# Designing Online Course Assignments for Student Engagement: Strategies and Best Practices

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## Abstract

Increasingly, faculty members are tasked with designing online courses in their disciplines, which often requires new skills and considerations. This article proposes a process for the development of a new course to meet evolving requirements of curriculum goal mapping, intellectual skills development, and student engagement. While these seem to be diverse considerations, an approach will be proposed that reveals a very realistic integration of these three elements into a cohesive and assessable course format.

## Keywords

curriculum mapping, learning outcomes, assessing, higher order thinking skills, multiple intelligences, multiple learning styles

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## Introduction

Creating an online course is a complex process. Not only are there numerous requirements which must be met to satisfy student, institution, and assessment expectations, there also is the challenge of programming the course to unfold without direct, face-to-face, interaction with the students. The course developer is advised to consider a hierarchy of academic goals and a commitment to engage the student through multiple forms of interaction, with relevant assessment. Many online assignments can be adapted to the traditional classroom learning environment as well as the hybrid classroom (face to face, with an online component), but they work particularly well in the online environment where a set of unique interactions and assessments is possible. Course design must also recognize diversity in how students learn, what skills they can use, and how they can be taught in the online environment. These student-centered elements must be put into practice in a structure of goal setting that is increasingly essential to support higher education assessment. This can be achieved through the implementation of course assignments conceptualized around a series of primary online learning interactions (in conjunction with higher-order thinking skills) as supplementary components of the course interactions and associated measurable learning outcomes. The

numerous course design elements, just outlined, testify to the complexity in current online course design.

Contemporary approaches to online course delivery are at a crossroads. There are new ways of delivering instructional materials which are dedicated to reaching the maximum number of students at the expense of the quality of course learning interactions.[1] What sets the standard online course apart from the rising behemoths is precisely the level of interaction that students seek and the accountability achieved by a fully assessable program that is sought by employers. Delaney, Johnson, Johnson, and Treslan (2010) find that online students look for interactive characteristics that are very similar to those expected in the traditional classroom, and Rachel Zupek (2010) affirms employer preference for assurance that the education is legitimate. Until these issues are resolved in the large student volume approach, there is a clear need for educators to shape fundamental, high-interaction, readily assessable online courses.

### Beginning with the Student

Since Howard Gardner's (1983/2003) groundbreaking analysis of multiple intelligences, there has been excellent research to support and develop student intellectual capacities (See also Gardner, 1993). This has yielded a parallel research endeavor to support multiple learning styles. Note that multiple intelligences are not the same thing as multiple learning styles. The former term refer to student capabilities or more innate potential while the latter refers to information processing preferences (Prashnig, 2005). The challenge is to find a manageable balance of learning activities which respond to difference in learning style, while challenging students to learn in multiple ways. Examples of best-practice learning interactions will show how various learning styles can be supported in the online environment.

The need to develop student-centered learning activities is further reinforced by several trends in the post-secondary learning environment. Course mapping is coming to higher education assessment. Course objectives will no longer be measured by how enticing and erudite they are. Instead, they must be clearly measurable in the form of student learning outcomes (for instance, see Allen, 2003 and Huba & Freed, 2000), and they must be directly associated with specific learning assignments. Outcomes-based assessment considers what skills and information the student actually takes from the course. It represents a shift away from the course or teaching objectives which tend to identify the skills and material the instructor intends to present. Greater attention to outcomes-based assessment has the added benefit of responding to the developing trend, identified by Arum and Roksa (2011), of a mutual student and faculty culture of disengagement in which little is asked of either party by way of tacit agreement. Traditional assessment practices which attend to instructor input to the educational interaction but not the student output might be a contributory factor in encouraging students to follow the path of least resistance in their educations. Online education is uniquely suited to overcome much of this challenge as educators and students must show tangible evidence that desired outcomes have been met. Thanks, in part, to these factors, online course development in the foreseeable future will include the use of variety in delivery methodology, responsiveness to multiple learning styles, and improved student engagement through increased contact and integration of outcome-conscious assessment.

Course designers who have committed to student-centered learning still must give some attention to the various levels of academic goals at the institution. The University of Connecticut (University of Connecticut, n.d.) uses a "Design it backwards…Deliver it forwards" approach. They recognize a fairly standard collection of goals, ranging from institution, academic program, and the course, to the unit and lesson goals. The designer

should start with institutional goals when developing a course from the ground up; otherwise it might be necessary to begin with some loose course goals in mind and move up the hierarchy to establish a trail of connection with the necessarily broader institutional and academic program goals.  From this point, it is possible to shift in the other direction to reconsider course goals and derive lesson goals from these. Unit goals also can be formed if the course takes shape around units or (more likely) around modules, which are increasingly the backbone of online courses. The use of an organizational matrix can be beneficial. (The development of a matrix will be discussed below, and a very basic example can be found in Table 1.) The designer must be willing to put these various goal levels in writing, without making a final investment in them. The goals should drive the development of the course and not constrict it; they can establish important learning milestones that will aid in structuring assignments and determining assessment outcomes.

### Designing Learning Interactions

In an online course, there are abundant opportunities to engage students in a manner in which they learn most effectively due to the number of learning interactions carried out. It is up to the designer to use these opportunities to facilitate various learning styles, even if it would be a challenge to tailor the course to each student's preferred learning style. In some cases, it is possible to allow students to select from a variety of assignment options. For instance, the course information could be used to write a short essay or write a mock newspaper article for students who tend toward a reading and writing style of learning, while visual learners could elect to create an idea chart or mind map. A selection of options is not required for every assignment since ideally students should be challenged to expand their intellectual repertoire with other learning styles. This challenge takes place through *learning interactions*.

The structure of interactions identified by Moore and Kearsley (1996/2011) is widely recognized and provides a good developmental framework. The first interaction that Moore and Kearsley identify is *student with student*. A majority of online courses initiate this interaction through mandatory participation in online discussion forums. This format calls upon students to articulate their own ideas and make discerning judgments or constructive recommendations about the ideas posed by peers. To integrate some features of kinesthetic (whole body) learning, students can be asked to tie in their own physical experience with the subject matter. They could describe the most congested street they have ever walked down when discussing the struggle with urban congestion in a lesson about human society.[2] Beyond this approach, there are other types of interactions which can be used to exercise and assess student learning styles.

Two more common interactions where student learning styles can be considered are those of *student with course content* and *student with instructor*. Saint Leo University, a leader in online course delivery, adds a fourth type of interaction which deserves inclusion. In light of the non-traditional student population in online courses, and adult learning styles, Saint Leo (2010) describes an interaction titled, *student with self*.

Describing each interaction in turn, *student with course content* interactions are achieved every time students apply reading (or, for the visual learner, audio-visual lecture material, such as podcasts) to an assignment. The assignment can range from the traditional, like a quiz, to more creative options: "Develop a needs analysis chart for your local community's underserved population. Identify an unfulfilled service requirement and design the basic parameters of an organization that could be created to fill that service requirement by forming a mission statement, values statement, and organizational charter." This initial response can be extended to a *student with student*

interaction by turning it into a group project through the discussion forum.

*Student with instructor* interactions usually occur within the context of formal and informal feedback. Graded assignments that allow for revision typify this form of interaction. A very straightforward example is the use of idea charts: "Create three idea charts to outline and support the most important concepts or movements in the reading. Include a common, summary reflection." This assignment indicates how well the student has integrated the reading assignment into his or her understanding of the course topic. *Student with self* interactions work best when they are pre-staged. At the beginning of a course, students can be assigned to write a short autobiography of their experience with a given topic, or they can be asked to list all the terms they initially associate with a topic.[3] In a final paper, they can draw this material and any other experiences in the course together to integrate and reflect on how the course has caused them to be more aware of themselves as learners. Although there are limits to tactile learning in an online course, the inclusion of lived experience in the autobiography adds a dimension of kinesthetic learning. To ensure that multiple learning styles are engaged, most course developers form a course around three or four of these types of interactions, but they must also consider a primary methodological question: What *kind* of learning do they want to see taking place?

One reason that it is possible to speak of kinds of learning is the work of Miller and Seller (1990). They identify three types of learning, each entailing a consideration of both general learning styles and teaching styles, as well as the type of interaction used. At the very basic level is **transmissive learning** in which information is transmitted to the students. Since information is not much more than organized data, transmitting content demands little more than identifying data and requiring students to memorize it and fit it into appropriate categories. In early stages of online education,

instructors relied almost exclusively on this approach, (for instance, posting notes on a static webpage), even after it was being abandoned by traditional classroom. Although it is easy to verify that the transmission occurred, there is very little depth to this type of learning. It primarily calls for the use of rote memorization as a learning activity, which is why Miller and Seller offer advanced approaches.

Miller and Seller identify **transactional learning** as a more inventive form. Rather than emphasizing the *transfer* of content, the instructor ensures a series of engagements *with* the content, through the use of intellectual skills, with various agents of the course. (These course agents are the same as those described by Moore and Kearsley (1996/2011) and Saint Leo (2010), above.) Such agents can include the authors of written course material, other students in the course, the instructor, and the student him- or herself.  In transactional learning, students can be asked to identify a possible solution to a stated problem or question by the instructor. Other agents, such as students, debate the merits and shortcomings of classmates' submissions to reach a consensus on the top solutions. For example, the assignment could be to re-write an amendment to the Bill of Rights as a group. Students become familiar with the material while experiencing the complexity of shaping legislative language in committee.

The most advanced learning format that Miller and Seller note is **transformative learning**. This approach is most closely associated with the work of Mezirow; students transform their perspective of some aspect of life or the world as they bring together two essential elements: critical analysis of course content and reflection on their relevant personal experiences (Mezirow, 1997, 2009). It is easier to set up transformative learning activities than resultant activities to measure student learning outcomes. For example, a pre-staged autobiographical reflection at the beginning of the course can be linked with interim reflections posted

in a common forum. For the final reflection, students may be required to draw on both their initial perspective and the reflections of fellow students as they shape a cumulative reflection on how their learning experience affected their view of the course topic. Numerous student self-reports indicate that this assignment has proven a very effective means to achieve transformation.[4] Whether students are carrying out transactional or transformational learning, the skills they develop and use will be a central feature of course assessment and prepare them as lifelong learners and valued employees.

### Integrating Higher-Order Thinking Skills into Learning Interactions

While there are certain specific technical skills pertinent to every discipline, the most universally desired academic trait might be described as *higher-order thinking skills* (Hart Research Associates, 2010). Many interactions in the online learning environment are well suited to call upon these skills while engaging diverse learning styles. Concentrating on the enhancement and application of higher-order thinking skills in a course enables course developers to visualize the application of many of the interactions described herein to their own courses. Bloom, Englehart, Furst, Hill, and Krathwohl (1956) first identified the most recognized taxonomy of learning or thinking skills in 1956. Moving from basic to advanced skills, these include knowledge, comprehension, application, analysis, synthesis, and evaluation. At the upper end, *analysis*, *synthesis*, and *evaluation* comprise the higher-order skills. These also happen to be the skills which are regularly utilized in transactions and are most supportive of a transformational experience. *Knowledge* and *comprehension* are closely associated with transmissive learning experience, and *application* can support either approach, being especially helpful in transactional learning. Designing a course to call on student use of higher-order thinking skills through the series of such interactions is a practi-

cal way to facilitate transactional and transformational learning.

There are three primary opportunities for interaction using higher-order thinking skills in typical online courses: the discussion boards; module-based written assignments; and broader assignments at midterm or final intervals. On the discussion board, a carefully phrased open-ended question can set the stage for the use of all three higher-order skills. For example, "What changes in technology and business practice allowed for globalization, and what are at least three ways in which you are connected globally with someone else?" Analysis takes place when students identify a change in technology with potential global impact. Evaluation occurs as the likely impact is explained, and synthesis results when students are asked to draw on their prior knowledge and experiences, including physical experiences for kinesthetic and tactile learners, to reveal their personal connection with globalization. To expand the use of higher-order skills, these experiences can be applied to new material raised in the module preview, the module notes, or the audio-visual and reading material.

Module-based written assignments are also versatile means of addressing higher-order skills. To engage analysis, the assignment can ask students to read a piece of text in order to identify material previously introduced. For instance, a sample assignment might be, "Based on the components of a moral act introduced in your textbook, discuss and determine whether the situation described in the first case study qualifies as a morally just act." With this prompt, students analyze a case study and determine what elements of a moral act apply. To engage synthesis, the question can call on the students to relate their own experience or other new material to the issue at hand in order to derive new ideas. Here the students can connect their familiarity with "having the decks stacked against them," with the

concept of unjust social structures. The result could be a contextualized definition of moral injustice.

Broader assignments, especially those placed at the end of a course, are the best opportunity for *student with self* interactions when these include a reflection component as described earlier. The reflection should not be unstructured. It should be carefully designed, with multiple features that call for the student to demonstrate higher-order skills while engaging with the class content. Pairing a broader assignment with a previous assignment enables students to analyze and select key expressions of their prior experience and expectations with the course content and course expectations. To facilitate transformative learning, students can be asked to evaluate what has changed in their perspective. Alternatively (or in addition), they can integrate ideas from various parts of the course and apply these to an instructor proposed situation or minor case study. For example, students have been required to review Pixar's *Wall-E*, a movie about a machine who teaches humans how to recapture their humanity. As part of the final exam, the students are asked to analyze what had gone wrong with the society (analysis), determine which principles of social justice are most involved in the movie (judgment), and describe how they would shape a society around the principles to prevent the situation that Wall-E faced (synthesis). Assignments in this format give students the chance to exercise higher-order skills and use audio and visual learning styles. They also give the instructor rich opportunity to assess student learning development.

### Key Design Features for Assessment

Because institutions frequently require graded written assignments for each learning module, there are many occasions to set up interactions in the module-based assignments. Not only can there be numerous interactions, they also can follow a variety of formats. It is worthwhile designing modular written assignments

after discussion forum assignments and broader term or concluding cumulative reflection assignments because the variety allows for flexibility in covering all remaining learning outcomes and course objectives. While not diminishing the importance of these assignments as opportunities to engage the student with course content in creative and active ways, they can also function as the catch-all opportunity to facilitate remaining learning outcomes. The options for these assignments are limited only by the designer's imagination and the learning outcomes which have yet to be assigned a vehicle of assessment. Some examples include writing a fictional story that draws together elements of historical experience, poetry that exemplifies a common outlook or sentiment about a topic, or designing an advertisement that demonstrates awareness of the power of symbolism and imagery. One also could write a mock newspaper article. This would encourage the student to research and *analyze* course material, *determine* which material is most pertinent under a given word-count constraint, and *synthesize* the material in a common format. Some courses require students to script a short play, rewrite a law, or create a discipline-specific terminology handbook. The important point is to design the assignment to rigorously engage the student in active learning with both the material, and the skills in a manner that connects well with the desired outcomes.

How can it be determined if the course has achieved the goal of student engagement and skills development in conjunction with the anticipated outcomes, objectives, and learning goals? Some very basic mapping can help. There are numerous, detailed assessment checklists which are available, and many of them are online. (See for instance: SREB, 2006; NEA, 2002; NEASC.) Most of these include consideration of specific national, regional, state, and local school district assessment expectations, and it can be useful to review any that are pertinent to the course under design. To keep the focus on the level of engagement and skills

development in the course, development of a much more simplified table that reflects course specifications is recommended. Table 1 is an example that allows the designer to begin with a list of broader institutional and departmental goals. One or two appropriate goals from this level can be co-listed with subject-related goals. Under the course-goal heading these should be rewritten as measurable student learning outcomes. Referencing specific course goals/outcomes from Table 1, the designer can briefly outline an active learning interaction in the chart in Table 2. Identifying the type of interaction and type of learning will be useful in designer self-assessment of the course. A completed set of charts should reveal the use of all four types of interactions, sometimes more than once. This will assure significant student engagement. Identifying the type of learning will allow the designer to gauge whether there is a preponderance of active learning in the course if transactional and transformative learning types dominate.

This process of filling out simplified assessment tables should be just that, a process. There should be give and take and some returning to the drawing board to be sure that student interactions were developed for a purpose and not just busy work. If an interaction does not fit into the table, and re-phrasing does not help, the designer should be willing to let it go and come up with a new interaction. Once a reasonable set of connections has been established across the table for each interaction, the process is complete, and the assessment features of the course are designed. Now all that remains to be done is to select and deliver the content. By following the guidelines and suggestions presented above, and a willingness to think across several dimensions of course development, the designer will have a course that actively engages the student, exercises a variety of learning styles and thinking skills, and satisfies the assessment requirements of the institution. ◼◼

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### Notes

1     Led by the Khan Academy, TED-Ed, MAT@USC, Udacity, and MITx, many players in the new wave in online education are fueled by seed money and driven by a rush to maximize student headcount prior to settling into a long-term, sustainable model that balances the education of students with reliable accountability for the verification that the education has indeed occurred. See Felix Salmon (2012). While efforts to educate students in numbers exceeding 100,000 are impressive, these programs still need development in the area of personal interaction, in addition to accountability. The use of social networking to establish student learning communities, in some of the cutting-edge approaches to online learning, only accounts for one of the types of interaction covered in this article. The exception to the identified frontrunners in online technology might be MAT@USC which appears to be developed for traditional-sized classes using streaming video interface for online video interaction.

2      For a lesson on meaning, I have asked students to list the ten most insignificant things that they did in the last 24 hours. They seem to enjoy outdoing each other in pursuit of meaninglessness, but, strangely enough, they discover meaning in the least likely places as their consciousness is broadened.

3      An example of a course related use of autobiography: "Describe a cultural situation in which you felt most out of place. Include multiple details of setting, other characters, and actions (plot)." This assignment could be used as the baseline for an end of course reflection on cultural awareness and adaptation.

4      Three examples of student reports which exemplify varying degrees of transformative learning experience are listed here: "One aspect in which my appreciation for [course content] has matured is in understanding the importance of each person's individual experience of the writings."

"In the midst of the course I did struggle with marrying what I understood before with the content, yet in the wrestling, arrived in humble submission to the reality that I understand more, and in that understanding found a strengthening of my belief."

"From the beginning, having the very method used to interpret the writings being explained, was a wonder and showed the shallowness with which I had approached this subject in the past."

*Table 2. Interaction Development Matrix*

| Course Goal/ outcome | Tool, knowledge, or skill engaged | Description of interaction | Location of assignment in course | Type of interaction | Type of learning |
|---|---|---|---|---|---|
| 1a | A1 | Complete assigned reading in Aldous Huxley's *Brave New World*; analyze reading for examples of how freedom is curtailed; post example; vote for most serious example in online group; develop group declaration on inalienable right to freedom. | Week 4 Discussion Forum | Student w/ course<br><br>Student w/ student | Trans-actional<br><br>Trans-formative |
| 1b | A2 | | | | |
| 1c | A3 | | | | |
| 1d | A4 | | | | |
| 1e | A5 | | | | |

*Table 1. Goal Selection Matrix*

| Level of Goal | Description | |
|---|---|---|
| Institutional | Identify any college/university learning outcomes or goals here. If your institution has not developed these analyze your institutional mission for elements that reflect academic goals.<br> List these below:<br>a. The college will graduate students with an appreciation of human freedom<br>b.<br>c.<br>d.<br>e. | |
| Academic Program / Division/Department | Complete this only if institution uses these goals | |
| | | **Required tools, knowledge, skills** |
| Course | 1. Select one or two goals above which could potentially be addressed in your course as learning outcomes. Identify three to six additional subject related learning outcomes.<br>List these below:<br>a. Students successfully completing the requirements of this course will be able to identify and analyze challenges to freedom<br>b.<br>c.<br>d.<br>e. | A. Describe which tools, knowledge, and higher order thinking skills would facilitate the goals listed at left.<br>List these below:<br>1.analysis, judgment, synthesis<br>2.<br>3.<br>4.<br>5. |
| Unit or Module | 2.<br>Complete this only if required to specify goals by course units or modules | B. |

*Move to Table 2.