Considering Structure in Online Learning

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OVERVIEW

This week-long, asynchronous online module introduced transactional distance theory to graduate-level instructional design students enrolled in a seminar course about online learning. Learners also reviewed publicly available Quality Matters rubrics and other readings regarding the effective design of online instruction. To demonstrate understanding of these readings, learners imported skeletal learning resources into a Canvas course shell; further developed these resources in terms of sequence, clarity, organization, and purpose; and wrote how their developments aligned with Quality Matters principles and the structure component of transactional distance. Later lessons focused on the transactional distance concepts of dialogue and autonomy, as well as accessibility.

Topics: Distance Education, Online Learning, Course Design, Structure, Clarity, Organization.

Time: One week was allocated for learners to complete this assignment.

MATERIALS

- Instructors and learners must have (or create) a free *Teacher* account on Canvas at https://canvas.instructure.com
- Learners need access to Canvas course content:
  - The canvas-export.imscc file can be imported directly into Canvas.
  - Alternatively, files in the Additional Materials zipped folder can be used.
- Access to various readings (see the Lesson Readings and the References sections).
- Instructors should host lesson content within a learning management system (LMS) or website.
- Each learner will need a computer with internet access and the ability to access course resources.

CONTEXT-AT-A-GLANCE

Setting
An online instructional design graduate program at a mid-size, urban, southern U.S. university.

Modality
Asynchronous online

Class Structure
Four-and-a-half-week accelerated seminar course.

Organizational Norms
Traditionally the course focused on course readings and a literature review. In Summer 2022, the course was revamped to balance theory with development. Learners were expected to login daily and interact in discussions four times each week.

Learner Characteristics
Nine graduate students were enrolled in the course. A pre-course survey indicated learners were confident writing goals/objectives, developing rubrics, and creating modules in an LMS. However, over half the learners lacked exposure to online learning theories like Transactional Distance and Community of Inquiry.

Instructor Characteristics
The instructor had 15+ years of experience teaching online courses in both synchronous and asynchronous environments. Previously, he developed content in Canvas for several years. He preferred authentic learning opportunities but needed to balance that desire with a short course duration.

Development Rationale
Create opportunities for learners to integrate theory and development while minimizing extraneous load.

Design Framework
Cognitive Load and Transactional Distance theories

LESSON READINGS

Prior to the lesson, learners read Irwin et al. (2021), Lee and Choi (2011), Picciano and Seaman (2009), Seaman et al. (2018), and Short et al. (2021).

During the lesson, learners will read Liao et al. (2021), Moore (1989), Quality Matters (2020a, 2020b), Sadaf et al. (2019), and Stein et al. (2005).

SETUP

This module takes place during the second week of a four-and-a-half-week, accelerated online course. Online resources should be organized within a website or learning management system (LMS), so they are available to learners asynchronously. Because this lesson focused on developing course clarity, organization, and structure, course content modeled these principles. Information about how to navigate the course, locate pertinent information, and submit assignments should be included. This information acts as an example of effective online instruction to learners completing the lesson.

Figure 1 illustrates resources provided to learners, including a video that overviewed how to navigate the course, locate readings, assignments descriptions, deadlines, rubrics, and other course, program, and university-level information.

Figure 1. Course pages in the Getting Started module.

CONTEXT AND SETTING

Historically, the instructional design and technology program at the university offered a 3-credit hour seminar in online instruction at an accelerated pace (around four-and-a-half-weeks) during the summer semester. The course was organized around theory. Learners read various peer-reviewed articles associated with online learning theories and developed a literature review to demonstrate understanding and gain writing practice.

LEARNERS CHARACTERISTICS

In the Summer 2022 iteration of this course, learners included graduate students in the masters or doctoral-level instructional design and technology programs (though one graduate student from liberal studies was also enrolled). Although most learners came from instructional design programs, they represented diverse interest areas (e.g., PK-12 education, business, non-profit, higher education). Even with the diverse backgrounds, course readings traditionally focused on higher education settings.

All learners were non-traditional students that attended school while maintaining full-time employment. Many had child or dependent-care responsibilities and all balanced multiple courses with employment, family, social, and other activities. Although most learners lived within or near the state of Tennessee, they came from multiple time zones. As such, courses were taught asynchronously.

Prior to this course, all learners completed courses associated with instructional design theory. In a survey provided at the beginning of the course, the learners indicated familiarity with developing learning goals and objectives, developing assessments and rubrics based on those goals, and selecting or developing instructional strategies. Most expressed comfort developing online content in an LMS though few had used the Canvas platform for course development. About half were familiar with Universal Design and techniques to increase course accessibility (e.g., alternative text, non-contextual hyperlinks, high contrast-color ratios, transcripts; W3C Web Accessibility Initiative, 2019). Fewer learners recognized principles of Transactional Distance (Moore, 1997) and Community of Inquiry (Garrison et al., 1999) theories.

INSTRUCTOR CHARACTERISTICS

The instructor had 15+ years of prior online teaching experience, four from the current University, at the time of this course. Most of this experience took place in asynchronous settings. He was familiar with various LMSs and previously used Canvas as an instructor and taught Canvas to learners interested in becoming PK-12 teachers in the United States. However, at the point of this course, Canvas was only recently adopted at the University. Thus, it was newer to students.

The instructor believes that learners enter formal learning environments with a plethora of experiences that shape their identities, worldviews, and goals (Smith & Ragan, 2005; Wiggins & McTighe, 2005). As individuals gain experience, they desire more immediate application of learning in professional and personal settings (Knowles et al., 2015).

The instructor also believes that direct, firsthand experience provides a foundation that all other experiences are interpreted (Dale, 1969). He believes that the most powerful learning occurs when teachers help learners to interpret and co-construct learning through past and present experience.

When considering the course, the instructor wanted to situate activities in community organization projects to provide authentic experiences and offer diverse workflows and design viewpoints. However, the short duration of the course and the need to balance theory and development reduced the feasibility of this plan.

COURSE MODIFICATIONS

Although graduate students who previously completed the course rated it high on student evaluations, some graduating masters and doctoral students expressed a desire for more development courses during their programs. Because of these desires, the instructor identified the seminar course as opportunistic for change. He also recognized a need to restructure the course to allow learners to focus more specifically on PK-12 and higher education interests. Thus, he modified the course for the Summer 2022 semester.

The instructor expanded theoretical readings to include literature associated with PK-12 settings. Additional readings were provided to describe the state of online learning in those settings. A literature review assignment was replaced with weekly design projects that included written reflections to help learners document their design considerations and alignment with course concepts and readings.

Although the instructor toyed with tying course projects to authentic, community-based organizational needs, he ultimately opted for fictitious projects that provided flexibility for learners to direct their interests and creative efforts (largely due to course duration time constraints). Learners were given three assignments:

1. Restructure an existing course to improve organization, clarity, and structure.
2. Increase accessibility of their restructured course and stylized pages using basic cascading style sheet (CSS) guidelines.
3. Develop activities to promote community formation and maintenance.

This lesson focuses on the first assignment, *restructure an existing course to improve organization, clarity, and structure*. Learners completed this assignment, and all activities associated with it, in one week. Subsequent lessons introduced materials and approaches required to complete the remaining two assignments.

DESIGN FRAMEWORK

This lesson was conceptualized around Cognitive Load Theory (Sweller, 2010). This theory is derived from models of working memory. According to these models, working memory is limited so information must be processed and stored in long-term memory or lost (Debue & van de Leemput, 2014). In Cognitive Load Theory, the limitations of working memory can be contextualized into intrinsic, germane, and extraneous loads. Intrinsic load deals with the natural complexity of the information being learned and is based on prior learner experience (Debue & van de Leemput, 2014). Little can be done to reduce this load. Germane load refers to the mental structures required to process and store information into long-term memory (Sweller, 2010). Extraneous load is associated with the use of mental resources that do not facilitate learning (Debue & van de Leemput, 2014). Thus, extraneous load is an unwanted byproduct of instructional design and should be minimized.

In past courses where the instructor introduced online learning development through LMSs, he realized that course content directly affected learning ability. Unfamiliar and difficult topics placed extraneous loads on learners as they balanced content understanding with technical development and theory application. To avoid this burden, the instructor provided a basic course shell (see Canvas Exported Course.imscc) that focused on double-digit addition (a topic associated with first-grade mathematics; Common Core State Standards Initiative, n.d., "Number and Operations in Base Ten"). The instructor hoped that this topic would come naturally to graduate students so they would not have to devote cognitive resources to the topic itself—reserving those cognitive processes for the online development and theory application.

LEARNING REPRESENTATION

During this lesson, italic text identifies questions or prompts for the learners.

PRIOR LEARNING

One week prior to this lesson, learners were asked to consider the current state of online learning in PK-12 and higher education settings. Little attention was placed on the COVID-19 Pandemic because most approaches were deemed remote emergency instruction (e.g., haphazard, ill-supported, and uninformed of best practice) rather than characteristic of online learning (Hodges et al., 2020).

Learners also read five articles regarding the pre-pandemic state of online learning in PK-12 and higher education settings (Irwin et al., 2021; Lee & Choi, 2011; Picciano & Seaman, 2009; Seaman et al., 2018; Short et al., 2021).

DISCUSSION PROMPTS

As learners reviewed the video presentation and read the articles, they discussed the following topic in an asynchronous discussion board:

This course focuses on online learning. Each of you chose to take an online course in an online degree program. Why? What benefits of online learning have you personally experienced? What limitations have you experienced? As we've read, online learning is growing but is not without problems. Our duty as instructional designers is to figure out how to overcome those problems and better ensure a quality experience. Share your experiences, insights, and tips about what makes an online course/program effective and what challenges remain.

This information provided learners with a foundation of the state of online learning in PK-12 and higher education settings. It also provided a baseline regarding the breadth of online learning in the United States and some of its challenges—which would become discussion points during the remainder of the course.

ADDITIONAL ACTIVITIES

During week one, learners also introduced themselves in another discussion board and completed the survey about their comfort designing instruction, developing content in an LMS, background in online learning theories, use of CSS 3 and HTML 5, and focus on accessibility during course development.

These activities prepared learners to consider various theories associated with distance education, focusing particularly on structure within Transactional Distance during this module.

OVERVIEW, OBJECTIVES, AND TASKS

The beginning of each module included an overview page that provided a purpose for the week, a list of measurable learning objectives, and calendar suggestions about when and how to complete readings and activities. The information below was provided to learners during this second-week module.

MODULE OVERVIEW

During this week you will examine Transactional Distance with an emphasis on structure and design. Although Moore (1997) claimed that structure increases the rigidity of the course (also see Stein et al., 2005), Instructional Design Theory suggests that course organization, clarity of expectations, and mapping assessments and learning strategies to identified goals and objectives is a necessary component of effective design (Smith & Ragan, 2005;

Wiggins & McTighe, 2005). During this week we will consider how to design effective online instruction while considering structure, rigidity, clarity, and organization. We will also look at Quality Matters (2020a, 2020b) guidelines for course development and consider how they influence Transactional Distance.

OBJECTIVES

By the end of this module, learners will be able to:

- *Describe Transactional Distance and how it is influenced by dialogue, structure, and learner autonomy.*
- *Familiarize themselves with the public versions of the Quality Matters (2020a, 2020b) rubrics and consider how their components influence course organization and learner autonomy.*
- *Describe multiple definitions of structure when considering Transactional Distance and instructional design.*
- *Import content into a Canvas course shell and leverage Quality Matters guidelines to increase content organization and clarity.*

TASKS

MONDAY/TUESDAY

- *Read Stein et al. (2005) and Moore (1989).*
- *Begin the Canvas Structure Assignment (due at the end of the week).*
- *Sign-up for a free Teacher Canvas account (and review the tutorial if needed).*

WEDNESDAY/THURSDAY

- *Review the Quality Matters (2020a, 2020b) Rubric associated with your learner audience.*
- *Read Sadaf et al. (2019) and Liao et al. (2021).*
- *Post comments and ideas to the discussion board.*
- *Import the Canvas course and share it with your instructor.*

FRIDAY/WEEKEND

- *Complete the discussion thread/Canvas Structure Assignment.*

READINGS

As identified in the tasks, learners read two articles about Transactional Distance and interaction (Moore, 1989; Stein et al., 2005).

These readings introduced learners to Transactional Distance Theory and helped them focus on structure, realizing that it represents course rigidity as well as organization and clarity (Moore, 1997; Stein et al., 2005). This broader focus on organization as structure facilitated a transition to topics associated with the organization of online learning and development tasks. To facilitate this transition, learners examined the publicly available Quality Matters rubrics for K-12 and higher education settings (Quality Matters, 2020a, 2020b) and read an article by Sadaf et al. (2019) associated with higher education student perceptions of engagement and learning through courses designed with Quality Matters rubrics.

Lastly, learners read a piece about strategies that K-6 teachers implemented to facilitate online learning (Liao et al., 2021).

DISCUSSION BOARD PROMPTS

As learners completed the readings, they considered and responded to the following prompts in the discussion board:

During this week's readings we examined how design techniques can influence the organization and clarity of a course. Briefly describe Transactional Distance and how it is influenced by dialogue, structure, and autonomy. Then, consider the various online courses you have taken during this and other programs. What aspects of those courses facilitated and/or hindered course clarity and organization? How did these aspects influence perceived distance between you, your classmates, and the instructor? What could have been done to improve the course regarding clarity and organization? Be sure to use course readings to support your ideas.

Although we will discuss dialogue later in the course, what techniques have you found useful in interacting with your peers and instructors in online learning environments? What additional suggestions and resources do you have beyond what was provided in the readings this week? Be sure to use course and other readings to support your ideas.

Do you have questions or tips on using Canvas? Share them with the class.

Of course, questions and comments about any aspect of the course, assignments, readings, and so forth are welcome in this board.

ASSIGNMENT DIRECTIONS

Additionally, learners signed-up for a free *Teacher* Canvas account, created a new course, embedded existing content in that course, modified the structure and organization of that content to align with principles of Online Learning Theory and practice, and published their course so peers and the instructor could provide feedback. An assignment provided an overview of the task. Additional pages in the module gave guidance about how to create, import, and share Canvas content (see Supplemental Course Pages section).

At the beginning of this week, you examined tips and suggestions to facilitate the organization of online learning and share expectations. This assignment allows you to practice those skills within the Canvas learning management system. The term learning management system is typically abbreviated to LMS.

CREATE A FREE ACCOUNT

Begin this assignment by creating a [free Teacher Canvas account](#) if you do not already have one. Information about how to create an account is provided on a course page along with tutorials about how to use the system (see Supplemental Course Pages, Obtain a Canvas Account section to create this).

IMPORT CONTENT

Once you have signed up for a free Teacher account, login to the system and create a new course. Then import the provided course content into your course. Information on how to import course content into a course is provided on a course page (see Supplemental Course Pages, Import Content into Canvas section to create this).

The focus of the imported course is learning number-sense and place-value skills to complete basic double-digit addition, a first-grade mathematics standard. I

purposefully selected this example because I want you to focus on incorporating organization, structure, and Quality Matters principles rather than dwell on lesson content. The resources you import will include a few YouTube videos that provide guidance on place-value and instructions for completing double-digit addition. Several worksheets and a quiz are also included to practice these skills. All materials are located within a module called Resources. This module is visible after you import the provided course.

If you are interested in PK-12 education, develop the content towards a first-grade audience. If you are interested in adult learning, develop the content as if a parent/care giver would access it for use with a first-grade learner.

ASSIGNMENT TASKS

Using the Quality Matters (2020a, 2020b) rubric and readings (located in the module), you will modify course contents to better introduce, structure, clarify, and organize them for learners, focusing on the following Quality Matters sections:

- *Course Overview and Introduction,*
- *Learning Objectives,*
- *Assessment and Measurement,*
- *Instructional Materials, and*
- *Learner Support.*

Within each section, select two bullet points (or related concepts) that you can improve upon and work them into course modifications.

SHARE YOUR COURSE

After you have modified your course, follow the instructions in the module to share your course with others. You will submit that URL to this assignment drop box so that your instructor and peers can give you feedback.

SUMMARIZE WHAT YOU DID

Finally, write a brief narrative (no more than 2 single-spaced pages) that summarizes the changes you made to the course shell and how they align with course readings and the Quality Matters (2020a, 2020b) rubrics. Be sure to indicate what bullets/concepts you focused on and what

modifications you made to better align the course with our readings this week. Submit this document with the URL of your course.

SUPPLEMENTAL COURSE PAGES

OBTAIN A CANVAS ACCOUNT

The following directions were provided in the LMS to help learners create a free *Teacher* Canvas account:

During this course we will use Canvas as an LMS to apply course readings. To create a free Teacher account:

1. *Navigate to https://canvas.instructure.com and select the "Need a Canvas Account? Click Here, It's Free" link.*
2. *In the new window select the "I'm a Teacher" button.*
3. *Fill out the information to create an account*
   - *When asked about your account type, state that you are a teacher.*
   - *Your job title is "University Student."*
   - *For school/organization enter "The University of _____."*
   - *State your organization type as "Higher education."*
   - *For Why Canvas, select "I'm using Canvas for non-profit training."*

CANVAS TRAINING

All but one learner indicated they were comfortable creating online modules in an LMS. However, 64% stated they were neutral or uncomfortable creating content in Canvas. To help them with the basics of Canvas, I provided a link to a LinkedIn Learning tutorial (the university has a site license for students and faculty). A certificate indicating completion of the two-hour training was not required but I selected the tutorial because it broke content creation components into 3-5-minute video segments (e.g., creating a discussion board, creating a page, creating a module, creating an assignment, publishing course content).

For purposes of this lesson, learners only needed to know how to create modules, pages, and possibly discussion boards. Assignments and instructional

videos were provided. Later assignments included the creation of assessments that considered Universal Design principles.

IMPORT CONTENT INTO CANVAS

Once learners obtained a free *Teacher* Canvas account, they were informed to create a new course and import course content associated with double-digit addition at a first-grade level. The following directions were provided in the LMS:

Once you have created a blank course shell in Canvas, download the Canvas Course Package (see Canvas Exported Course.imscc file or the Included Files, 1-12). You will use the downloaded file to import content into your course. To import content:

1. *Open the course shell in Canvas that you want to import content into.*
2. *Select the Settings link on the course navigation menu.*
3. *Select the Import Course Content link from the Course Status menu on the right side of the screen.*
4. *In the new screen that appears, select "Canvas Course Export Package" from the Content Type drop-down list.*
5. *Browse for the file you downloaded and select "All Content" from the Content option.*
6. *Select Import.*

Your content is now uploaded. You can see it by navigating to the modules portion of your course shell (you may have to refresh the page for them to appear).

Importing this content into the LMS added a module to each learner's course titled Resources. The module included the following five pages and seven assignments (see Included Files, 1-12):
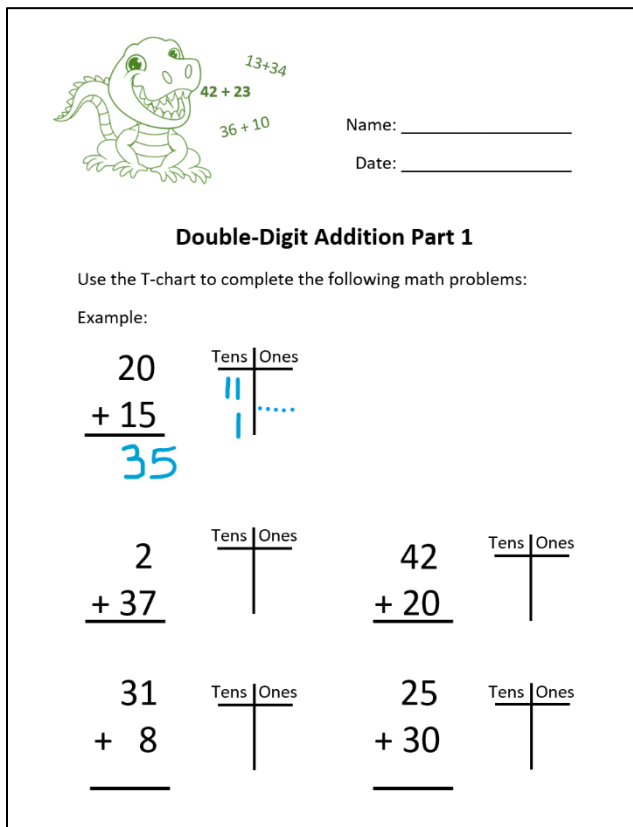
INCLUDED FILES

1. A list of Common Core State Standards associated with base ten number and operations.
2. A YouTube video reviewing place value with base-ten blocks and T-charts (Cantz, 2020).
3. A YouTube video about solving double-digit addition problems without regrouping through base-ten blocks (Elementary Math with Mr. J, 2021).

4. A YouTube video about solving double-digit addition problems with regrouping through T-charts (MsDelaV, 2017).
5. A YouTube video about solving double-digit addition problems with regrouping through base-ten blocks (Math & Learning Videos 4 Kids, 2014).

INCLUDED ASSIGNMENTS

6. A worksheet where learners identify numbers ten higher and lower than the one presented on the page.
7. A discussion board about T-charts.
8. A quiz about place value.
9. A worksheet about T-charts.
10. A double-digit addition worksheet without regrouping (see Figure 2).
11. First double-digit addition worksheet with regrouping.
12. Second double-digit addition worksheet with regrouping.


Figure 2. Example worksheet.

I made the discussion thread and quiz. I also made the worksheets in Microsoft Word and used an uncited image of a [baby alligator](#) by [GDJ](#) with a [Pixabay License](#) where attribution was not required (see Figure 2).

SHARE THE COURSE

When learners completed development work as instructed in the assignment, they were asked to alter course settings so the other learners in the class could self-enroll with the aid of a URL. The following directions were provided in the LMS to support learners in completing this step:

For purposes of instruction, you will create a module in your Canvas course and share it with others in our class so that we can enroll in it.

1. *Make sure the module and all content in that module is published.*
   A. *Go to the modules page and look for green check marks on the right of the desired module and page titles.*
   B. *If desired modules or pages are not published (indicated by a ⊘ sign) select the ⊘ sign to publish it. The element should then show a green check mark.*
2. *Make sure the course is published too (go to the home page and press the publish button if needed).*
3. *Navigate to the Settings menu.*
4. *Select the Course Details Tab.*
5. *Scroll to the bottom of the screen and select "more options."*
6. *Select the option to "Let students to self- enroll by sharing with them a secret URL or code."*
7. *Select the "Update Course Details" button at the bottom of the page.*
8. *Scroll to the bottom of the page and copy the first URL to share (be sure to omit the period at the end of the sentence).*
9. *Paste that URL in the submission portion of your assignment to submit your work.*

GRADING

The URL and brief narrative summary were submitted via the course Canvas page. This allowed for peer-reviews in addition to instructor feedback. Once assignments were submitted, Canvas randomly

assigned two peer-reviewers for each assignment. This gave learners the opportunity to see others' work, provide feedback, and gain ideas, and ask questions about implemented techniques. Reviewers used the following rubric (which included space in each section for comments).

Share the Canvas URL: ___ (4 Points)
The student imported the necessary course materials into their Canvas shell and included a URL to share their course that functions properly. All materials in the course are published and accessible based on the enrollment link provided.

Course Overview & *Introduction*: ___ (3 Points)

At least two bullets/concepts were selected from this section and the materials submitted were modified appropriately to meet those expectations.

Learning Objectives: ___ (3 Points)

At least two bullets/concepts were selected from this section and the materials submitted were modified appropriately to meet those expectations in a way that is appropriate for the intended audience.

Assessment & Measurement: ___ (2 Points)

At least two bullets/concepts were selected from this section and the materials submitted were modified appropriately to meet those expectations.

Instructional Materials: ___ (2 Points)

At least two bullets/concepts were selected from this section and the materials submitted were modified appropriately to meet those expectations.

Learner Support: ___ (2 Points)

At least two bullets/concepts were selected from this section and the materials submitted were modified appropriately to meet those expectations.

Narrative: ___ (4 Points)

A short narrative is included with the URL to the course that summarizes the bullet points/concepts focused on from each category, indicates what modifications were made to improve the course, and ties those modifications back to best-practices and/or theory introduced in or beyond course readings.

Following peer-reviews, the instructor graded the assignment using the same rubric.

CRITICAL REFLECTION

COURSE READINGS

Overall, I was pleased with this lesson. Learners discussed aspects of Transactional Distance in the discussion threads and considered how the theory had influenced their perceptions of distance during their own online learning experiences. Expanded course readings were also appreciated by learners. Learners focusing on PK-12 education particularly enjoyed reading about online learning theories and practices aligned with younger audiences. They also enjoyed discussing theory associated with higher education and considering how it might apply in elementary and secondary education settings. During some modules, I provided options for course readings based on design interests and settings. If learners focused on PK-12 instruction they received one group of readings, if they focused on business or higher education, they received another. During these times, I noticed that some learners (particularly those within PK-12 contexts) read both sets of readings. Sometimes they mentioned doing this so they could more fully enter the discussion conversations. Other times, they read both sets of readings to gain additional familiarity with the theories being presented. Although they appeared to enjoy the readings provided, I noticed that readings associated with business/industry, government and non-profit, and healthcare professions were woefully missing from the course. While I tried to increase relevance of the readings by branching out from higher education into PK-12, I need to provide additional materials for future iterations. However, I worry that adding additional readings will also dilute learner's abilities to discuss those readings together.

During this implementation, only nine learners enrolled in the course. Parsing out readings based on setting seems to have prevented some learners from entering the conversation fully (anecdotally evidenced by some learners reading the other set of readings to enter conversation topics in the discussion thread). To prevent this problem, I may require all learners to read two or three articles taken from a myriad of settings and follow those with one to two additional readings specific to their setting.

Although some readings focused on Transactional Distance Theory and best practices for developing

online learning, the assignment focused too narrowly on components of Quality Matters (2020a, 2020b) rubrics. Learners selected two bullets from five sections of the publicly available Quality Matters rubrics. They could use related ideas/concepts from course readings, but most relied on bullet points from Quality Matters to complete the assignment. When I reteach this course, I plan to expand the number of rubrics learners can use, considering ideas presented by Jaggars and Xu (2016), Ternus et al. (2007), and Debattista (2018). However, I wonder how additional readings and rubrics will affect learners' abilities to contrast structure within Transactional Distance Theory with principles of instructional design. Although these rubrics overlap on several components, they will take additional time to consider and synthesize. In a course where time is already limited and learners are presented with multiple assignments that require content development, additional readings may take a toll on Cognitive Load and dilute consideration of structure through Transactional Distance Theory.

COURSE DEVELOPMENT

As mentioned, when I previously introduced web development (predominantly in undergraduate teacher education courses), the content sometimes taxed learners' abilities to focus on course development procedures. To alleviate this concern, I selected double-digit addition for a first-grade audience. Based on implementation, I think this was a good approach. All learners were familiar with the topic and could piece together how instruction should be sequenced, even if they were not trained in early childhood or elementary education. This freed their working memory to focus on approaches to organize and sequence content, introduce, and clarify expectations, and communicate learning goals and objectives.

Initially, I worried the exercise would alienate learners interested in business, healthcare, or higher education settings with the first-grade content focus. Even though the assignment focused on reducing Transactional Distance by considering clarity, organization, sequencing, and structure, I worried the simple content would appear sophomoric to some designers. Although I asked these learners to focus on establishing a site for parents/care givers of first-grade students, I wondered if they would scoff at the idea of designing PK-12 instruction. Fortunately, that was not the case with these learners. However, future

learners may be less amenable to this approach. In later implementations, I may develop and include other premade course shells with skeletal resources associated with higher education and business/industry settings. However, I wonder how the addition of these shells may influence idea generation through the peer-review process.

Peer-reviews helped learners to gain additional ideas about how to provide structure and clarity via creative expression. Because learners completed the exercise with the same materials, they immediately recognized learner alterations and could make comparisons regarding their approaches. Enrollment in this course is typically small (based on the number of masters and doctoral students we admit in our programs). Providing additional shells may force peer-reviews from those who used the same shell. If a group only has one or two learners, it may limit their access to a variety of ideas and approaches. Alternatively, it may tax the peer-review process by forcing learners to familiarize themselves with additional resources to examine others' work.

Of note, all learners indicated they were previously comfortable developing learning objectives, assessments, and instructional strategies in LMSs. This familiarity likely helped them to focus on content development without anxiety of tool use. It will be interesting to provide a similar experience among learners without similar comfort levels to see if they attain similar outcomes.

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