Creating Effective Assessments

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“A key to creating effective assignments and exams is the concept of ‘alignment.’ As defined by Ralph Tyler almost fifty years ago, alignment simply means starting with the ‘desired outcomes’ of the course and working backwards so that the assignments and examinations reflect and support them. In some sense a successful course can be considered as an exercise in reverse engineering. Figure out first where you want your students to end up, and (only) then how best to help them get there...”—Jim Wilkinson, Derek Bok Center for Teaching and Learning

When students aren’t engaged with class material, don’t understand the connection between course content and assignments, or feel they are being treated unfairly, they act out in a number of ways, from classroom incivility, to plagiarism (Sorcinelli, 2003). Effective assignment design will not only help students learn, but will decrease academic dishonesty and student dissatisfaction.

According to Jim Wilkinson, good assignments and examinations should “not only send a signal to students about what the instructor considers worth learning in a course” but “offer feedback on how well students are meeting course expectations.” To do this, he lays out four steps:

1. Decide on a small number of desired outcomes for your course.
2. Align your assignments and exams with your desired outcomes.
3. Offer students a rationale for the choices you make in assigned readings.
4. Many short assignments and exams spread throughout the semester produce better learning than a long paper and final exam at the end, especially if returned with adequate comments (Wilkinson, 2010).

George Brown, from the Learning and Teaching Support Network (LTSN), agrees with the principles of alignment and frequent assessment, suggesting that each desired outcome be assessed at least twice. “This approach ensures that one has repeated and therefore probably more reliable measures of achievement, and a realistic, not unduly burdensome approach to assessment” (Brown, 2001). He suggests asking the following questions when designing assignments:

1. What are the outcomes to be assessed?
2. What are the capabilities/skills (implicit or explicit) in the outcomes?
3. Is the method of assessment chosen consonant with the outcomes and skills?
4. Is the method relatively efficient in terms of student time and staff time?
5. What alternatives are there? What are their advantages and disadvantages?
6. Does the specific assessment task match the outcomes and skills?
7. Are the marking schemes or criteria appropriate? (Brown, 2001)

It is important to remember that good assignment design encompasses more than just alignment and outcomes.

“Well designed assessment sets clear expectations, establishes a reasonable workload (one that does not push students into rote reproductive approaches to study), and provides opportunities to self-monitor, rehearse, practice and receive feedback... What needs to be avoided are approaches to assessment that merely reward superficial, shallow or reproductive approaches to learning or which fail to direct students into the type of study that leads to the attainment of the higher-order objectives of university education” (James & McInnis, 2001).

To achieve these goals, assignments and exams should follow Bloom’s Taxonomy of Educational Objectives, as well as the related principles of information literacy. Bloom’s Taxonomy creates a hierarchy of modes of thinking, with six steps leading from knowledge to comprehension, application, analysis, synthesis, and, finally, evaluation (Forehand, 2005).

Information Literacy also classifies learning into measurable standards. As defined by the Association of College and Research Libraries, “information literacy forms the basis for lifelong learning. It is common to all disciplines, to all learning environments, and to all levels of education. It enables learners to master content and extend their investigations, become more self-directed, and assume greater control over their own learning. An information literate individual is able to:

1. Determine the extent of information needed
2. Access the needed information effectively and efficiently
3. Evaluate information and its sources critically
4. Incorporate selected information into one’s knowledge base
5. Use information effectively to accomplish a specific purpose
6. Understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally

Gaining skills in information literacy multiplies the opportunities for students’ self-directed learning, as they become engaged in using a wide variety of information sources to expand their knowledge, ask informed questions, and sharpen their critical thinking for still further self-directed learning” (ACRL, 2000).
Building Assignments Using Bloom’s Taxonomy and Information Literacy Standards

Kim Kelley, former Associate Provost, Information and Library Services, and Robert McDonald, former Director of the Effective Writing Program at the University of Maryland University College developed a Tutorial for Developing and Evaluating Assignments to help faculty integrate Bloom’s Taxonomy and Information Literacy standards into their assessments, beginning with syllabus review:

Questions for Syllabus Review:
1. Do the assignments include any or all of the following terms from Bloom's taxonomy? (The intellectual tasks charted below increase in sophistication moving from left to right.)

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Comprehension</th>
<th>Application</th>
<th>Analysis</th>
<th>Synthesis</th>
<th>Evaluation</th>
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</thead>
<tbody>
<tr>
<td>List</td>
<td>Summarize</td>
<td>Solve</td>
<td>Analyze</td>
<td>Design</td>
<td>Evaluate</td>
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<td>Name</td>
<td>Explain</td>
<td>Illustrate</td>
<td>Organize</td>
<td>Hypothesize</td>
<td>Choose</td>
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<tr>
<td>Identify</td>
<td>Interpret</td>
<td>Calculate</td>
<td>Deduce</td>
<td>Support</td>
<td>Estimate</td>
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<tr>
<td>Show</td>
<td>Describe</td>
<td>Use</td>
<td>Contrast</td>
<td>Schematize</td>
<td>Judge</td>
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<tr>
<td>Define</td>
<td>Compare</td>
<td>Interpret</td>
<td>Compare</td>
<td>Write</td>
<td>Defend</td>
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<tr>
<td>Recognize</td>
<td>Paraphrase</td>
<td>Relate</td>
<td>Distinguish</td>
<td>Report</td>
<td>Criticize</td>
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<tr>
<td>Recall</td>
<td>Differentiate</td>
<td>Manipulate</td>
<td>Discuss</td>
<td>Justify</td>
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<tr>
<td>State</td>
<td>Demonstrate</td>
<td>Apply</td>
<td>Plan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visualize</td>
<td>Classify</td>
<td>Modify</td>
<td>Devise</td>
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</tbody>
</table>

2. Does your syllabus have a goal and objective that addresses information literacy and effective writing?
3. Have you outlined the assignment objectives and criteria in the syllabus?
4. Have you tied the assignment to the goals and objectives of the course and major? (Kelley & McDonald)

Barbara Gross Davis has provided examples of questions developed using Bloom’s Taxonomy:

1. **Knowledge** (common terms, facts, principles, procedures): "List the steps involved in titration."
2. **Comprehension** (understanding of facts and principles, interpretation of material): "Summarize the basic tenets of deconstructionism."
3. **Application** (solving problems, applying concepts and principles to new situations): "Calculate the deflection of a beam under uniform loading."
4. **Analysis** (recognition of unstated assumptions or logical fallacies, ability to distinguish between facts and inferences): "In the president’s State of the Union Address, which statements are based on facts and which are based on assumptions?"
5. **Synthesis** (integrate learning from different areas or solve problems by creative thinking): "How would you restructure the school day to reflect children's developmental needs?"


When developing a research-based project for students, remember: “If we want students to learn how to effectively choose among, evaluate, and use information sources, they must have a concrete purpose for applying the research and measuring its value. Research projects should arise from course work and the results should be examined, discussed, and incorporated into the course” (Kelley & McDonald). As such, it is important that:

1. “Students understand the purpose of the project and how it will benefit them.”
2. Students learn to “analyze, question, and delve into the scholarly debate surrounding an issue, rather than presenting an easy, immediate answer.”
3. Students are “taught that background reading, outlining relevant perspectives, and investigating the amount and type of information available are necessary parts of effective information use.”
4. “The assignment should be a progressive project, with time and opportunities for concrete feedback from a variety of sources” (Kelley & McDonald).

As described earlier, for assessments to be effective and fair, the criteria for successful completion of any given assignment or exam must be clear to both students and assessors. When evaluating student research for adherence to the principles of information literacy, Kelley and McDonald provide the following standards:

**“Suggested Standards for Evaluating Student Research**

- The student used resources beyond book and journal materials (e.g. websites, technical reports, personal interviews), if appropriate.
- The research question chosen for the paper was succinct and clear.
- The materials referenced in the body of the paper were accurately cited.
- The topic chosen was sufficiently narrow to allow the student to research it thoroughly.
- The bibliography demonstrated that the student had chosen those resources most pertinent to the research question rather than listing everything available on the topic.
- The bibliography included a variety of resources (e.g. scholarly journals, popular journals, and newspaper sources).
- The materials used in the bibliography were both historical and current (if relevant) and presented in a standard style format. They included a sufficient number of primary sources (when appropriate) and included a sufficient number of secondary sources.
- The student’s paper demonstrated that the student:
  - could distinguish between fact and fiction.
  - could differentiate between relevant and irrelevant information.
  - identified the author’s purpose and point of view accurately.
  - identified unsubstantiated statements.
The student understood and used consistently a uniform system of documentation (citation format).

Some common methods of assessment that encourage critical thinking and information literacy are research papers, theses, dissertations, essay or short answer tests, oral presentations, and annotated bibliographies. Other possible assignments include:

1. **Pathfinder**: “An assignment to create a guide to searching the literature of a particular discipline or the literature about a particular topic. The pathfinder is usually organized into such categories as: general overview of the topic, the types of information available about the topic (e.g., statistics, critical works, or government publications), appropriate subject headings and keywords for searching in the catalog, appropriate journal and full-text indexes with keywords to use for searching, important reference resources, Internet resources, and the like. Other students can use the pathfinder to guide their research and reading about the topic” (Brancolini, 1996).

2. **Practicum Examination**: “Students are assigned to research a particular topic in the library. Their work is graded based on criteria set by the instructor for accuracy, completeness, choice of appropriate sources, variety of resources used, and so on. Each student may be assigned a different topic or all students use the same topic” (Brancolini, 1996).

3. **Research Paper Proposal**: “Students write a proposal describing a research paper. They do research for the paper but do not actually write the paper. A proposal usually includes: thesis statement, questions to be answered by the research, sources consulted, and a bibliography of resources” (Brancolini, 1996).

4. **Follow a research trend**: “Select a present day issue or concern and then search the past literature at 5 or 10 year intervals. Discuss how theories or attitudes have endured or changed” (Touro College Libraries).

5. **Check on the accuracy of an article in Wikipedia**: “Does the information match with two other reliable sources? Can we locate the citations from the references list? Find an article in an encyclopedia and compare it with the article from Wikipedia” (Touro College Libraries).

6. **Critique questionable sources of information**, “such as tabloid news articles or a biased website. Discuss language, audience, structure and format during the analysis... Find a fact or statistic in a magazine article and research it. Where did it originally come from and is it used correctly?” (Touro College Libraries).

7. **Have students keep a research log** “in which they record their research methodology, sources consulted, keywords or headings searched and both success and failures. Provide students with a sample log or with forms so they know exactly which processes to record” (University of Arizona Librarians, 2002).
8. **Have students work in small groups to present research findings on a topic** “with each student presenting for a different audience or presenting a different aspect of the topic... Have students think of a topic from a variety of viewpoints: feminist, environmental, conservative, etc.” (University of Arizona Librarians, 2002).

**Avoiding Plagiarism**

“It is possible to cite a number of things academics currently do quite unwittingly and unintentionally that make plagiarism seem a pragmatic option for the student. Why *not* cheat when offered essays that ask them to gather and present information that they know is just sitting there on the Web? Why should an individual student do their own work when asked to do the same problem as others in the class, or when asked to solve the same case study that was used last year? Why make an effort when everyone in the group gets the same mark regardless of who does the work?” (Stafani & Carroll, 2001).

In addition to successfully measuring student learning, effective assignments are also less likely to fall prey to plagiarism. Creating assignments that measure specific outcomes, ask students to analyze or critically evaluate information, or require students to provide drafts and research methods not only encourage higher level thinking and lifelong information literacy skills, but also encourage student engagement and academic integrity.

The University of Indiana at Bloomington has created the following guide to creating assignments that encourage academic integrity:

**“Using Assignment Sheets**
Most important for any written assignment is the assignment sheet itself. Provide students with an assignment sheet for all written work; doing so clarifies the required task, the parameters for acceptable collaboration, and criteria for evaluation.

**Changing assignments frequently**
- Change your assignments slightly from semester to semester to discourage students from recycling previous students’ work.
- For large classes, change assignments slightly from section to section to discourage the exchange of papers among friends in different sections (where students are likely to have different graders as well).

**Using in-class writing assignments**
Short in-class writing assignments provide instructors with opportunities to:
- become familiar with and assess students’ abilities and styles early on so that sudden changes in their writing are more noticeable
- give students a chance to write extemporaneously, when they cannot become tempted by or mired in others’ words
- practice using sources: consider asking students to summarize, paraphrase, and/or respond to a source.
Making your assignments specific:
Students are far less likely to be able to plagiarize a unique assignment, since sources available to them will not meet the specific requirements of the assignment.

1. **Consider a less well known piece:**
   - **Rather than:** Discuss the importance of literacy to freedom in Frederick Douglass’s *Narrative*.
   - **Try:** Discuss the connection between literacy and freedom in Poynter’s abolitionist tract.

2. **Pose a more focused question:**
   - **Rather than:** What artistic movements influenced the Impressionists?
   - **Try:** In what ways does this particular Impressionist painting reveal the influences of earlier movements?

3. **Ask a question that requires application, rather than explanation of knowledge:**
   - **Rather than:** Explain the basic functions of the vascular, skeletal, muscular and nervous systems.
   - **Try:** A cat jumps off the end of a table onto the floor. Describe how its vascular, muscular, skeletal and nervous systems contribute to this action.
   - **Rather than:** Write a review of *The Matrix* (reviews are especially common on the Web).
   - **Try:** How well does *The Matrix* exemplify Smith’s “nostalgic futurism” in contemporary film?

4. **Consider a tight comparison:**
   - **Rather than:** Analyze Douglass’s attitude toward white abolitionists.
   - **Try:** How does Douglass’s notion of audience change between the *Narrative* and his *Life and Times*, and how do these two texts differ as a result?

5. **Use a “touchstone” assignment:**
   - Ask students to connect their ideas to another aspect of the class—use a point from lecture, a quotation selected from one of your readings (try to choose a less-obvious quotation), an image, or a graph.
   - **Rather than:** Discuss how the accused/condemned were treated in Salem.
   - **Try:** Using Mary Easty’s petition, explain the condemned’s perspective of the Salem trials.”

**Work Cited**


