REFLECTIVE COURSE REVIEW AND REVISION: AN OVERVIEW OF A PROCESS TO IMPROVE COURSE PEDAGOGY AND STRUCTURE

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ABSTRACT

Each semester faculty spend time creating and revising their courses. Course revision is a fact of life in education. Revisions are more commonly just general updates, like cosmetic changes, moving dates, and updating broken links. A true course revision looks at the pedagogy and structure of a course and is a process that requires time and patience. This article will look at the general process of conducting an extensive course revision and the specific strategies involved in evaluating course materials. Establishing a clear set of steps in the revision process can reduce effort and time on task. Course revision can be made easier with a little planning and preparation and having the confidence to begin. With the help of a process and some simple tools and strategies, faculty can be more effective in their teaching. To accomplish this, efficient course revision relies on a five-step process: set revision goals; review course structure, content, and assignments; integrate student feedback; record reflections, findings, and observations; and implement revisions. There are no shortcuts when looking at improving the pedagogy and structure of an online course. The result of a quality course revision should lead to increased learning opportunities for students and, hopefully, a decreased workload for the faculty. This article will also discuss a targeted style of course revision called a spotlight revision, which focuses on a single aspect of a course in order to facilitate deeper thinking in course design and pedagogy.

Keywords: course revision, course review, education, online learning, course quality, course evaluation

INTRODUCTION

Imagine someone stranded in the middle of the desert. They don't know where to go or how to survive. As they acclimate to their situation, they start becoming more aware of their surroundings—noticing the position of the sun, the flight patterns of the birds, the sounds of the insects and animals. The more they focus, the more the sights and sounds tell them and inform them of their surroundings. In wilderness survival, this concept is called situational awareness. In online learning, it mirrors a structure for looking at the course revision process for online learning.

Comparing online course revision to wilderness survival may seem absurd on its face, but in examining the online teaching environment, it starts to make some sense. Course revision can be an isolating experience for many who teach online. Most faculty know how to update their courses, but true course revision is usually less familiar and there may be fewer resources available for this process. When doing a course revision, the level of support that was available during initial course development may be dramatically reduced. Many institutions put great emphasis on development (Baldwin, Ching, & Hsu, 2018; Dimou & Kameas, 2016; Robinson & Wizer, 2016), but revision may be seen as a secondary process. Faculty can be left in the figurative wilderness trying to navigate their way out.

To solve this issue, faculty must look at course revision as a process and see how it ties to the practical work of online teaching. There is a reason that most course development and instructional design models have some aspect devoted to evaluation and revision (Chen, Moore, & Vo, 2012; D'Agustino,

2012). For instance, the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) model specifically places an evaluation step at the end of the process. This step allows for a designer or instructor to look at the efficacy of the course/instructional module after the development process is complete (Holden, 2015). Other design processes, such as the Successive Approximation Model (SAM) or a spiral model of design such as the Rapid Prototyping Model, place the review process in the middle of development as an iterative process that allows for formative evaluation of course materials as well as a summative process (Brown & Green, 2016; Rapid prototyping, 2018). There is also a reason why review and revision is a part of most major instructional design models—because the first iteration of a course is rarely, if ever, the best way to facilitate learning.

There is a large amount of research on the initial design of courses, but there is limited literature on review, revision, or redevelopment as a stand-alone process in higher education or the online learning. Most curriculum revision/redevelopment articles are discipline specific investigations or case studies on singular courses and don't present a generalized process. This is compounded by the need to extricate and differentiate the course revision process from the research on the overall design process to be able to isolate a specific set of steps for evaluation, analysis, and revision. There is some foundational work in course design done by a few authors. The review and redesign of course instruction and pedagogical methodology can be found in research in which revision is a priority over course execution and design (Blumberg, 2009; Diamond, 1989; Fink, 2003; Twigg, 2005; Wiggins & McTighe, 1998). The National Center for Academic Transformation was founded on the idea of redesigning courses using technology. Though not specifically intended for the online environment, the work did lead to the online space after a time (Twigg, 2005, 2009). Course redesign and evaluating the design processes are important to understanding revision as a stand-alone process.

The specific issue with the use of a standard curriculum or instructional design process for course revision is that most design models make evaluation a part of a larger process that has a single step for evaluation and another step for revision, both of which are usually vague in their application. The major focus of the different design models is on the initial development process and not as much time is spent addressing how to evaluate previously developed materials. The process presented in this article will attempt to address this gap and provide a cohesive set of steps to review, evaluate, and implement changes in a fully developed course. The process may also be applied to any other design process that includes a review/evaluation step. The process pulls from best practices in instructional design and includes an integrated review of the literature to reinforce the concepts presented in each section. This article does not provide a specific conceptual framework to the course revision process, but it does provide practical steps for faculty who are wanting to make substantive revisions to their course pedagogy and methodology in a structured and efficient manner.

Revision is an important aspect of effective instruction in all teaching areas. While it may appear daunting at first, thoughtful and substantive course revision can be easily accomplished with direction and a planned strategy. Using a process for course revision will help ameliorate some of the stress faculty feel when faced with making revisions (Bloxham, 2010; Shank, 2010; Turner, 2009).

Course Revision Versus Course Update

Conducting a course revision is not the same as a course update. This distinction is important in discussing the process of course revision. The deeper issues tied to student learning must be evaluated in order to do a true course revision. Faculty update their courses for subsequent semesters, changing items such as dates, deadlines, and links, but not all faculty revise their courses on a consistent basis. The course revision process is used to improve the quality of the learner experience in the course (Adelstein & Barbour, 2017; Krieie & Bussmann, 2015). A course revision involves a process of evaluating the different parts of a course to determine what is effective, educationally relevant, easily understood, and what is not (Twigg, 2005).

Any revision relies on a process (Turner, 2009). Moving forward without a clear set of steps will lead to issues like wasted time, inconsistent modifications, and possibly an overall decrease in quality. When a consistent process is used and clear and purposeful notes are taken during the evaluation stage, the final product of the revision

is a more effective course for students and faculty.

An Initial Note

The revision process is important and requires both time and energy to complete. Before beginning, faculty must ask themselves if they are willing to spend the time and energy needed to evaluate their course(s). This process requires a time commitment not only in reviewing the course but also in researching solutions, learning pedagogical best practices, and taking critical feedback from multiple perspectives. If the goal is to improve the learning for students, then taking the time to ensure the creating of a high-quality and rigorous educational experience should be an unqualified yes. That stated, the following sections will look at the process and factors in performing a successful course revision.

Course Revision as a Process

Establishing a clear set of steps in the revision process can reduce effort and time on task. Course revision can be easy with a little planning and preparation and by having the confidence to begin. Using a process will help identify areas for improvement and will ultimately create a better learning environment for students and a better instructional environment from which to teach and facilitate.

To accomplish this, efficient course revision relies on a five-step process:

Step 1: Set Revision Goals

Step 2: Review Course Structure, Content, and Assignments

Step 3: Integrate Student Feedback

Step 4: Record Reflections, Findings, and Observations

Step 5: Implement Revisions

Using these steps, faculty can evaluate any course with a critical eye and identify changes that will improve the online learning experience and outcomes for students.

STEP 1: SET REVISION GOALS

The first step in any course revision is setting goals. What is to be accomplished with the revision? If the answer is to change dates, check links, and update a bit of content, this is a course update and not a course revision (Shank, 2010). Course updating is not the best way to improve the pedagogy and function of a course. If faculty want to look for deeper issues within their courses, they should proceed with a true course revision, which will allow them to focus on how the structure, learning outcomes, and processes can be improved.

When setting goals for a course revision, it is necessary not only to set outward goals, such as revising course materials, improving structure, and strengthening assessments, but also to look at inward goals such as gaining a deeper understanding of the teaching process and identifying personal time management issues. During the process, faculty should be spending time using reflective practice during each of the separate phases of the revision. Reflective practice is the process of casting a truly critical eye on the values and theories that inform practice, thereby leading to deeper developmental insight (Bolton, 2010).

To create a more directed revision process, faculty should set goals and use reflective practice to deepen the analysis of the issues in the course. This practice should also lead to continuous learning (Schön, 1983), which is necessary for the revision process. As will be discussed later, the course revision is a cyclical process that never truly ends in which faculty strive for continuous improvement of their courses. The use of reflective practice in course revision will be discussed at various points throughout this article.

Identify the Criteria for Revision

Goals can be set in a few different ways. Some things may have not worked in the past, so the main goal is improving the pedagogy and function of the course by correcting these issues. While this can work, it is not necessarily an effective way to approach course revision. Faculty may consider turning to a course quality instrument for guidance and to help determine their overall goals.

Most institutions have either developed their own or chosen to use a particular instrument for course quality assurance. Institutions use checklists created by online learning groups or in-house lists to provide faculty guidance regarding what elements must be present in a well-designed online course. If the faculty member's institution uses one of these, that instrument should be used as a starting point for determining revision goals. Best practices in online learning (Hutchinson & Durham, 2012) and quality assurance measures are presented in the form of checklists, rubrics, and assessment instruments (Baldwin, Ching, & Hsu, 2018; Dimou & Kameas, 2016).

If the faculty member's institution doesn't use a course quality instrument, they can look to some of the available instruments for guidance. Some of the more popular instruments include:

- Quality Matters (qualitymatters.org)
- OLC Quality Scorecard (onlinelearningconsortium.org/consult/quality-scorecard)
- OSCQR, Open SUNY Course Quality Review (oscqr.org)
- QLT, Quality Learning and Teaching (csun.edu/it/qlt)
- QOCI, Quality Online Course Initiative (ion.uillinois.edu/resources/qoci.asp)
- Learning Management System (LMS) providers. Many have quality assurance instruments available as well.

Any of these instruments will provide a solid, evidence-based foundation for a course evaluation and revision. Most course quality instruments contain similar criteria for evaluation. It is important to choose an instrument that fits well with a faculty member's evaluation style and has criteria that match the desired outcomes. The specific instrument is less important than its usability to the faculty member and their ability to understand its individual criteria.

Once a course quality instrument has been identified and chosen, the next step in the process is to create a time frame and set a schedule for the course evaluation.

Setting a Time Frame and Schedule

Perhaps the most common way in which faculty, instructional designers, and course developers fail at performing a course evaluation for revision is in not properly budgeting the time for the tasks that make up the process. Performing an effective course revision requires a set time frame for review and revision and scheduled time to execute the process (Andersen & Avery, 2008; Ko & Rossen, 2017). This is a basic tenet of time management, but it bears further discussion for the revision process (Ko & Rossen, 2017).

The start of the process is picking a time frame for the course review/evaluation. For a true course revision, this would be more than a few hours or even days. At the very least, faculty should plan on revisiting their course several times over the course of a few weeks to make sure that they are doing a comprehensive evaluation. The time frame and time allotted should reflect the depth at which faculty wish to review their courses. A full semester-long review and evaluation process, while the course is being taught, would be a strong consideration for more in-depth analysis. Simultaneously teaching and evaluating a course will allow faculty to cast a critical eye on course issues as they are happening rather than just in hindsight.

One of the best practices associated with online teaching and learning is to allocate specific times to work on grading, interacting with students, or, in this case, evaluating (Sull, 2008). Time to do the evaluative work on a course should be set aside at regular intervals. Most likely, this will be integrated into teaching time so that faculty can carefully review the focus area at the same time. This may be different for more objective processes like accessibility or media evaluations.

Whatever the time frame and schedule, make sure it is sufficient to perform the evaluation process. If spending time working on a course revision requires more time than available, faculty may want to scale back the depth of their evaluation and revision.

Now that an instrument has been chosen and a time frame is set and scheduled, the next step is to start actively reviewing the course.

STEP 2: REVIEW COURSE STRUCTURE, CONTENT, AND ASSIGNMENTS

This step begins the evaluation portion of the course revision process and involves looking at a course, gathering and analyzing any data, and determining if more data can be gained through formative assessment. The point of this step is to determine what might need to be updated, added, or removed to improve learning for students. There are direct and indirect ways of finding issues in a course, but the main purpose is to apply the criteria determined in the first step to find issues that can be resolved through revision of structure, content, and assignments.

True course revision looks at multiple aspects of teaching. In addition to looking for opportunities to improve student learning, faculty can also look for ways to create efficiencies for themselves in their role as instructors. They can also look for "pain points" that can be improved through course

revision, such as turnaround times on returned assignments, And they can look for ways to reduce the feedback workload by creating more descriptive rubrics that don't require writing as much feedback to the students or developing banks of prebuilt feedback that address the most common issues seen in returning particular assignments in a timely manner. If video content is an issue, faculty can find ways to create videos that can be reused in multiple semesters or look for video content developed by the textbook publisher. Sometimes the best way to handle an issue is to find a happy medium between what is best for the students and what is best for the instructor. If a faculty member is unhappy teaching the course, it will show to their students. The more faculty enjoy the course experience, the more it will show to their students.

The review process can consist of multiple strategies. Four are presented in this section: personal reflection, data analytics, active course review, and peer feedback and reflection. Though these processes are outlined separately, they do not need to be performed separately and would be most effective when done concurrently during a course evaluation process. As mentioned previously, reflective practice is critical to these steps. Identifying the issues is only the first step; faculty must go beyond the *what* and look for the *why* of the problems that present themselves in order to gain a true understanding of these issues.

Personal Reflection

The first place to look for feedback is also one of the easiest to obtain. Faculty know when things don't function properly in their courses. Personal reflection on a course should yield some starting points (Camburn & Han, 2015; Howard, 2003) with attention paid to both current and previous iterations of the course.

Using the personal reflection process on the historical aspect of the course will give faculty some general areas of focus, but it will probably not lead to the kind of comprehensive evaluative process that most will be looking for. It should, however, bring forward any major issues that were faced in the past. Faculty should find these "pain points," think about what went wrong, and consider possible ways of fixing the issues (Oakley, Pegrum, & Johnston, 2014; Quinn, Grove, & Grandy, 2015). Emotions need to be considered as they tend to cloud certain aspects of memory as people remember things as being better or worse than they actually were.

A more effective way to find issues by personal reflection is to apply this process as the course is taught. Information tends to be more tangible and valuable when looked at with a critical eye as things are happening in a course (Schön, 1983). Again, faculty should think about where the "pain points" are located. Questions faculty should ask themselves when performing a personal reflection include:

- Where do I find myself spending too much or not enough time on a specific task or tasks?
- At what points in the course do I find myself explaining issues to students more often than I should?
- Where is my energy placed in the course?
- Where should my energy be placed in the course?

In addition to the *where* and *what* questions, faculty should also strive to think more critically about the issues by looking at the *how* and *why* questions. This is a central tenet of the reflective practice discussed earlier. Taking time to determine why and how the problems present themselves helps faculty to think critically about their courses. This is a key to continuous improvement and a deeper understanding of pedagogy and student learning (Lyons, 2010; Ross, 2011).

There is no magic process other than sitting and thinking about the criteria from the chosen instrument. Faculty can keep the list of assembled criteria nearby and refer to it as they think about where deficiencies are in the course. They may even want to integrate these into the evaluation notes for each section of the course to reference as they progress. Finally, the use of a note-taking instrument can be helpful. An example of this is provided in Appendix 1. Note-taking will be discussed further in a later section of this article.

Data Analytics

Data analytics is becoming a more visible part of the educational experience. In educational settings, this refers to using raw data, usually collected by the LMS, to determine where issues exist in the presentation of content, student learning, and student engagement (Rodgers, Talbut, & Baranovic, 2015). This can be as simple as looking at the number of hours or page views students are seeing in the course or looking at more complex systems like correlative data about usage and achievement. More studies are

showing how data can be used to improve learning (Abuteir & El-Halees, 2012; Dietz-Uhler & Hurn, 2013). Companies are popping up every day that promise to give educational institutions the world if they use their analytics suites (Beidelman, 2018; Gupta, 2015). While this is a complex system of mass data analysis, it doesn't mean that instructors can't use similar and simpler tactics to identify issues in courses.

Most LMSs have some type of data analytics on the course level where faculty can see grade distributions, activity times, question analysis, and so on (Tempelaar, Rienties, & Giesbers, 2015; You, 2015, 2016). These reports give faculty the ability to find areas in which their students may be struggling, or inversely, where the faculty themselves are struggling. Consider the following two cases that deal with grade data:

1. Students are consistently achieving low scores on a test, quiz, assignment, etc.—This could even be a case of looking at the class' performance on individual questions. Most LMSs will give a breakdown of student performance on each question. When faulty see low scores on tests or questions, they may infer a few different things. Either the students are not being prepared for this via the course content or the question(s) or the assignment is not properly assessing what it should. In the first case, faculty must turn to the course content and their teaching strategy to see if there is any way to improve its impact on the students' learning. In the second case, faculty must look at the question(s) or the assignment itself to see how they may reform it to properly assess the areas in which the students are expected to learn.
2. Students are consistently achieving high scores on a test, quiz, assignment, etc.—So now faculty must deal with the flip-side of the previous scenario. What can they do when the overall class score is too high? High student achievement is important, but universally high scores usually point to one of two things. First, it could be that the assignment was too easy. Faculty may be asking rudimentary questions when what they want is higher-order thinking skills. In this case, much like the previous scenario, faculty should look to the assignment to see if they can reform it to properly assess the course learning objectives. The second option is that the grading system is flawed. If there is a rubric, is the rubric truly assessing the important details of the assignment? If there isn't a rubric, should one be used?

These two scenarios demonstrate cases where faculty may interpolate issues in the course using very simple data analysis. There are many other ways to analyze and interpret the data available, but faculty need not be statisticians to find areas where a course could benefit from some revision (Ma, Han, Yang, & Cheng, 2015).

Active Course Review

The next strategy is to employ an active course review process. This is the simplest part of the process to explain because it relies entirely on the chosen course quality instrument. Each of the previously listed course quality instruments includes a set of instructions as to how it should be implemented. Faculty may act as their own course reviewer and fill out the instrument as directed. The chosen evaluation instrument criteria should be used as the foundation of an evaluation process in the other self-reflective parts as it was intended. This process will not catch all issues, as most instruments don't have criteria that can address certain types of issues, such as rigor, content quality, and any subjective issues in a course, but they are excellent at identifying procedural issues and structural problems.

Peer Feedback and Reflection

Finally, there is a possibility that other faculty have taught the same or similar courses to the one being reviewed. Seeking the feedback of others during the review process can be beneficial to the overall quality of the course review. The same type of reflective process can be used to solicit information from colleagues to provide an outside perspective. There is also the possibility of adding a collaborative component to the review process that may be beneficial to the redevelopment process (Chao, Saj, & Hamilton, 2010). While this article will not specifically address the integration of a collaborative working environment into this process, all of the steps can be applied to multiple course developers such as other faculty, instructional designers, content experts, and even nonacademic colleagues (Leppisaari, Kleimola, Herrington, Maunula, & Hohenthal, 2014).

The next step in the evaluation process will be looking at and soliciting feedback from former and current students to increase the knowledge gained by the course review.

STEP 3: INTEGRATE STUDENT FEEDBACK

There are few people who can give faculty better feedback about a course than their students. The students are the ones who are working through the content, assessment activities, and interactions on a consistent and constant basis. Students can give ideas about where the course is not clear and where they are struggling even if the course is clear. For this step of the evaluation process, faculty may look at three different but equally valid forms of student feedback: unsolicited, formative, and summative (Kirkova, Mateva, Taneva, & Kireva, 2014). They may also want to consider feedback that focuses on course design rather than teaching (Piña & Bohn, 2014).

Unsolicited Student Feedback

For resolving many issues, students may be the best resource. The first way to receive feedback is through student communication. Faculty receive many different types of communication from their students: emails, forum questions, etc. Most of these are critical identifiers about areas for improvement in the course (Plank, Dixon, & Ward, 2014). Look at each communication received as a data point for revision. Some may be far off of the curve, but most will identify something that could be improved.

Faculty should keep a file of student emails, discussion posts on the course questions board, and other communication, such as notes on phone calls, virtual office hours, and in-person visits. Compiling this kind of unsolicited student feedback should provide them with a clear picture of places in the course that need attention. It will by no means cover all issues, but it should identify guideposts to places that should be evaluated for improvement or removal.

Formative Student Feedback

Looking beyond the incidental information received from student communication, the next step in this process should be formative evaluation instruments presented to students. Formative feedback in courses is a best practice in teaching, and for course revision it can be one of the best tools. Asking students for their opinion on the current content, assignments, interactions, etc., is important. Giving students a voice in the course and the evaluation process is critical; after all, they are the ones for whom faculty are doing the revision.

When developing a formative assessment survey, faculty should be sure to use questions that speak to areas of the course that are identified as problematic. Getting additional information outside of these areas is also helpful and should be saved for future consideration. There should be three to five open-ended questions in each assessment that is sent out. This allows the students to give enough feedback without overwhelming them with questions or forcing them to constrain their answers to multiple-choice or Likert-style questions. Finally, these surveys should only be used three to four times during the semester. Any more than this and faculty risk a severe drop in response and even student resentment of the process (McCarthy, 2017; Zipser & Mincieli, 2018).

The following is a nonexhaustive set of examples of formative assessment questions that can be used to solicit feedback from students:

- What is the most important (significant, useful, meaningful, etc.) thing you learned?
- What is the least important (significant, useful, meaningful, etc.) thing you learned?
- What was the central point of this (module, chapter, unit, etc.)?
- What question(s) still remain?
- Is there anything you did not understand?
- What instructions were unclear?
- Would you agree with the following statement . . .? Why?

Of course, as stated, these are not all of the questions that can be asked for a formative assessment of a course, but they demonstrate the kind of information that can be used when asking students to give their opinions on the status of a course.

Summative Student Feedback

The final source of feedback is one that most faculty know well; that is, summative feedback in the form of final student evaluations of the course. These can also provide a useful tool for a course revision process for the same reasons as formative feedback. There are some caveats to the use of summative feedback in the form of student course evaluations. Student performance in a course can

Table 1. *Systems of Note-Taking*

Method	
Paper and Pencil	This is the simplest way to record notes. Keep nearby some kind of paper, notebook, or notepad when reviewing a course. These should be separate from other notes and work.
Office Suite	Use an office suite of programs (word processor, spreadsheet) to record notes in a digital document. Colors can be used to differentiate between areas of the course or types of revisions (e.g., assignments in green, rubrics in red, tests in blue, etc.)
Learning Management System	Make notes in the course itself. Create pages/items that are hidden from the students and contain notes for revision. This method also benefits by being tied directly to the course so there is little fear of losing these records.

affect the quality and tone of the feedback presented in end-of-course evaluations (Cohen, 1981). They may also present with far less accurate information that other types of assessments due to the artificial inflation and deflation of ratings (McClain, Gulbis, & Hays, 2018). Finally, there may also be a limit due to low response rates for different types of courses. Online courses tend to suffer from low response rates due to the nature of their student population, and feedback may be less effective because of the relative lack of feedback (Chapman & Joines, 2017) along with the issues previously presented. All of this is not to dissuade the use of summative feedback but to inform the use of the feedback due to some particular limitations of end-of-course evaluations.

The next step in the process will integrate with the previous two steps as the full evaluative process.

Review and feedback are important, but there must also be steps in recording and organizing this information for use in the final revision process.

STEP 4: RECORD REFLECTIONS, FINDINGS, AND OBSERVATIONS

While faculty are reviewing course content and assignments and looking at student feedback, they will need to document what they are seeing and thinking. Having a running set of observations will help when they sit down to revise the course.

Organization is one of the keys to a successful evaluation and revision process. A place to record thoughts, notes, ideas, and changes is critical to the evaluation process. Faculty should be using this information for reference throughout the course as well as when they begin to make the revisions. Just as effective note taking is a success indicator in students (Fahmy & Bilton, 1990; Gambill, Moss, & Vescogni, 2008), it is also critical in a faculty assessment of their course.

Choosing a method of recording that makes sense and is comfortable to work with is vital. Using the latest note-taking technology won't be effective if faculty struggle to use it or it is not easily accessible. The ideal system could be as simple as a notebook or a Word document. There are a few different ways to record notes that will allow faculty to make the changes when they get to the revision stage. The following ideas are presented as agnostic processes that don't favor specific software providers. There may be a specific application that a faculty member enjoys using, and if so, they should. If they don't have a preferred system for notetaking, they could consider one of the three strategies in Table 1.

The method is less important than the process; faculty should make sure that the notes they write will make sense at a later point. If they can't understand what they wrote during the final revision, all the notes in the world won't help to improve a course. It may even be advisable to spend time reviewing note-taking strategies on the Internet. Even though most faculty have been doing this for years, it doesn't mean that a good refresher isn't useful from time to time.

When the revision process is over, the notes should not be discarded. While it may be satisfying to cross things off of a list or to throw away notes as a symbol of completion, the notes will serve as a useful tool for the future as well. These can serve a few different purposes:

1. Use the notes as a change log that shows what has been modified. Keep them and make

successive revision/updating notes in the same area using different colors, new pages, etc., to differentiate versions of the course. This can be useful when looking at changes in future semesters or in other courses.

2. Use the noted as a blueprint for issues that exist in other courses. It is likely that changes made in this course can be beneficial in other courses as well. Humans tend toward habitual behaviors and course design is no different. Use the notes as a lens to examine other courses in need of revision.

3. Use the notes to identify areas to avoid when developing future courses. Revisions in a course show where the development process may have holes. The notes can be referenced to prevent issues in future courses that have yet to be developed. It may even be helpful to summarize notes into a course development *dos* and *don'ts* list.

As faculty may be recording their reflections even before beginning the revision process, it is critical to decide in advance what kind of information to record. It may not be enough to just make notes on what changes should be made. Time may wipe away the impetus for any change and the reasons should be as important as the change itself. During this phase, faculty should consider making a list of things that need to be recorded for each issue and then record each change that was made. Record what was changed, the factors that led to the issue/change, the date the change was made, and whether or not the change was an improvement (Bloxham, 2010). These can be helpful in not only creating a better course but also evaluating whether a new direction helped or hindered the educational experience. A sample worksheet can be found in Appendix A.

It may further help to take the notes (either in whole or in part) and put them into an online site like Wordle.com or WordItOut.com to create a visual representation of the most common words in the recorded notes. This visual representation of the content in the revision notes is called a word cloud and can be a useful tool in identifying those issues that are recurring or areas that may need work. Unfortunately, this process won't be available when taking written notes unless the notes are scanned, converted to text, and uploaded to the cloud. Using the word processor, spreadsheet, LMS, or most other digital methods of note taking will allow notes to be moved into a word-cloud program. The word cloud may help to identify some important issues, concepts, or areas that are repeatedly recorded in the review notes. This can be helpful in the future development of courses, looking at other courses that are in development, or even as a way to start an FAQ page for the course.

Once all the evaluative information and feedback has been compiled, it is time to proceed to the final step of course revision.

STEP 5: IMPLEMENT REVISIONS

The final step is to implement the revisions to the course. It may seem absurd on its face to say that the final step of a revision process is to revise the course, but too often faculty start with this phase of the process. Even if there are minor changes, any revision of the course should all be saved for the final step of the process.

Having successfully completed the previous steps, this should be one of the easiest parts of the process. This doesn't mean that there won't be challenges. Even with the best notes in the world and the pedagogical knowledge to back them up, it will still take some time and thought to revise a course.

Though a framework has been built for revising the course, just like evaluating a course for revision, the actual process should not be done in haste. Faculty need to give themselves enough time to properly execute the ideas. A revision shouldn't be done in a day or two—the process should be spread out to give ample time and ensure a complete revision.

Faculty also shouldn't be afraid to seek out help from sources if there are issues with which they are unfamiliar or don't possess the knowledge to overcome. They should seek out resources that are available on their campuses (Ko & Rossen, 2017; Orr, Williams, & Pennington, 2009). Some possible people with whom faculty may consult would be:

- Instructional Designers—The instructional design department, if the campus has one, is the first place to look for advice and consultation on pedagogical issues. They are an invaluable resource in the process. Faculty shouldn't be afraid to involve them in the early stages of the review process as well (Shaver, 2017). In addition to face-

to-face resources, instructional designers may have created online professional development available for faculty use (Dede, Ketelhut, Whitehouse, Breit, & McCloskey, 2009; Elliott, Rhoades, Jackson, & Mandernach, 2015; Rizzuto, 2017).

- Instructional Technologists—Technical issues should be addressed to the campus instructional technologists if the campus has them. Instructional technologists should be looked to for help with the LMS, programs available on to the campus, or programming needs.
- Content Developers—If the revision plan calls for the creation or improvement of video, audio, images, etc., faculty should seek out campus content development experts. These are less likely to be a defined department on campus, but there are usually academic departments with faculty and even students that may be willing to help with the development of content—or at least help faculty get on the right path to do it themselves.
- Colleagues—One should never underestimate the value of another colleague who has been there. Talking with other faculty members within one's own department, and others outside of the department, can be helpful. It never hurts to use someone else as a sounding board for ideas. It may also be that one of them has seen the same issues and has a creative way of solving the issue or issues. Additionally, as referenced previously, faculty who have taught the same or similar courses may have other insights into the specific issues faced in the reviewed course.

Even though it seems as if faculty are alone in the wilds of online education, there is usually someone who is ready to help if they send up a flare. It never hurts to ask.

REFLECTION AND REVISION

The final step of any course revision is to teach the course again; however, revision is not a linear process. It should not just start and end but cycle forward to the next revision. Leonardo da Vinci once said that "art is never finished, only abandoned," and this should be the philosophy of any faculty member who wants to maintain a high level of quality in their course offerings. Faculty should strive for a model of continuous quality improvement in their courses (Aggarwal & Lynn, 2012; García, Romero, Ventura, & de Castro, 2006). Most modern design models include a return to facilitate this very idea of constant revision (Hack, 2016; Instructional design models, 2018). The revised course may be taught several times before a true course revision is completed, but the process presented above should be kept in mind during these course offerings to facilitate a better understanding of the strengths and weaknesses of the course. More data means more information to use to reflect, evaluate, and improve the efficacy of instruction in a course.

Courses should be viewed as living documents that will change and adapt with time and information (Wambeke, Barry, & Bruhl, 2017). The development of new strategies and the introduction of new concepts into a discipline warrants the constant development and redevelopment of course assignments and materials to demonstrate best practices in teaching and learning. Similar to da Vinci's quote, courses are not completed, only abandoned.

SPOTLIGHT REVISION: A DEEPER DIVE INTO COURSE REVISION

The amount of content, objectives, assignments, etc., included in a standard semester-long course can seem like a daunting task to evaluate and revise in one process. During a standard course revision, the possibility of information overload is likely. Spending a limited amount of time looking at a broad range of issues can cause the loss of specific issues. Returning to the analogy of being lost in the wilderness, using situational awareness allows one to focus on a single area instead of trying to take in everything at once. Applying this technique to revision gives the same benefits as the survival technique: Faculty may narrow their focus to concentrate on small details instead of trying to pick out relevant information from a large amount of data. This technique is called a spotlight revision.

A spotlight revision does not take the place of a standard course revision process. This is a modified process conducted over the same duration as the process outlined above. It can be done without an active student population; however, this reduces the

number of strategies that can be used to identify the particular issues that are being evaluated. A spotlight revision also does not look as much at the functional aspects of a course. For instance, while broken links or changing due dates are common issues for a general course revision, a spotlight revision does not look for these specific issues. These issues can be addressed in the final revision, but they won't necessarily be part of the spotlight revision because they are standard items that should be addressed in any general course revision.

So why should an instructor perform a spotlight revision instead of a general revision, or, if the structure or pedagogy of a course needs changing, shouldn't the instructor do a full course redesign? The spotlight revision allows for a comprehensive look at one aspect of the course when a general revision might not be possible due to teaching or research constraints. Using this method also allows instructors to look at areas that they might not have spent time on before. It also gives a pathway for addressing new initiatives that are implemented by the school or system, such as a push for accessible courses. Finally, it can enable professional development by giving the instructor a reason to learn new skills.

With the initial rationale highlighted, it then becomes necessary to take the first steps of the spotlight revision process. As stated before, the same five-step process is employed, but with one difference: the focus. For this, the faculty can modify the initial step to include a specific focus for examining the cause instead of a more general set of course quality criteria. The first step in the process now becomes "Set a Spotlight Revision Goal." In addition to setting a time frame and schedule for evaluation, "Choose a Revision Focus" replaces "Identify Criteria for Revision" in the process.

Choose a Revision Focus

The first step in the planning process is to decide on a particular focus. One of the main benefits of this type of revision is that the faculty can shine a light on specific issues that may need attention. If a course doesn't have a lot of interaction, the focus is placed on areas to which this could be added or improved. If the local institution is making a push toward accessible courses, time can be spent with an eye toward improving the universal design of materials and assignments. If the content is too static or text heavy, faculty can look for places to include more media, recordings, and interactive programs and apps. The only limit to the focus is the faculty member's imagination.

Choosing a focus should start with the most imperative issues in a course. It doesn't do a lot of good to look at how to improve interaction if the core issues of the course are not working well. Faculty should start by thinking about past issues while teaching the course. Look at what obstacles were regularly seen and what students have had difficulty understanding in the assignments. Then time can be spent focusing on the revision of assignments and instructions. If prior grade curves have been too flat, the focus can be put on assessment tools and rubrics. Faculty usually know where a course could use some attention, and this information should be used to identify those areas and choose a focus.

If no specific focus can be identified based on experience or reflection, faculty may look again to evaluation instruments for ideas. Prior examples of course quality instruments from Step 1 can again be of assistance:

- Quality Matters (qualitymatters.org)
- OLC Quality Scorecard (onlinelearningconsortium.org/consult/quality-scorecard)
- OSCQR, Open SUNY Course Quality Review (oscqr.org)
- QLT, Quality Learning and Teaching (csun.edu/it/qlt)
- QOCI, Quality Online Course Initiative (ion.uillinois.edu/resources/qoci.asp)
- Many LMS providers have quality assurance instruments as well

Again, these instruments may provide a window into best practices for online courses (Foster, Shurtz, & Pepper, 2014; Hutchinson & Durham, 2012). The categories presented are a good place to start getting ideas about what has not been fully developed in a course.

Areas to Consider for a Spotlight Revision

There are a few common areas that should be considered for a spotlight revision. These are some of the places where courses tend to have issues. While this is by no means an exhaustive list, it should present a place to begin with a spotlight revision.

Accessibility. A major concern on many

campuses, and rightly so, accessibility is a simple way to get started in the process of spotlight revision. This process allows faculty to spend time reviewing materials with specific guidelines and objective outcomes in mind. There is less ambiguity in the accessibility process, so it is easier to complete. The Web Content Accessibility Guidelines (WCAG) that are provided by the World Wide Web Consortium (W3C) give clear steps and exemplars for accessible content (Web content accessibility guidelines (WCAG) overview, 2018). Faculty can review their course and look for areas that can be corrected to meet these standards. Much of this spotlight revision could be completed on the fly without the need for a full revision later.

Learning Objectives. Too often our course and learning objectives are either out-of-date or don't align with our assessments or even make sense for our course objectives. Learning objectives are a key part of any course and provide a roadmap for student achievement (Baker, Holcomb, & Baker, 2017; Chernikova & Varonis, 2016). A spotlight revision on learning objectives allows faculty to spend time thinking about what they want their students to learn while they are demonstrating that learning. It is an important and often overlooked aspect of course revision.

Assessment Strategies. When a grade curve appears that looks like the entire class mastered every concept and skill, it may be a signal to review assessment strategies. While a flat curve would be the ideal goal for a course, it rarely happens in the real world. This is usually a signifier that the assessments are out of line with the skills and concepts students are learning or that there is not enough rigor built into the assessment. A focused look at what is being assessed and how it is being assessed could yield some new strategies. Are the assignments spending too much time on rote memorization of facts? Are the writing assignments that should be subjective filled with objective questions or grading the wrong aspects of the content? Taking a closer look at these facets of the assessment process can show faculty where they can improve it.

Rubrics. One aspect that goes well with assessment but could easily be a spotlight revision on its own, is rubrics. Rubrics are a key aspect of learning, as they demonstrate the achievement levels for students and allow for less ambiguity in the assessment process (Brookhart, 2013; Menéndez-Varela & Gregori-Giralt, 2016). Maybe a faculty member is not happy with how their rubrics work or are not even using them at all. Looking at the process of evaluation, feedback, and feedforward for students that rubrics provide can yield more effective tools for teaching.

Media. In the online classroom, text creates the structure of learning and media provides the color that enhances learning and increases engagement (Borup, West, & Graham, 2012; Guo, Kim, & Rubin, 2014). A course should contain sufficient text but also have images, audio, video, interactive media, etc., to enhance the structure that text provides (Perry & Talley, 2001). Faculty can spend a semester identifying areas that could use some graphics to enhance comprehension of ideas, interactive apps or video to demonstrate processes, or audio to bring more energy to the course. Faculty should also consider places in which they can build their own course presence more effectively with recorded videos.

Interaction. Interaction is an important aspect of online courses. Interactivity can increase student learning as they interact with the faculty member and other students (Swan, 2002; Vrasidas & McIsaac, 1999). This process should start by looking at the quantity of interactions. Do students have enough opportunities to work with other students and with the instructor? Does the instructor spend enough time with the students in one-on-one or small group interactions? Next, look at the quality of interactions. Do the interactions actually have the intended effect? Are the discussions generating conversations or just miniessays? Find out if there are opportunities for group work, collaboration, or other ways to get the students interacting with the content, each other, and the instructor.

Whatever the focus, faculty should be sure that it is narrow enough to ensure that they won't be pulled in too many directions. The idea is to find small details (and perhaps some large ones as well) that need adjusting to ensure a quality learning experience for students.

The next part of this process is to assemble a list of criteria from the chosen course evaluation instrument or from several different course evaluation instruments to use as guidelines for a course evaluation/revision process. Putting these together in a place that is easily accessible will

maintain focus and guide revision to areas that need improvement during the teaching and revision process.

Once this is completed, faculty may simply follow the five-step course revision process with an eye toward the specific spotlighted areas of the course that are identified by the chosen focus.

CONCLUSION

Whether performing a comprehensive course revision or a spotlight revision, the process can be easy with some preparation and forethought. Taking the time to review the pedagogy and structure of a course may lead to better student learning outcomes and reduce the time faculty must spend while teaching/facilitating a course.

Faculty must look at course revision as a process and see how it ties into the practical work of online teaching. Time must be spent evaluating why different aspects of a course do or do not work. A cursory pass over the content while changing dates and fixing links won't lead to increased learning and improved student outcomes. This is why most course development and instructional design models have some aspect devoted to evaluation and revision. Without a critical look at the structure of a course and the outcomes and pedagogy tied to these structures, learning may be diminished or even lost by the students. Because of this, review and revision is a critical aspect of course design.

Establishing a clear set of steps in this process can reduce effort and time on task. Course revision can be easy with a little planning and preparation and having the confidence to begin. Using a process will help to find areas for improvement and will ultimately create a better learning environment for students and a better instructional environment from which to teach and facilitate.

To accomplish this, efficient course revision relies on a five-step process:

Step 1: Set Revision Goals

Step 2: Review Course Structure, Content, and Assignments

Step 3: Integrate Student Feedback

Step 4: Record Reflections, Findings, and Observations

Step 5: Implement Revisions

These steps will lead to a more complete review and revision of course content, materials, and structure with an eye toward critical comments and student outcomes. Beyond a generalized course revision process, faculty can implement a "spotlight revision" to focus in on specific parts of their courses. This type of revision allows for deeper critical thinking and a more detail-oriented evaluation of singular aspects of a course.

Whether performing a general revision or a spotlight revision, the important tasks associated with these processes should be seen as an opportunity—not only for improvement of the course materials, navigation, and learning for the students, but also as a learning opportunity for the faculty as well. Course review allows faculty to enhance their own education skills and take teaching to the next level.

References

Abu Tair, M., & El-Halees, A. (2012). Mining educational data to improve students' performance: A case study. International Journal of Information and Communication Technology Research, 2(2), 140–146.

Adelstein, D., & Barbour, M. K. (2017). Improving the K-12 online course design review process: Experts weigh in on iNACOL national standards for quality online courses. International Review of Research in Open and Distributed Learning, 18(3), 47–82. doi:10.19173/irrodl.v18i3.2800

Aggarwal, A. K., & Lynn, S. A. (2012). Using continuous improvement to enhance an online course. Journal of Innovative Education, 10(1), 25–48. doi:10.1111/j.1540-4609.2011.00331.x

Andersen, K., M., & Avery, M., D. (2008). Faculty teaching time: A comparison of web-based and face-to-face graduate nursing courses. International Journal of Nursing Education Scholarship 5(2). doi:10.2202/1548-923X.1539

Baker, W. M., Holcomb, J. E., & Baker, D. B. (2017). An assessment of the relative importance of criminal justice learning objectives. Journal of Criminal Justice Education, 28(1), 129–148. doi:10.1080/10511253.2016.1172650

Baldwin, S., Ching, Y.-H., & Hsu, Y.-C. (2018). Online course design in higher education: A review of national and statewide evaluation instruments. TechTrends, 62(1), 46–57. doi:10.1007/s11528-017-0215-z

Beidelman, J. (2018, February 26). Big data: Trends in the education section [web log post]. Retrieved from https://trueinteraction.com/big-data-trends-in-the-education-sector/

Bloxham, K. T. (2010). Using formative student feedback: A continuous quality improvement approach for online course development (Doctoral dissertation, Utah State University). Retrieved from https://digitalcommons.usu.edu/etd/801

Blumberg, P. (2009). Developing learner-centered teaching: A practical guide for faculty. San Francisco, CA: Jossey-Bass.

Bolton, G. (2010). Reflective practice: Writing and professional development. Los Angeles, CA: Sage.

Borup, J., West, R. E., & Graham, C. R. (2012). Improving online social presence through asynchronous video. The Internet and Higher Education, 15(3), 195–203. doi:10.1016/j.iheduc.2011.11.001

Brookhart, S. M. (2013). How to create and use rubrics for formative assessment and grading. Alexandria, VA: ASCD.

Brown, A. H., & Green, T. D. (2016). The essentials of instructional design: Connecting fundamental practices with process and practice (3rd ed.). New York, NY: Routledge.

Camburn, E. M., & Han, S. W. (2015). Infrastructure for teacher reflection and instructional change: An exploratory study. Journal of Educational Change, 16(4), 511–533. doi:10.1007/s10833-015-9252-6

Chao, I. T., Saj, T., & Hamilton, D. (2010). Using collaborative course development to achieve online course quality standards. 2010, 11(3), 21. doi:10.19173/irrodl.v11i3.912

Chapman, D. D., & Joines, J. A. (2017). Strategies for increasing response rates for online end-of-course evaluations. International Journal of Teaching and Learning in Higher Education, 29(1), 47–60.

Chen, W., Moore, J. L., & Vo, N. (2012) Formative evaluation with novice designers: Two case studies within an online multimedia development course. International Journal of Instructional Media, 39(2), 95–111.

Chernikova, I. A., & Varonis, E. M. (2016). Designing and delivering online curriculum in higher education: Riding the perfect storm. International Journal of Information & Learning Technology, 33(3), 132–141. doi:10.1108/IJILT-09-2015-0026

Cohen, P. A. (1981). Student ratings of instruction and student achievement: A meta-analysis of multisection validity studies. Review of Educational Research, 51(3), 281–309. doi:10.3102/00346543051003281

D'Agustino, S. (2012) Toward a course conversion model for distance learning: a review of best practices. Journal of International Education in Business, 5(2), 145–162. doi:10.1108/18363261211281753

Dede, C., Ketelhut, D. J., Whitehouse, P., Breit, L., & McCloskey, E. M. (2009). A research agenda for online teacher professional development. Journal of Teacher Education, 60(1), 8–19. doi:10.1177/0022487108327554

Diamond, R. M. (1989). Designing and improving courses and curricula in higher education. A systematic approach. San Francisco, CA: Jossey-Bass.

Dietz-Uhler, B., & Hurn, J. (2013). Using learning analytics to predict (and improve) student success: A faculty perspective. Journal of Interactive Online Learning, 12(1), 17–26.

Dimou, H., & Kameas, A. (2016). Quality assurance model for digital adult education materials. Quality Assurance in Education: An International Perspective, 24(4), 562–585. doi:10.1108/QAE-03-2015-0008

Elliott, M., Rhoades, N., Jackson, C. M., & Mandernach, B. J. (2015). Professional development: Designing initiatives to meet the needs of online faculty. Journal of Educators Online, 12(1), 160–188.

Fahmy, J. J., & Bilton, L. (1990). Listening and note-taking in higher education. ERIC Digest. Retrieved from ERIC database. (ED366189)

Fink, L. D. (2003). Creating significant learning experiences:

An integrated approach to designing college courses. San Francisco, CA: Jossey-Bass.

Foster, M. J., Shurtz, S., & Pepper, C. (2014). Evaluation of best practices in the design of online evidence-based practice instructional modules. Journal of the Medical Library Association, 102(1), 31–40. doi:10.3163/1536-5050.102.1.007

Gambill, J. M., Moss, L. A., & Vescogni, C. D. (2008). The impact of study skills and organizational methods on student achievement. ERIC Digest. Retrieved from ERIC database. (ED501312)

García E., Romero C., Ventura S., & de Castro C. (2006) Using rules discovery for the continuous improvement of e-learning courses. In E. Corchado, H. Yin, V. Botti, & C. Fyfe (Eds.), Intelligent Data Engineering and Automated Learning—IDEAL 2006: 7th International Conference, Burgos, Spain, September 20–23, 2006. Proceedings (pp. 887–895). doi:10.1007/11875581_106

Guo, P. J., Kim, J., & Rubin, R. (2014). How video production affects student engagement: An empirical study of MOOC videos. In Proceedings of the first ACM conference on Learning @ Scale Conference, Atlanta, Georgia, USA (pp. 41–50). doi:10.1145/2556325.2566239

Gupta, P. (2015). Learning analytics startups & companies for educators to keep an eye on [web log post]. Retrieved from http://edtechreview.in/trends-insights/trends/2252-education-learning-analytics-tools

Hack, G. (2016). An instructional design model for blended higher education. Journal of Learning and Teaching in Digital Age, 1(2).

Holden, J. T. (2015). An introduction to the ADDIE instructional systems design model (white paper). Federal Government Distance Learning Association. Retrieved from www.fgdla.us/uploads/White_Paper—Introduction_to_the_ADDIE_ISD_Model.pdf

Howard, T. (2003). Culturally relevant pedagogy: Ingredients for critical teacher reflection. Theory into Practice, 42(3), 195–202. doi:10.1207/s15430421tip4203_5

Hutchinson, W., & Durham, G. (2012). Is your online course clicking? Online Classroom, 12(7), 4–7.

Instructional design models (2018). Instructional Design Central. Retrieved from https://www.instructionaldesigncentral.com/instructionaldesignmodels

Kirkova, A., Mateva, N., Taneva, D., & Kireva, D. (2014). Enhancing the quality of e-learning through evaluation by the students. Management & Education/Upravlenie i Obrazovanie, 10(3), 33–40.

Ko, S., & Rossen, S. (2017). Teaching online: A practical guide (4th ed.). New York, NY: Routledge.

Krieie, J., & Bussmann, S. (2015). Course redesign based on the quality matters program: Examples of before and after. Information Systems Education Journal, 13(6), 109–122.

Leppisaari, I., Kleimola, R., Herrington, J., Maunula, M., & Hohenthal, T. (2014). Developing more authentic e-courses by integrating working life mentoring and social media. Journal of Interactive Learning Research, 25(2), 209.

Lyons, N. (2010). Handbook of reflection and reflective inquiry: Mapping a way of knowing for professional reflective inquiry. New York, NY: Springer US.

McCarthy, J. (2017). Enhancing feedback in higher education: Students' attitudes towards online and in-class formative assessment feedback models. Active Learning in Higher Education, 18(2), 127–141. doi:10.1177/1469787417707615

McClain, L., Gulbis, A., & Hays, D. (2018). Honesty on student evaluations of teaching: Effectiveness, purpose, and timing matter! Assessment & Evaluation in Higher Education, 43(3), 369–385. doi:10.1080/02602938.2017.1350828

Ma, J., Han, X., Yang, J., & Cheng, J. (2015). Examining the necessary condition for engagement in an online learning environment based on learning analytics approach: The role of the instructor. The Internet and Higher Education, 24, 26–34. doi:10.1016/j.iheduc.2014.09.005

Menéndez-Varela, J.-L., & Gregori-Giralt, E. (2016). The contribution of rubrics to the validity of performance assessment: A study of the conservation–restoration and design undergraduate degrees. Assessment & Evaluation in Higher Education, 41(2), 228–244. doi:10.1080/02602938.2014.998169

Oakley, G., Pegrum, M., & Johnston, S. (2014). Introducing e-portfolios to pre-service teachers as tools for reflection and growth: Lessons learnt. Asia-Pacific Journal of Teacher Education, 42(1), 36–50. doi:10.1080/1359866X.2013.854860

Orr, R., Williams, M. R., & Pennington, K. (2009). Institutional efforts to support faculty in online teaching. Innovative Higher Education, 34(4), 257. doi:10.1007/s10755-009-9111-6

Perry, G., & Talley, S. (2001). Online video case studies and teacher education. Journal of Computing in Teacher Education, 17(4), 26–31. doi:10.1080/10402454.2001.10784422

Piña, A. A., & Bohn, L. (2014). Assessing online faculty: More than student surveys and design rubrics. Quarterly Review of Distance Education, 15(3), 25–34.

Plank, C., Dixon, H., & Ward, G. (2014). Student voices about the role feedback plays in the enhancement of their learning. Australian Journal of Teacher Education, 39(9). doi:10.14221/ajte.2014v39n9.8

Quinn, L., Grove, K. Paretti, L., & Grandy, C. (2015). Reflection

on experiences in becoming teachers through eportfolio development. The Researcher, 27(1), 11–14.

Rapid prototyping. (2018). InstructionalDesign.org. Retrieved from www.instructionaldesign.org/models/iterative_design/rapid_prototyping/

Rizzuto, M. (2017). Design recommendations for self-paced online faculty development courses. TechTrends: Linking Research & Practice to Improve Learning, 61(1), 77–86. doi:10.1007/s11528-016-0130-8

Robinson, D. E., & Wizer, D. R. (2016). Universal design for learning and the quality matters guidelines for the design and implementation of online learning events. International Journal of Technology in Teaching & Learning, 12(1), 17–32.

Rodgers, M. L., Talbut, M. H., & Baranovic, K. (2015). Data analytics for beginners. The National Teaching & Learning Forum, 24(2),10–11. doi:10.1002/ntlf.30019

Ross, J. (2011). Traces of self: Online reflective practices and performances in higher education. Teaching in Higher Education, 16(1), 113–126. doi:10.1080/13562517.2011.530753

Schön, D. A. (1983). The reflective practitioner: How professionals think in action. New York, NY: Basic Books.

Shank, P. (2010). Developing a course maintenance process for your online courses. Distance Education Report, 14(8), 8–8.

Shaver, D. (2017). The added value of conducting learning design meeting to the online course development process. TechTrends: Linking Research & Practice to Improve Learning, 61(5), 438–443. doi:10.1007/s11528-017-0205-1

Sull, E. C. (2008, June 15). The 10 key rules for managing time in online teaching [web log post]. Faculty Focus. Retrieved from https://www.facultyfocus.com/articles/online-education/the-10-key-rules-for-managing-time-in-online-teaching/

Swan, K. (2002). Building learning communities in online courses: The importance of interaction. Education, Communication & Information, 2(1), 23–49. doi:10.1080/1463631022000005016

Tempelaar, D. T., Rienties, B., & Giesbers, B. (2015). In search for the most informative data for feedback generation: Learning analytics in a data-rich context. Computers in Human Behavior, 47, 157–167. doi:10.1016/j.chb.2014.05.038

Turner, P. M. (2009). Next generation: Course redesign. Change: The Magazine of Higher Learning, 41(6), 10–16. doi:10.1080/00091380903297642

Twigg, C. A. (2005) Course redesign improves learning and reduces cost [policy alert]. San Jose, CA: The National Center for Public Policy and Higher Education.

Twigg, C. A. (2009). Using asynchronous learning in redesign: Reaching and retaining the at-risk student. Journal of Asynchronous Learning Networks, 13(3), 147–155.

You, J. W. (2015). Examining the effect of academic procrastination on achievement using LMS data in e-learning. Journal of Educational Technology & Society, 18(3), 64–74.

You, J. W. (2016). Identifying significant indicators using LMS data to predict course achievement in online learning. The Internet and Higher Education, 29, 23–30. doi:10.1016/j.iheduc.2015.11.003

Vrasidas, C., & McIsaac, M. S. (1999). Factors influencing interaction in an online course. American Journal of Distance Education, 13(3), 22–36. doi:10.1080/08923649909527033

Wambeke, B., & Barry, B. E., & Bruhl, J. C. (2017, June), Teaching Model as a Living Document Paper presented at 2017 ASEE Annual Conference & Exposition, Columbus, Ohio. Retrieved from https://www.asee.org/public/conferences/78/papers/19508/view

Web content accessibility guidelines (WCAG) overview. (2018). W3C Web Accessibility Initiative. Retrieved from https://www.w3.0rg/WAI/standards-guidelines/wcag/

Wiggins, G., & McTighe, J. (1998). Understanding by design. Alexandria, VA: Association for Supervision and Curriculum Development.

Zipser, N., & Mincieli, L. (2018). Administrative and structural changes in student evaluations of teaching and their effects on overall instructor scores. Assessment & Evaluation in Higher Education, 43(4), 1–14. doi:10.1080/02602938.2018.1425368

APPENDIX A. Course Revision Notes (Sample Template)

Topic/Unit/Module:				
	Revise Y/N	**Justification (include specific issues, data points, examples)**	**Revision Strategies (include pedagogical, format, structure, and other changes)**	**Complete (Date)**
Concept/ Assignment 1				
Concept/ Assignment 2				
Concept/ Assignment 3				
Concept/ Assignment 4				

Questions for Reflection: (These can be addressed to each concept or assignment that is listed as requiring revision. The question set should be tailored to suit the method of reflective practice being used.)

Concept/Assignment 1

1. What specific issues or information led to the need for revision?
2. Why is this topic/assignment important?
3. What aspects of this item are valid and/or required for inclusion in the revision?
4. Why do these items require inclusion?
5. What aspects can be changed in the revision?
6. How will the proposed changes affect learning for the students?
7. What were the biggest obstacles to learning faced by the students?
8. How can these obstacles be modified to improve the students' learning?

This worksheet is meant as an example of a reflective piece of the note-taking process. It is by no means a definitive document or an exhaustive list of reflection questions. It should be modified to incorporate the needs and process of the user to create a deeper understanding of the aspects of a course that need revision.