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Professors can use a three-part rubric for evaluating students' written work in online classrooms, and an electronic portfolio can be a valuable summative assessment tool in the online course.

Evaluating Students' Written Performance in the Online Classroom

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Computer technology is creating a subtle but dynamic shift in teaching methods. The rapidly falling student-to-computer ratio in today's classrooms provides ample evidence of an inexorable movement toward computer-oriented lessons. The shift is most noticeable in higher education, where print has begun to move from paper to screen as professors require work to be submitted on floppy disks or sent via e-mail. In many classes, for example, essays are written with word processing, attached to e-mail, and sent to professors who open them, evaluate them, and send them back. On a broader front, entire courses and degree programs are offered as part of distance learning.

Because more classes are going online, there are significant changes in educational measurement methodology (Ross & Morrison, 1995). Class attendance as an assessment tool becomes extinct, whereas class participation becomes quantifiable. Verbally acrobatic students in traditional classrooms are forced in online classrooms to showcase their wares in print to maintain their preeminence. How to assess students' writing is a major concern for both professors and students.

We understand that online classes can be taught and assessed using the traditional teacher-centered behavioral model, with objective testing as the basis for both formative and summative evaluation. Because evaluation techniques for this model do not necessitate reinvention, we focus our discussion on the more contemporary constructivist model. By this we mean that the professor acts as a facilitator, expects a high degree of individual participation, and assigns group projects that stimulate the cognitive processes

and are initiated and controlled by learners (Jonassen, 1995). (See Article One in this volume for a discussion of the constructivist model.) The purpose of this article is to discuss the design of a rubric for grading online student work produced from a constructivist paradigm and to provide suggestions for those interested in using an electronic portfolio (e-folio) as an assessment vehicle.

Establishing Criteria for a Rubric

To ensure meaningful and fair assessment, professors should make students thoroughly familiar with how their work will be judged (Speck, 1998). Without the luxury of class time to launch into verbal explanations or to float tangential examples of expectations, professors will need to construct and explain expectations as precisely as possible the first time around (Hobson, 1998). The need to construct and explain expectations not only applies to formal writing assignments but also to the content of general discussion. The informal discussion responses of students that used to be a vague part of the professor's memory of the regular classroom can become a permanent record in a database and therefore accessible again and again. This "replayability" factor (Sheingold & Fredericksen, 1994) allows professors to grade informal discussions. Lowry, Koneman, Osman-Jouchoux, and Wilson (1994) provide a case of the replayability factor when content analysis of an early e-mail class revealed a fair amount of "unrelated discourse," jokes, and chitchat among group members.

In assessing students' writing—both informal and formal—in the online classroom, it is best if both teacher and student internalize standards, so that writing toward those standards becomes instinctual (Taylor, 1996). With a clearer understanding of the expectations, students are likely to learn more from the tasks (Anderson, 1998). Moreover, with clear criteria to guide them, students can more effectively evaluate their own writing.

We suggest four major components for an online assessment rubric that will help professors evaluate both formal writing and informal written discussions. In particular, we focus on three major aspects of writing: *content*, *expression*, and *participation*.

Content. Evaluating the content of student written work has always been difficult because it remains least quantifiable. Thus, a rubric evaluating content should connect professors' judgments with numerical equivalents (Morrison & Ross, 1998). Exhibit 9.1 provides an example of a rubric that makes this connection.

If content is the most difficult to assess, it is often scored at a higher percentage of the total grade because it gives direct and continual evidence of critical thinking and argumentation skills (Marttunen, 1998). For instance, a student who posts an astute analysis (critical thinking) gives evidence of an obvious grasp of the topic (content).

Exhibit 9.1. Rubric for Online Content Assessment

<i>Number of Points</i>	<i>Skills</i>
9–10	Demonstrates excellence in grasping key concepts; critiques the work of others; provides ample evidence of support for opinions; readily offers new interpretations of discussion material.
7–8	Shows evidence of understanding most of the major concepts; is able to agree or disagree when prompted; is skilled in basic level of support for opinions; offers an occasional divergent viewpoint.
5–6	Has mostly shallow grasp of the material; rarely takes a stand on issues; offers inadequate levels of support.
1–4	Shows no significant understanding of material.

Expression. Expression gives clarity to content. The best ideas lie fallow if they are not expressed well. Good writing is synonymous with good scholarship and must be accorded a high place in assessment. Numerical assessments are sometimes held in disdain (Bean & Peterson, 1998). Nonetheless, a rubric with an attendant point system can provide students with a clearly identifiable scale for measuring their expression (see Exhibit 9.2). A point system also gives professors some leverage, say, when it is clear that a run-on sentence or a fragment has muddied the waters of content. Conversely, students who write with a measure of sophistication can be given credit even if their responses are off the mark.

The online class poses a peculiar difficulty in evaluating expression. Common verbal transgressions that go overlooked in normal class discussions become permanent artifacts in the online classroom. A suggestion, then, is to divide the expression rubric into two categories: formal postings and projects where language usage will be assessed, and online discussions, with the emphasis on content and participation. The second of these two categories is important because students need to develop their sense of spontaneous debate and discussion. If professors tell students that they will scrutinize the construction of every thought produced on the screen, they run the risk of being counterproductive, especially in terms of participation. It is important for professors to replicate what will be tolerated in a live class discussion, where it would be rare for an occasional mispronounced word, a fragmented utterance, or use of the vernacular to be corrected on the spot.

Participation. Online classes usually call for postings to plenary e-mail discussions, listservs, and bulletin board systems, and professors will want to determine how to evaluate student participation in such settings. In addition, in the confines of small-group projects, professors may want to assess whether group members participate in equal shares. Grading the

**Exhibit 9.2. Rubric for Assessing Expression
in Formal Online Postings**

<i>Number of Points</i>	<i>Skills</i>
9–10	Student uses complex, grammatically correct sentences on a regular basis; expresses ideas clearly, concisely, cogently, in logical fashion; uses words that demonstrate a high level of vocabulary; has rare misspellings.
7–8	Sentences are generally grammatically correct; ideas are readily understood but show signs of disorganization; some transitions between concepts are missing; there are occasional misspellings, especially with homonyms not detected with spelling checks.
5–6	Poor use of the language garbles much of the message; only an occasional idea surfaces clearly; language is disjointed; there is overuse of the simple sentence and repetition of words; paragraphs are often unrelated to each other.
1–4	Writing is largely unintelligible.

participation of students in small groups may head off the common lament, “I had to do this all by myself, because no one else helped.” Students quickly realize that the online classroom provides the teacher a greater opportunity to analyze responses than do the face-to-face discussions of the regular class (Weiss & Morrison, 1998).

A rubric for participation might be easier to develop than those for content and expression. Simple math can determine if students are participating in equal shares. But why is quantity of writing worthy of evaluation? First, quantity is important because students need to use writing regularly as a way to think on paper and thus discover what there is to say about a particular topic. Such discovery writing often requires a good dose of writing. Second, when students produce significant amounts of writing so that the professor can interact with them about the writing, the professor can begin to develop a relationship of trust with students. As Berge (1997) notes, a sense of trust between professor and student is a central element in the learner-centered approach. Assessing adequate and timely participation can determine if students are earning this trust. Third, when professors evaluate students for the quantity of the writing, pathologically quiet types often come alive (Bean & Peterson, 1998). Those who aren’t comfortable speaking in front of a live audience will tap with abandon at the keyboard. Online postings neutralize those who are quick on their feet and give the reticent an equal chance to help discussions flourish. Exhibit 9.3 is a model for assessing the quantity of students’ online participation.

Exhibit 9.3. Rubric for Assessing Online Participation

<i>Number of Points</i>	<i>Skills</i>
9–10	Contributions are prompt, timely, relevant, self-initiated; remarks are posted freely on all assignments throughout the course; there is no attempt to dominate conversation.
7–8	Student generally keeps up with the discussion; needs an occasional prompting to contribute; might participate in some discussions more than others.
5–6	Participation is spotty; picks and chooses topics to get involved in; offers short, perfunctory postings when prompted; takes limited initiative.
1–4	Student rarely participates freely; makes short, irrelevant remarks.

Electronic Portfolios

Another way to assess students' online writing is through an e-folio, Web-folio, or digital portfolio. This type of online assessment serves the student as an instrument of reflection and analysis and serves the professor as an evaluation tool that integrates student evaluations (Mullin, 1998).

To make the e-folio work, professors should advise students of its worth as a final product and explain what should be included in it. The e-folio rubric must ultimately specify the types of documents (called artifacts) that will be included, the number of artifacts, and the point scale for judging each artifact. (Exhibit 9.4 provides a sample rubric.) Wiedmer (1998) identifies three kinds of rubrics for the e-folio: the analytic, whereby each section of the e-folio is graded on an individual scale; the holistic, in which the e-folio is judged in its entirety, without breaking it into parts; the primary trait, which assesses the performance in one or more major areas of emphasis.

Regardless of the type of rubric used, e-folios should require peer and self-evaluation. For example, students may be asked to submit written reflections about their artifacts, explanations of how they met course objectives, and discussions of what they learned in the course. Other items for this category include student evaluation of message content, form, style, and tone (Knupfer, Gram, & Larson, 1997). Where group projects are concerned, comments devoted to critiquing the work of others and the quality of peer relationships developed online may be valuable.

Grading the e-folio is remarkably different from grading traditional portfolios. What will be missing is the beauty of colorful pages and the snazzy, glitzy three-ringed binders. But these adornments will be replaced by clip art from the Web in the new cut, paste, and send style. Letting students run with their electronic imaginations can yield intriguing results. For

Exhibit 9.4. Rubric for Assessing the E-Folio

<i>Number of Points</i>	<i>Skills</i>
9–10	Meets or exceeds required quantity of artifacts; artifacts are creatively presented and well organized; shows significant level of meaningful reflection; provides strong evidence of peer and self-assessment; show an obvious investment of time and effort.
7–8	Meets required quantity of artifacts; shows some creativity and adequate organization; demonstrates some amount of meaningful reflection; includes evidence of peer and self-assessment; generally shows a good effort.
5–6	Less than the required number of artifacts; lacks creativity; shows little reflection on items; offers some peer and self-assessment; shows a limited effort.
1–4	Shows a poor effort to meet any of the requirements.

Source: Adapted from Scanlon & Ford, 1998.

example, McKinney (1998) reports that the sound and movement functions available to process a portfolio enabled one student the chance to use the musical theme from “The Twilight Zone” to announce to the reader, “You are about to enter the portfolio zone.”

Conclusion

The class taught entirely online will become commonplace in higher education. Thus, effective evaluation in the online classroom will be a primary issue. When online material is submitted, and when it becomes an important student-centered activity and requirement of the class, we recommend judging the students’ content, expression, and participation. These three criteria can provide a unique perspective from which to view students’ formal writings and informal discussions. At the end of a course, an e-folio can offer students a chance to reflect on their own work and thus become more involved in the assessment process.

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