely assess staff, student, and community needs.	The needs assessment is comprehensive and consists of detailed information about staff-development needs and competencies, attitudinal surveys, equipment inventories, and school and district context.
Depth of Needs Assessment	Broad generalizations are made about what the school needs but without reference to an assessment.	A needs assessment is referenced, but the instrument is informal, brief, and not specific. For example, a computer count is provided without details on where or how they are used.	A needs assessment is referenced with some level of detail, although the instrument and data are not provided and additional detail may be needed on collection and analysis.	The assessment in any given area is detailed and thorough. The instrument and generalizations about the data are provided. Raw data may be included in an appendix.
Needs Assessment of Equipment	No equipment inventory is provided.	An inventory exists only for computers and without indicating vintage.	The inventory moves beyond computers to include phones and television, but it does not address infrastructure or equipment vintage.	A comprehensive equipment inventory includes computers, infrastructure, access, interactive television, telephones, and other equipment.
Mission and Vision	No clear mission or vision is articulated.	Vision is skill-based only and does not address larger school or district outcomes.	Vision focuses on technology outcomes and avoids presenting a learning outcome.	Vision is comprehensive and deals with large learning outcomes of students, not just technology outcomes. The statement identifies the learning process skills and values.
Goals and Objectives	General learning goals are unclear or absent.	Goals are equipment-based instead of based on learning outcomes. Objectives are unlinked to goals or absent. Objectives or goals are neither measurable nor obtainable.	Goals are broad and comprehensive but not completely clear. They are linked to objectives but are not readily obtainable or measurable. Goals are loosely tied to state or district documents.	Goals are broad and comprehensive, addressing teaching and learning needs, as well as being clear, attainable, and measurable. Objectives are delineated from goals and further define how they will be met.
Action Plans with Timelines, Responsibilities, and Budgets	An action plan exists, but timelines and responsibilities are nonexistent or limited. Assessment is not mentioned. The plan is not curriculum-based.	The action plan is tied specifically to the goals and objectives, although identified task, timeline, responsibility, funding, and assessment are incomplete and several elements are missing.	The action plan is tied specifically to the goals and objectives. Identified task, timeline, responsibility, funding, and assessment components are thorough, although one or more elements are missing.	The action plan is tied specifically to goals and objectives. Each task identifies a task, timeline, responsibility, funding, and assessment.

Figure A.1 Continued

Criteria	1	2	3	4
Program Integration	The document never mentions connections with other efforts.	The TUP mentions other efforts but is not explicit in connecting with them.	The TUP is loosely coupled to other documents and needs, and program changes are integrated much of the time.	The TUP is tightly coupled to the other reform, curriculum, or accountability documents, with the approach fully integrated.
Curriculum Integration	The plan focuses on technology outcomes and skill-based goals, and does not address how it can enhance curriculum.	The plan mentions curriculum integration and enhancement but lacks detail.	The plan specifically identifies how the curriculum can be enhanced by the use of technology with detail. A technology-rich environment is described, but strategies for enhanced teaching are not explored thoroughly.	The plan specifically identifies not only how technology enhances the curriculum, but also what a student using the technology may do in such an environment. The plan addresses strategies of teaching and learning that can be enhanced as a result of technology integration.
Evaluation	No formal evaluation is described.	An evaluation process is described but without detail, comprehensiveness, or reference to learning outcomes.	An evaluation process and instrument are described in detail, but without comprehensiveness. Links to goals and objectives are not apparent.	An evaluation process and instrument are described in detail and are comprehensive in nature. Evaluation is timely and tied to objectives.
Multiyear Planning	A timeline is not mentioned.	The plan covers only one academic year or project.	The plan covers more than one year but is short-term in nature and does not refer to ongoing planning and support.	The plan is multiyear and shows its links to multiyear funding, support, and planning activities.
Standards	The document does not mention equipment or software standards beyond brand names.	Equipment standards are mentioned but not well specified.	Equipment standards are specific but narrow in scope.	Equipment standards are specific and comprehensive, and a process describes how they will be used.
Funding Alternatives	Funding resources are not mentioned.	Funding is mentioned, but it primarily focuses on budgeting or specific site funding without addressing other income needed to implement the plan.	Specific funding sources are described but limited to traditional sources and without specific budget figures.	Specific funding sources are described, including current and future funding sources; it also includes information on reallocation and use of resources and budget figures.
School Pilot Projects (Research and Development)	No R&D projects are mentioned or planned as part of the project.	R&D efforts are mentioned but lack detail. No timelines, assessments, or scalabilities are mentioned.	Specific R&D efforts are described, but scalability is not articulated. Timelines and measurements are mentioned but are not specific.	Specific R&D efforts are described, with implications for future work (scalability) articulated. The R&D efforts have a timeline and measurable instruments in place.
Educational Research	No educational research is mentioned as part of the project.	Educational research is only broadly mentioned.	Specific educational research is mentioned but without connections to school efforts.	Specific educational research is mentioned and connections are made to school efforts.
Model Classroom Configurations	No classroom or school configurations are described.	Classroom configurations are mentioned but lack detail. (e.g., "there will be three computers and a printer in each room").	Classroom configurations are described in detail but may be restrictive as the "only" right way; typically, only one type of configuration is described.	Classroom and school configurations are specifically described with links to teaching and learning outcomes. They are provided as possible solutions to particular problems but are not prescriptive in nature.

Figure A.1 Continued

Criteria	1	2	3	4
Facilities (Electricity, Security, etc.)	Facilities issues are not mentioned.	Facilities issues are mentioned but lack enough detail to build into an action plan.	Facilities issues are identified and articulated, but solutions and suggestions lack detail or clarity.	Specific facility issues are identified, addressed, and include recommended solutions, budgets, and responsibilities.
Maintenance and Support	No maintenance and support are provided.	Support plans are mentioned but without enough detail or clarity to implement.	Support plans are mentioned with clarity and detail but do not consider long-term issues.	Specific support plans are articulated. This included the process for specific support issues and ongoing equipment replacement, staff development, and repair.
Software Agreements (Site Licensing and Policies)	No software agreements or policies are mentioned.	Software agreements and policies are mentioned, but specifics are not articulated in the plan.	Specific software policy is articulated but not tied to site needs.	Specific software policy is articulated and plans are given for accommodating software needs at the site.
Copyright and Acceptable-Use Policy	No copyright or acceptable-use policy is described.	Copyright and acceptable use are mentioned, but the plan does not articulate specific policies.	[blank in copy]	Copyright and acceptable-use policies are articulated in the document, and samples are available.
Gifts and Disposal	No policy is provided for disposing of and receiving gifts of equipment and services.	Policy is provided but is not clear or articulated.	Specific policy is articulated about disposal and gifts, but it is not tied to the standards.	Specific policy is articulated about moving and disposing of equipment. Gift acceptance is tied directly to standards.
Staff Development	The document does not mention staff development.	Staff development is mentioned but not clearly articulated as to its accomplishment or evaluation.	Staff development is articulated but limited to single modalities and is not clearly supported by resources.	Staff development is addressed either in the action plan or in a separate section. It includes multiple strategies, incentives, and resources.

Source: Rubric for Technology Plan Analysis from Kimball, C., & Sibley, P. (1998). Am I on the mark? Technology planning for the E-rate. *Learning and Leading with Technology*, 25(4), pp. 56–57. Copyright © 1998, ISTE (International Society for Technology in Education), 800.336.5191 (U.S. & Canada) or 541.302.3777 (Int'l), iste@iste.org, www.iste.org. All rights reserved.

Figure A.2 Rubric for Assessing Cooperative Group Work (Truett, 2001)

Cooperative Group Rubric		Student Name _____		
		Date _____		
	<i>Beginning 1</i>	<i>Developing 2</i>	<i>Focused 3</i>	<i>Exemplary 4</i>
Contribution to group				
<i>Is punctual</i>	Doesn't hand in assignments.	Hands in many assignments late.	Hands in most assignments on time.	Hands in all assignments on time.
<i>Researches information</i>	Does not collect information.	Contributes little information.	Contributes information that mainly relates.	Contributes a good deal of relevant information.
<i>Shares information</i>	Shares no information with group.	Shares some information with the group.	Shares important information with the group.	Communicates and shares all information with the group.
Cooperation within group				
<i>Cooperates with group members</i>	Never cooperates.	Seldom cooperates.	Usually cooperates.	Always cooperates.
<i>Listens to group members</i>	Always talks and never allows others to speak.	Talks much of the time and rarely allows others to speak.	Talks too much at times, but usually is a good listener.	Balances listening and speaking well.
<i>Makes fair decisions</i>	Always wants things his or her way.	Often sides with friends and doesn't consider all viewpoints.	Usually considers all viewpoints.	Total team player.
Responsibility to group members				
<i>Fulfills duties</i>	Does not perform any duties.	Performs very little in the way of duties.	Performs nearly all duties.	Performs all duties.
<i>Shares responsibility</i>	Always relies on others to do work.	Rarely does work—needs constant reminding.	Usually does the work—seldom needs reminding.	Always does assigned work without being reminded.

Source: Rubric for Assessing Cooperative Group Work from Truett, C. (2001). Sherlock Holmes on the Internet. *Learning and Leading with Technology*, 29(2), p. 39. Copyright © 2001, ISTE (International Society for Technology in Education), 800.336.5191 (U.S. & Canada) or 541.302.3777 (Int'l), iste@iste.org, www.iste.org. All rights reserved.

Figure A.3 Technology Impact Checklist: Is the Activity Working?

Developed by M. D. Roblyer

How Do You Know When You Have Integrated Technology Well?

_____ An outside observer sees the technology activity as a seamless part of the lesson.

Comments:

_____ The reason for using the technology is obvious to you, the students, and others.

Comments:

_____ The students are focusing on learning, not on the technology.

Comments:

_____ You can describe how technology is helping a particular student.

Comments:

_____ You would have difficulty accomplishing lesson objectives if the technology weren't there.

Comments:

_____ You can explain easily and concisely what the technology is supposed to contribute.

Comments:

_____ All students are participating with the technology and benefiting from it.

Comments:

How Do You Know When You Have Not Integrated Technology Well?

_____ You consistently see the technology as more trouble than it is worth.

Comments:

_____ You have trouble justifying cost and preparation time in terms of benefits to your students.

Comments:

_____ Students spend more time trying to make the technology work than on learning the topic.

Comments:

_____ The problem you were trying to address is still there.

Comments:

Figure A.4 Technology Classroom Impact Rubric

Developed by M. D. Roblyer

Level	Frequency of Use	Source of Direction	Nature of Integration	Purpose of Technology Uses
1— Minimum infusion	Used from time to time, but not every day.	Primarily teacher directed.	Technologies are used as add-ons to other learning activities.	Skill learning (e.g., calculators, games, tutorials) and tools to improve efficiency and appearance of products (e.g., word processing, spreadsheets, databases, presentation software).
2— Intermediate infusion	Used more routinely, nearly every day.	Primarily teacher directed, but students begin to initiate some uses.	Technologies help structure some learning activities.	Same uses as level 1, but software also used to organize information, support problem-solving/reasoning skills, and discover concepts and relationships. Internet search engines and CD-ROM encyclopedias used for research.
3— High infusion	Used every day for some kinds of activities.	Equally teacher directed and student directed.	Technologies used to change the nature of some learning activities; begins to be used seamlessly as part of many activities.	Same uses as levels 1 and 2, but technology tools used increasingly for organization and analysis of data, creation of presentations to communicate more effectively, and use of e-mail and Internet to communicate with those inside and outside the school.
4— Maximum infusion	Used as routine part of many daily activities.	Primarily student directed with teachers providing supportive learning environment and introducing new technology resources as appropriate to the content.	Technologies used seamlessly with all other activities; students and teachers rely on technologies and teaching/learning could not occur without them.	All uses in levels 1–3; in addition, students can select technologies that are appropriate for a variety of other purposes, paralleling the way professionals in the workforce use technology.

Source: Based on concepts in Sun, J. (2000). How do we know it's working? *Learning and Leading with Technology*, 27(7), 32–35, 41, 49.

Figure A.5 Essential Criteria Checklist for Evaluating Instructional Courseware

Developed by M. D. Roblyer

The following is an example checklist based on essential qualities that can be used to discriminate between acceptable and unacceptable courseware material. If courseware does not meet these criteria, it probably should not be considered for purchase. For each item, indicate Y for yes if it meets the criterion, or N for no if it does not.

Title _____ Publisher _____

Content Area _____ Hardware Required: _____

Courseware functions: Drill and practice Instructional game
 Tutorial Problem solving
 Simulation Other: _____

I. Instructional Design and Pedagogical Soundness

- Teaching strategy is matched to student needs/levels and is based on accepted methods
- Presentation on screen contains nothing that misleads or confuses students
- Readability and difficulty are at an appropriate level for students who will use it
- Comments to students are not abusive or insulting
- Graphics fulfill important purpose (motivation, information) and are not distracting to learners

Criteria specific to drill-and-practice functions:

- High degree of control over presentation rate (unless the method is timed review)
- Appropriate feedback for correct answers (none, if timed; not elaborate or time consuming)
- Feedback is more reinforcing for correct than for incorrect responses

Criteria specific to tutorial functions:

- High degree of interactivity (not just reading information)
- High degree of user control (forward and backward movement, branching on request)
- Comprehensive teaching sequence so instruction is self-contained and stand-alone
- Adequate answer-judging capabilities for student-constructed answers to questions

Criteria specific to simulation functions:

- Appropriate degree of fidelity (accurate depiction of system being modeled)
- Good documentation available on how program works

Criteria specific to instructional game functions:

- Low quotient of violence or combat-type activities
- Amount of physical dexterity required appropriate to students who will use it

II. Content

- No grammar, spelling, or punctuation errors on the screen
- All content accurate and up to date
- No racial or gender stereotypes; not geared toward only one sex or to certain races
- Exhibits a sensitive treatment of moral and social issues (e.g., perspectives on war or capital punishment)
- Content matches required curriculum objectives

III. User Flexibility

- User normally has some control of movement within the program (e.g., can go from screen to screen at desired rate; can read text at desired rate; can exit program when desired)
- Can turn off sound, if desired
- Interface is easy to use (e.g., similar format from screen to screen for forward and back movement in program)

IV. Technical Soundness

- Program loads consistently, without error
- Program does not break, no matter what the student enters
- Program does what the screen says it should do
- Program works on desired platform
- If included, online links work as indicated
- If included, animations and videos work as indicated

Decision: Is recommended for purchase and use
 Is not recommended

Figure A.6 Rubrics for Self-Assessing Personal/Professional Productivity Skills

MyCompass The Professional Development Portal for Arizona Educators
MyCompass
Main Menu: Rubrics
Rubric Category: Personal/Professional Productivity Skills
Each subcategory has 4 levels of proficiency: Entry, Emergent, Fluent, and Proficient.
Subcategory: Classroom Management Skills

Entry	I am aware of the benefits of classroom management software such as grading software, an automated attendance program, student progress reporting software, and a student information database.
Emergent	I use at least one of the following: grading software, an automated attendance program, student progress reporting software, and/or a student information database.
Fluent	I use two or more of the following: grading software, an automated attendance program, student progress reporting software, and a student information database.
Proficient	I am comfortable teaching others to use classroom management software such as grading software, an automated attendance program, student progress reporting software, and a student information database.
Subcategory: Word Processing/Publishing Skills	
Entry	I know how to select different fonts, resize text, and apply font styles to selected text to create emphasis.
Emergent	I use a spell checker for accuracy before publishing word processing documents. I can use the thesaurus for better meaning in word selection. I am able to change page margins when I need more room for my information. I set tabs and hanging indents to position text precisely, and manipulate text justification to enhance the readability of documents. I adjust the viewing percentage when it helps to see more of the document.
Fluent	I am able to create multiple columns of text, and insert page and/or column breaks where needed. I create multiple sizes of tables for information to be displayed neatly. I use custom headers and footers to increase understanding. I enter footnotes and endnotes to give credit for others' works. I access and modify existing templates to meet my needs, and save in different file formats for sharing with others.
Proficient	I am proficient in using a word processing program to merge database files for minimizing time spent on redundant tasks. I print labels and envelopes from address books, and create my own templates for future use. I have learned how to insert graphics precisely to aid in creating meaning. I insert logically named hyperlinks for accessing pertinent web pages and save in HTML format for posting on the Internet.
Subcategory: Graphics Skills	
Entry	I do not use digital graphics in my classroom, but I have begun to see their use for enhancing my classroom instruction.
Emergent	I use basic drawing/painting tools such as a pencil, spray can, paint bucket, eraser, and common shapes tools. I duplicate, move, and modify graphics I have created.
Fluent	I am able to use a scanner or digital camera to acquire graphics for use in a graphics program. I import/export graphics to and from different programs, including images from the Internet for educational fair use.
Proficient	I am comfortable teaching others to use a variety of graphics types in different applications, including word processing, spreadsheet, presentation, web publishing, and database programs.
Subcategory: Spreadsheet Skills	
Entry	I can insert words and numbers within the cells of a spreadsheet program, and move the data among specific cells using cut/copy/paste commands. I format the data within cells to change its appearance, and resize rows and columns to accommodate the amount of data within cells. I am able to change page orientation, insert headers and footers to increase understanding, and preview pages before printing.

Figure A.6 Continued

Emergent	I use multiple formulas for automatic calculations of numbers. I am able to insert text boxes to help explain and create charts for visual aids.
Fluent	I can reconfigure options/preferences to meet my spreadsheet needs and save in different spreadsheet formats for sharing with others.
Proficient	I can articulate the difference between absolute and relative references. I am proficient in using spreadsheet software to sort data, filter data, and create lookup tables.
Subcategory: Database Skills	
Entry	I am in the investigative stage of using database software as an educator. I have not had the opportunity to find uses for databases in my classroom instruction.
Emergent	I can manipulate the contents of a field by using cut/copy/paste/clear/duplicate commands. I am able to find/sort/query records. I format text attributes to emphasize different fields. I create various reports to display specific types of data and can modify print layouts as well.
Fluent	I am able to modify database layouts and print multiple types of reports. I am able to import/export records and print/merge a word processing document. In my databases, I create auto-entry and calculation fields and construct complex queries for sorting data.
Proficient	I am proficient in using a database program to create a macro or a script. I create database templates for later use. I know how to design a database that can be manipulated from the Internet.
Subcategory: Presentation Skills	
Entry	I am in the exploration stage of integrating multimedia presentations in my classroom. I have not had opportunity to find uses for them in my classroom instruction.
Emergent	I know how to open and run existing presentations. I can create new slides and format their backgrounds and color schemes. I use different formatting for textual information that I want to emphasize. I create/insert/format graphics and define the transition from slide to slide.
Fluent	I am able to create and modify presentation templates. I try to optimize elements for effective visual display. I understand that good design takes into account the amount of information presented on each slide. I am able to produce speaker's notes, print outs, and screen versions of my presentations.
Proficient	I am proficient in using presentation software to edit document and application preferences. I import/export presentations among different programs, and can group multiple presentations. My presentations include multiple media types such as video and audio clips. I save my presentations in HTML format for publishing to the web.

Source: Used by permission of iAssessment.



Figure A.7 Criteria for Evaluating Commercial Multimedia Software Products

Developed by M. D. Roblyer

_____ **Instructional planning.** Target audience and prerequisite skills are specified.

Comments:

_____ **Support.** Computer hardware and software requirements are specified.

Comments:

_____ **Instructional adequacy.** Instructional objectives are clearly stated. Practice activities are provided that actively involve the learner. Instructional activities needed to complete learning tasks are made explicit.

Comments:

_____ **Information content.** Information is current and accurately represents the topic. Examples, practice exercises, and feedback are meaningful and relevant.

Comments:

_____ **Information reliability.** Information is accurate, i.e., presented in a truthful, valid way.

Comments:

_____ **Clear, concise, and unbiased language.** Courseware content is presented clearly. (Text, pictorial, graphical, auditory, and video information all are presented clearly.)

Comments:

_____ **Interface design and navigation.** Courseware screen elements (titles, text areas, navigation buttons, etc.) are easy to understand. Directions are understandable.

Comments:

_____ **Feedback and interactivity.** If tests are present, they are matched to objectives. Feedback is appropriate to content, learning tasks, learner response, and learning environment.

Comments:

_____ **Evidence of effectiveness.** During student uses of courseware, there was evidence of learning/performance gains. The courseware supplies information to teachers and students on how it measures student learning.

Comments:

Figure A.8 Criteria for Evaluating Multimedia Products

Developed by M. D. Roblyer

Content

- _____ All information is the most current, up-to-date available.
- _____ All information is factually accurate.
- _____ Content is free from typos and misspellings, and from punctuation and grammatical errors.
- _____ No ethnic, slang, or rude names are used; content is presented in a professional way.
- _____ No questionable vocabulary, slang terms, or curse words are used.
- _____ Content sources (including sources of graphics) are properly referenced.

Instructional Design

- _____ Instructional objectives are clear; the instructional purpose is aligned with school curriculum, rather than being for entertainment.
- _____ All necessary information is provided in the product to make concepts clear; users will be able to understand what is being presented from the information provided.
- _____ If tests or other assessments are provided, they are matched directly to objectives.
- _____ To add interest and motivation for users, information is presented in an innovative and creative way.

Organization and Navigation

- _____ Screens are designed for easy navigation; it is clear how to get to and from various parts of the product.
- _____ To aid navigation and use, the product has a consistent look and feel throughout.
- _____ Buttons and links all work as indicated.

Appearance

- _____ Use of varying fonts and type sizes is controlled, so as not to interfere with readability.
- _____ Type is large enough to read when projected.
- _____ Color contrasts with background for easy reading.
- _____ Bold or plain style is used for main text; no shadow and outline if text is more than a few words. Fancy fonts and type styles are readable.
- _____ Only brief main ideas are listed in a single frame, rather than paragraphs of text.

Graphics, Videos, and Sound

- _____ Graphics, videos, and sound are included as appropriate to help communicate information on the topic; they are not included just for show.
- _____ No obscene or rude graphics or visuals are included.
- _____ Use of graphics (e.g., animations, screen changes) is controlled and does not distract from reading.
- _____ Pictures and sounds associated with buttons and links are appropriate to the purpose and content of the frames.

Source: Based on concepts from Brunner, C. (1996). Judging student multimedia. *Electronic Learning*, 15(6), 14–15; Clark, J. (1996). Bells and whistles . . . but where are the references: Setting standards for hypermedia projects. *Learning and Leading with Technology*, 23(5), 22–24; and Litchfield, B. (1995). Helping your students plan computer projects. *The Computing Teacher*, 22(7), 37–43.

Figure A.9 Rubric for Assessing Interactive Qualities of Distance Learning Courses

Developed by M. D. Roblyer

RUBRIC DIRECTIONS: The rubric shown below has five (5) separate elements that contribute to a course's level of interaction and interactivity. For each of these four elements, circle a description below it that applies best to your course. After reviewing all elements and circling the appropriate level, add up the points to determine the course's level of interactive qualities (e.g., low, moderate, or high)

Low interactive qualities	1–9 points
Moderate interactive qualities	10–17 points
High interactive qualities	18–25 points

Scale (see points below)	Element #1: Social/Rapport-Building Designs for Interaction	Element #2: Instructional Designs for Interaction	Element #3: Interactivity of Technology Resources	Element #4: Evidence of Learner Engagement	Element #5: Evidence of Instructor Engagement
Low interactive qualities (1 point each)	The instructor does not encourage students to get to know one another on a personal basis. No activities require social interaction or are limited to brief introductions at the beginning of the course.	Instructional activities do not require two-way interaction between instructor and students; they call for one-way delivery of information (e.g., instructor lectures, text delivery) and student products based on the information.	Fax, web pages, or other technology resource allows one-way delivery of information (text and/or graphics).	By end of course, most students (50%–75%) are replying to messages from the instructor, but only when required; messages are short and sometimes unresponsive to topics.	Instructor responds only randomly to student queries; responses usually take more than 48 hours; feedback is brief and provides little analysis of student work or suggestions for improvement.
Minimum interactive qualities (2 points each)	In addition to brief introductions, the instructor requires one other exchange of personal information among students, e.g., written bio of personal background and experiences.	Instructional activities require students to communicate with the instructor on an individual basis only (e.g., asking/responding to instructor questions).	E-mail, listserv, conference/ bulletin board, or other technology resource allows two-way, asynchronous exchanges of information (text and graphics).	By end of course, most students (50%–75%) are replying to messages from the instructor and other students, both when required and on a voluntary basis; replies are short but usually responsive to topics.	Instructor responds to most student queries; responses usually are within 48 hours; feedback sometimes offers some analysis of student work and suggestions for improvement.
Moderate interactive qualities (3 points each)	In addition to providing for exchanges of personal information among students, the instructor provides at least one other in-class activity designed to increase communication and social rapport among students.	In addition to requiring students to communicate with the instructor, instructional activities require students to communicate with one another (e.g., discussions in pairs or small groups).	In addition to technologies used for two-way asynchronous exchanges of information, chat room or other technology allows synchronous exchanges of primarily written information.	By end of course, all or nearly all students (90%–100%) are replying to messages from the instructor and other students, both when required and voluntarily; replies are detailed and responsive to topics.	Instructor responds to all student queries; responses usually are within 48 hours; feedback usually offers some analysis of student work and suggestions for improvement.

Figure A.9 Continued

Scale (see points below)	Element #1: Social/Rapport- Building Designs for Interaction	Element #2: Instructional Designs for Interaction	Element #3: Interactivity of Technology Resources	Element #4: Evidence of Learner Engagement	Element #5: Evidence of Instructor Engagement
Above average interactive qualities (4 points each)	In addition to providing for exchanges of personal information among students and encouraging communication and social interaction, the instructor also interacts with students on a social/personal basis.	In addition to requiring students to communicate with the instructor, instructional activities require students to develop products by working together cooperatively (e.g., in pairs or small groups) and sharing feedback.	In addition to technologies used for two-way synchronous and asynchronous exchanges of written information, additional technologies (e.g., teleconferencing) allow one-way visual and two-way voice communications between instructor and students.	By end of course, most students (50%–75%) are both replying to and initiating messages when required and voluntarily; most messages are detailed and responsive to topics, but may be wordy or rambling.	Instructor responds to all student queries; responses usually are prompt, i.e., within 24 hours; feedback always offers detailed analysis of student work and suggestions for improvement.
High level of interactive qualities (5 points each)	In addition to providing for exchanges of information and encouraging student–student and instructor–student interaction, the instructor provides ongoing course structures designed to promote social rapport among students and instructor.	In addition to requiring students to communicate with the instructor, instructional activities require students to develop products by working together cooperatively (e.g., in pairs or small groups) and share results and feedback with other groups in the class.	In addition to technologies to allow two-way exchanges of text information, visual technologies such as two-way video or videoconferencing technologies allow synchronous voice and visual communications between instructor and students and among students.	By end of course, all or nearly all students (90%–100%) are both replying to and initiating messages, both when required and voluntarily; most messages are detailed, responsive to topics, and reflect effort to communicate well.	Instructor responds to all student queries; responses are always prompt, i.e., within 24 hours; feedback always offers detailed analysis of student work and suggestions for improvement, along with additional hints and information to supplement learning.
Total each:	_____ pts.	_____ pts.	_____ pts.	_____ pts.	_____ pts.
Total overall:	_____ pts.				

Source: Based on concepts in Roblyer, M. D., & Ekhaml, D. (2000). How interactive are YOUR distance courses? A rubric for assessing interaction in distance learning. *The Online Journal of Distance Learning Administration*, 3(2). Earlier version available online: <http://www.westga.edu/~distance/summer32.html>.

Figure A.10 Rubric for Assessing Middle School Web Pages (Chenau, 2000)**Rubric for Sixth-Grade Web Page****Excellent:**

- directions followed
- visually pleasing
- excellent organization of information
- information grammatically sound (French and English)
- all words are correctly spelled
- font shows accent marks
- links and anchors work
- special effects enhance, not detract

Very Good:

- directions followed
- visually pleasing
- mostly clear writing
- few grammatical and/or spelling mistakes
- font shows accent marks
- links and anchors work
- special effects usually enhance, not detract

Fair:

- directions mostly followed
- visually distracting
- writing occasionally unclear
- many grammatical errors and/or misspellings
- font does not display accents
- not all links and anchors work

Unacceptable:

- directions not followed
- visually confusing
- writing unclear
- many grammatical errors and/or misspellings
- font does not display accents
- links and anchors do not work
- special effects distract

Source: Rubric for Assessing Middle School Web Pages from Chenau, J. (2000). Cyber traveling through the Loire Valley. *Learning and Leading with Technology*, 28(2), p. 26. Copyright © 2000, ISTE (International Society for Technology in Education), 800.336.5191 (U.S. & Canada) or 541.302.3777 (Int'l), iste@iste.org, www.iste.org. All rights reserved.

Figure A.11 Checklist of Criteria for Evaluating Web Sites

Developed by M. D. Roblyer

Check each of the following criteria *before* and *after* designing a page.**Content**

- All information is accurate; plan to update the page periodically. The “last time updated” date is given.
- Information is complete but not excessive or redundant.
- Information is well organized and clearly labeled.
- Information is interesting, informative, and worthwhile.
- Information is not redundant to many other sources; there is a reason to put it on the Web.
- All text has correct spelling, grammar, and punctuation.
- Level of content and vocabulary is appropriate for intended audience.
- Content is free from stereotyping, coarse or vulgar language, or matter that could be offensive to typical users.
- Author(s) of the page are clearly identified.
- The page gives an e-mail address or other way to contact authors.

Visual and Audio Design

- The site has a consistent look.
- Graphics, animations, videos, and sounds make an important contribution; each serves a purpose.
- Pages have only one or two fonts.
- Each page uses a limited number of colors, especially for text.
- Colors have been selected to be compatible with the Netscape 216 color palette.
- Type colors/styles and text-to-background contrast have been selected for good readability.
- Each graphic is designed to fit 640 × 480 pixel screens, allowing for scroll bars/toolbars.
- Each page is limited to 2–3 screens; the most important information is at the top.
- The pages are simply and attractively designed; they make a user want to read the information.

Navigation

- Pages load quickly.
- Pages have simple, consistent navigation scheme to let users get to desired places quickly and easily.
- The first page indicates clearly how the site is organized and how to get to items of interest.
- Links (text and icons) are easy to identify. Graphics and sounds are clearly identified.
- Icons clearly represent the information they link to.
- Each supporting page has a link back to the home page.

Miscellaneous (for larger sites and pages)

- Requests for private information are secured.
- Page information is kept short enough so that it can be printed out quickly.
- The user can choose to load alternate versions of the page such as text only or smaller images.
- The site has its own search engine for locating items within the pages.
- Branching is organized so that all content is no more than three clicks away from the home page.

Use the following tips to make your sites and pages easier to design and use:

- Organize the site on paper ahead of time before putting it on the computer.
- To speed loading, limit graphics to no more than 50K and re-use images whenever possible.
- Use GIFs for line art or graphics with limited colors and sharp edges; use JPEGs for photos with many colors and smooth gradients. Avoid PICT and other formats that must be converted by users.
- Test out your page with a real browser.
- Use a GIF spacer (1 × 1 transparent GIF) to space paragraphs, indents, or alignments on pages.

Source: Based on concepts in Everhart, N. (1997). Web page evaluation: Views from the field. *Technology Connection*, 4(3), 24–26; Gray, T. (1997). No crazy gods. *Learning and Leading with Technology*, 25(1), 43–45; and McClelland, D. (1997, August). Web publishing made easy. *MacWorld*, 1(8), 104–110.

Figure A.12 Web Page Evaluation Rubric

Score	5 or 4	3 or 2	1 or 0
Ideas and Content	<ul style="list-style-type: none"> Information is accurate and current Ideas come mainly from primary sources Authors show knowledge and insight Effective use of technology demonstrated All information relates to the overall purpose 	<ul style="list-style-type: none"> Information not always clear Primary source use is not always clear Content connections not always clear Does not relate content to larger context No way to check validity of information Strong purpose not demonstrated 	<ul style="list-style-type: none"> Information incomplete or inaccurate Information not from primary sources Little or no overall context for information Value of information is unclear No way to check validity of information Lacks sense of purpose or central theme
Score	5 or 4	3 or 2	1 or 0
Organization	<ul style="list-style-type: none"> Inviting opening page draws the visitor inside Details are logical and effective Layout of pages provides good direction How to explore an idea is clear Each page begins with a clear transition Easy to navigate through the pages 	<ul style="list-style-type: none"> Inconsistent structure of pages Sequencing is inconsistent Some pages incomplete Some links disjointed; lack purpose Unclear connections among sections Sense of being lost or unsure navigating 	<ul style="list-style-type: none"> No orientation for visitors Sequencing unclear Pages lack closure No focus for links Pages are inconsistent Difficult to navigate in an organized way
Score	5 or 4	3 or 2	1 or 0
Language and Conventions	<ul style="list-style-type: none"> Organizational structure is clear and coherent Grammar and usage are correct Punctuation is accurate Spelling is generally correct Site needs little or no editing 	<ul style="list-style-type: none"> Long or incomplete paragraphs Minor problems with grammar or usage Internal punctuation sometimes missing or wrong Spelling is usually correct Site needs some editing 	<ul style="list-style-type: none"> Paragraph structure is missing Errors in grammar or usage noticeable Many punctuation mistakes Frequent spelling errors Site needs extensive editing
Score	5 or 4	3 or 2	1 or 0
Presentation	<ul style="list-style-type: none"> Web site is clearly identified; easy to find The layout is clear and easy to follow Backgrounds and text work well together Graphical elements are used consistently Multimedia adds to the main purpose Links are appropriate 	<ul style="list-style-type: none"> Web site easy to find Layout of most pages is easy to follow Backgrounds and text are not effective Inconsistent or inappropriate graphics Multimedia sometimes doesn't add to the main purpose Use of links is unclear 	<ul style="list-style-type: none"> Web site hard to find Layout is confusing or inappropriate Backgrounds and text not effective Graphics only decorative are inappropriate Multimedia unrelated to the topic Too many unrelated links, or too few links
Score	5 or 4	3 or 2	1 or 0
Technical	<ul style="list-style-type: none"> Links work properly Graphics are optimized Works in all browsers Works in text only mode Multimedia resources work properly 	<ul style="list-style-type: none"> Not all links work properly Graphics are generally optimized Pages don't work in all browsers Text-only mode could be improved Multimedia resources work most of the time 	<ul style="list-style-type: none"> Links don't work properly Graphic elements not optimized Specific browsers needed Text only mode does not work Resources fail to work

Source: Adapted by Clarence Bakken and Sara Armstrong in conjunction with Challenge 2000, CTAP Region IV Technology Leadership Academy and the Institute for Research on Learning, based on work done by Al Rogers, Global SchoolNet Foundation and CyberFair Contest. From Eastern Illinois University web site, <http://www.ux1.eiu.edu/~cfmgf/web.htm>.

Figure A.13 WebQuest Rubric (Dodge, 2000)

A Rubric for Evaluating WebQuests				
The WebQuest format can be applied to a variety of teaching situations. If you take advantage of all the possibilities inherent in the format, your students will have a rich and powerful experience. This rubric will help you pinpoint the ways in which your WebQuest isn't doing everything it could do. If a page seems to fall between categories, feel free to score it with in-between points.				
	Beginning	Developing	Accomplished	Score
Overall Aesthetics (This refers to the WebQuest page itself, not the external resources linked to it.)				
Overall Visual Appeal	0 points There are few or no graphic elements. No variation in layout or typography. OR Color is garish and/or typographic variations are overused and legibility suffers. Background interferes with the readability.	2 points Graphic elements sometimes, but not always, contribute to the understanding of concepts, ideas and relationships. There is some variation in type size, color, and layout.	4 points Appropriate and thematic graphic elements are used to make visual connections that contribute to the understanding of concepts, ideas and relationships. Differences in type size and/or color are used well and consistently.	
Navigation & Flow	0 points Getting through the lesson is confusing and unconventional. Pages can't be found easily and/or the way back isn't clear.	2 points There are a few places where the learner can get lost and not know where to go next.	4 points Navigation is seamless. It is always clear to the learner what all the pieces are and how to get to them.	
Mechanical Aspects	0 points There are more than 5 broken links, misplaced or missing images, badly sized tables, misspellings and/or grammatical errors.	1 point There are a few broken links, misplaced or missing images, badly sized tables, misspellings and/or grammatical errors.	2 points No mechanical problems noted.	
Introduction				
Motivational Effectiveness of Introduction	0 points The introduction is purely factual, with no appeal to relevance or social importance OR The scenario posed is transparently bogus and doesn't respect the media literacy of today's learners.	1 point The introduction relates somewhat to the learner's interests and/or describes a compelling question or problem.	2 points The introduction draws the reader into the lesson by relating to the learner's interests or goals and/or engagingly describing a compelling question or problem.	
Cognitive Effectiveness of the Introduction	0 points The introduction doesn't prepare the reader for what is to come, or build on what the learner already knows.	1 point The introduction makes some reference to learner's prior knowledge and previews to some extent what the lesson is about.	2 points The introduction builds on learner's prior knowledge and effectively prepares the learner by foreshadowing what the lesson is about.	

Figure A.13 Continued

	Beginning	Developing	Accomplished	Score
Task (The task is the end result of student efforts . . . not the steps involved in getting there.)				
Connection of Task to Standards	0 points The task is not related to standards.	2 points The task is referenced to standards but is not clearly connected to what students must know and be able to do to achieve proficiency of those standards.	4 points The task is referenced to standards and is clearly connected to what students must know and be able to do to achieve proficiency of those standards.	
Cognitive Level of the Task	0 points Task requires simply comprehending or retelling of information found on web pages and answering factual questions.	3 points Task is doable but is limited in its significance to students' lives. The task requires analysis of information and/or putting together information from several sources.	6 points Task is doable and engaging, and elicits thinking that goes beyond rote comprehension. The task requires synthesis of multiple sources of information, and/or taking a position, and/or going beyond the data given and making a generalization or creative product.	
Process (The process is the step-by-step description of how students will accomplish the task.)				
Clarity of Process	0 points Process is not clearly stated. Students would not know exactly what they were supposed to do just from reading this.	2 points Some directions are given, but there is missing information. Students might be confused.	4 points Every step is clearly stated. Most students would know exactly where they are at each step of the process and know what to do next.	
Scaffolding of Process	0 points The process lacks strategies and organizational tools needed for students to gain the knowledge needed to complete the task. Activities are of little significance to one another and/or to the accomplishment of the task.	3 points Strategies and organizational tools embedded in the process are insufficient to ensure that all students will gain the knowledge needed to complete the task. Some of the activities do not relate specifically to the accomplishment of the task.	6 points The process provides students coming in at different entry levels with strategies and organizational tools to access and gain the knowledge needed to complete the task. Activities are clearly related and designed to take the students from basic knowledge to higher level thinking. Checks for understanding are built in to assess whether students are getting it.	
Richness of Process	0 points Few steps, no separate roles assigned.	1 point Some separate tasks or roles assigned. More complex activities required.	2 points Different roles are assigned to help students understand different perspectives and/or share responsibility in accomplishing the task.	

Figure A.13 Continued

	Beginning	Developing	Accomplished	Score
Resources (Note: you should evaluate all resources linked to the page, even if they are in sections other than the Process block. Also note that books, video and other off-line resources can and should be used where appropriate.)				
Relevance & Quantity of Resources	0 points Resources provided are not sufficient for students to accomplish the task. OR There are too many resources for learners to look at in a reasonable time.	2 points There is some connection between the resources and the information needed for students to accomplish the task. Some resources don't add anything new.	4 points There is a clear and meaningful connection between all the resources and the information needed for students to accomplish the task. Every resource carries its weight.	
Quality of Resources	0 points Links are mundane. They lead to information that could be found in a classroom encyclopedia.	2 points Some links carry information not ordinarily found in a classroom.	4 points Links make excellent use of the web's timeliness and colorfulness. Varied resources provide enough meaningful information for students to think deeply.	
Evaluation				
Clarity of Evaluation Criteria	0 points Criteria for success are not described.	3 points Criteria for success are at least partially described.	6 points Criteria for success are clearly stated in the form of a rubric. Criteria include qualitative as well as quantitative descriptors. The evaluation instrument clearly measures what students must know and be able to do to accomplish the task.	
Total Score				/50

Source: From Bernie Dodge web site, <http://edweb.sdsu.edu/webquest/webquestrubric.html>.