Developing Practical Knowledge and Skills of Online Instructional Design Students through Authentic Learning and Real-World Activities

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Abstract

Integrating authentic learning opportunities into online courses can be particularly challenging. These challenges have contributed to a lack of examples (i.e., case studies) of how online instructors have successfully integrated authentic learning into their courses (Vo et al. 2018). This article fills this gap by describing the process of redesigning an online graduate-level instructional design course to incorporate authentic learning activities. This course integrated authentic learning principles and a real-world project situated in a real-life context, allowing students to develop instructional design skills, including project management, stakeholder negotiation, and product design, development, and testing.

Keywords Authentic learning · Design · Instructional designer · Learning experiences · Online learning · Rapid prototyping · Real-world projects · Skill development

In the past, employers hired instructional designers (IDers) with the expectation that they could 'learn on the job.' Today, employers want graduates able to 'hit the ground running' (Miller and Grooms 2018) with knowledge and skills that they can apply immediately, such as critical thinking and problem solving (Hart Research Associates 2013; National Association of Colleges and Employers 2012). Despite employers' expectation that IDers will enter the workforce with specific skills usually obtained through authentic experience, instructional design (ID) curricula often do not include these types of experiences (Larson and Lockee 2009; Lowell and Ashby 2018; Sharif and Cho 2015; Thompson-Sellers and Calandra 2012; Villachica et al. 2010). This is particularly a problem in online programs and courses where learners complete most of their knowledge and skill-based learning through course readings, videos, and other in-course activities (i.e., discussion forums, wikis, individual and group assignments) and interactions with their instructors and peers.

Competencies and Skills of Instructional Designers

Researchers interested in identifying the core competencies and critical skills of IDers have primarily used two approaches (a) review of job postings and announcements (Kang and Ritzhaupt 2015; Klein and Kelly 2018; Sugar et al. 2012) and (b) complete interviews and observations of expert IDers (Ritzhaupt and Kumar 2015; Sugar and Moore 2015). Sugar et al., (2012) highlighted a disconnect between employer expectations and ID curricula in a review of job postings finding that employers sought IDers with independent thinking skills, as well as abilities to collaborate and adjust to new and evolving situations. In their review of job postings and research studies, Klein and Kelly (2018) distilled these reviews and studies into the five core competencies of (1) instructional management; (2) communication and interpersonal skills; (3) instructional technology; (4) instructional design; and (5) other foundational competencies. The other foundational competencies include design and development, front-end and summative analysis, assessment and evaluation, instructional technology, management, communication, and interpersonal skills.

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Regardless of the context, communication, interpersonal, instructional technology, and project management skills are critical for managing and working with stakeholders on projects. When working on tasks with stakeholders, an IDer's ability to collaborate (Klein and Kelly 2018; van Rooij 2013; York and Ertmer 2016) and communicate is especially important (Lowell and Ashby 2018; Sugar and Moore 2015). These skills are sometimes referred to as 'soft skills' and are commonly found both in ID-related job announcements (Kang and Ritzhaupt 2015; Sugar et al. 2011) and in published interviews with expert designers (Ritzhaupt and Kumar 2015; Sugar and Moore 2015). Several studies focusing on the experiences and skills of IDers have emphasized the importance of communication skills and ability to work collaboratively with subject matter experts (SMEs) (Lowell and Ashby 2018; Ritzhaupt and Kumar 2015; Sugar and Moore 2015; Wakefield et al. 2012).

In addition to communicating and collaborating to complete effective design, IDers must possess robust technical knowledge and a set of skills gained through relevant educational and work experiences. These skills should not only focus on design and development proficiencies but also provide opportunities to learn how to engage and interact with stakeholders, as well as how to manage competing time and resource constraints (Cennamo and Holmes 2001; Ertmer and Russell 1995; Kang and Ritzhaupt 2015; Klein and Kelly 2018; Tracey and Boling 2014). Thus, IDers must have effective project management skills to structure and organize their activities, while also handling the challenges of increasing workloads, reduction in production times, and tight budgets (Fabac 2006; Moore 2016; van Rooij 2010; York and Ertmer 2016).

Authentic Learning

One proposed solution to this need is authentic learning or "learning by doing," an instructional method where students learn through engaging in tasks to solve a problem (Anzai and Simon 1979). Real-world relevance is a key characteristic of authentic learning (Herrington et al. 2003; Herrington and Herrington 2006; Lombardi 2007; Vo et al. 2018). Further, many authors (e.g., Herrington and Herrington 2006; Herrington et al. 2007; Vo et al. 2018) note that authentic learning experiences should be immersive and provide students with opportunities to engage in real-world contexts. Integrating authentic learning opportunities into ID curricula using real-world projects with external stakeholders can provide opportunities for authentic learning experiences (e.g., negotiating with clients and other stakeholders, designing content with subject matter experts (SMEs), investigating, and selecting instructional technologies) and these experiences can prepare students to be effective professional IDers upon

graduation (Britt et al. 2015; Dabbagh and Blijd 2010; Hartt and Rossett 2000; Kim 2015; Miller and Grooms 2018).

Authentic learning experiences involve real-world topics or issues and often provide opportunities for students to communicate, collaborate, and reflect. Through authentic learning, especially through real-life projects, ID students develop critical thinking and problem-solving skills by tackling loosely structured problems that are reflective of the kinds of problems and challenges they will face in the workplace (Jonassen 2008). Students also have opportunities to gain first-hand experiences of the constraints and challenges (e.g., time management issues, difficult clients, technology problems, lack of funding) that occur during real-world projects (Dabbagh and Blijd 2010; Herrington et al. 2004; Larson and Lockee 2009; Miller and Grooms 2018; Sharif and Cho 2015; Stefaniak 2015). As employers expect novice IDers to contribute to their workplace immediately, the more experience novice IDers can have in real-world contexts while learning to be IDers, the more successful they will be in their transition to the workplace (Britt et al. 2015; Miller and Grooms 2018) as they are likely to transfer their knowledge and skills from these experiences. Therefore, by "providing student IDers with opportunities to develop skills in authentic ID situations," these future IDers will "develop knowledge and skills for real-world practice" upon graduation (Lowell and Ashby 2018, p. 75).

Although authentic learning can be used to connect course material to real-world situations (Vo et al. 2018), it can be challenging to implement authentic learning through real-world projects in online courses. Real-world projects are time-intensive for instructors and students and they require significant planning and structure of the associated activities both in the course and the real-world context. The inherent nature of authentic learning, with unexpected challenges and elements of uncertainty, can create significant anxiety for instructors and students. Other challenges include implementing such activities in online courses where students and instructors are geographically separated; locating real-world projects; and students' need for significant scaffolding (Slagter van Tryon et al. 2018; Stefaniak 2015).

For those considering adding authentic learning opportunities to their online courses, providing additional examples of successful inclusion of authentic learning is needed. However, few studies have looked at how online instructors are implementing authentic learning in their online courses (Vo et al. 2018). Of the published studies, most focus on small opportunities for authentic experiences or specific tasks that are completed within the online course. Few papers discuss the design process – including decision making, successes, challenges, and results of implementing authentic learning – and even fewer papers include authentic learning in a real-life context involving IDers.

This project addresses the gap by outlining the redesign of an online graduate-level ID course to provide students with

multiple authentic learning opportunities related to project management. The course assignments, activities, and resources were redesigned to assist students in developing skills, including critical thinking and problem-based learning, through a project involving project management; stakeholder negotiation; and product design, development, and testing through a real-world project in a real-life context.

Redesign of Online Course for Authentic Learning

Course Design Context

The redesigned online course is taught within an ID graduate program at a large university. The program serves a geographically diverse student population with different professional backgrounds, although all its students have an interest in education or training and technology. The course content aims to improve students' knowledge and technology skills for designing and developing online instructional content. The instruction for the course is delivered asynchronously through a learning management system (LMS), with some synchronous sessions offered using web conferencing software. Generally, students enrolling in this course are mostly online master's degree ID students, with a small number of students from the campus-based ID master's or doctoral programs. Students typically enroll in the required course approximately mid-way through their master's program, after they have taken their foundational ID courses.

In the course, students gain experience in designing, developing, and testing an online module with support from their instructor and peers. However, before the redesign, they lacked the experience of (a) doing the assignment within an authentic design project with a client or user, (b) completing a needs analysis including identifying the needs and solutions for a real-world project, (c) managing a real-world ID project - including resources such as time, people and materials, and (d) designing, developing, and testing a real-world ID product. These critical skills have been identified as essential for workplace transfer for IDers (Lowell and Ashby 2018; Wakefield et al. 2012; York and Ertmer 2016). To support the development of these skills, the instructor incorporated authentic learning experiences into the course.

Previous Course Design As a project-based course, this course is designed to provide students with experiences in designing, developing, and testing a fully online instructional module to teach or train a target population. Students are given the opportunity to choose the topic, target population, technology, and design decisions for their module. As students would design and develop their online modules, they would receive feedback from their instructor and peers. Each week during the previous design of the course, students would engage with various readings, instructional videos, PowerPoint presentations, and discussion boards, and work on their ID project. The previous assignment sequence for the course was scaffolded across three assignments to create an online module (mini-course or lesson); the first assignment asked students to create a proposal while developing analysis and project planning skills, the second assignment had students creating a design document with all visual and instructional content, and the third assignment required students to develop and test the fully online module. The previous course assignments to design and develop the project are included in Table 1.

Although students were encouraged to work on a real-world project for which there is a specific need, most students did not choose to work on a project to meet a need and work with a client. Rather, students often created modules on a topic, such as a technology (e.g., How to use Google Forms), or topics of their interest (e.g., Composting 101 and Introduction to Baseball). Students who chose to work on projects that did not fulfill a real-world need and without clients were missing out on the interpersonal and project management aspects typically required of a professional IDer. Also, during the design and development phase of their projects, students were only receiving feedback on their projects from their instructors and peers in the course discussions and through assignment submissions of early design plans. Yet, in real-life contexts, IDers often receive feedback from multiple sources, including other ID team members, supervisors, and clients. As IDers are often faced with having to manage resources—both in terms of time and materials—much of this requires interaction with clients and other stakeholders, and these interpersonal skills are critical as several researchers have found in their work with experienced IDers (Lowell and Ashby 2018; Wakefield et al. 2012; York and Ertmer 2016).

Course Modification Decisions for Authentic Learning

To provide students with an opportunity to develop transferable skills through an authentic learning experience, the course project was changed to require a real need, a real project, and a real client. Applying the characteristics highlighted in the literature for authentic learning, the needed skills for IDs, and the online course delivery, the course activities, assignments, and the resources were significantly redesigned to provide instructional content, resources, and scaffolding for students working on a real-world project with a client or user.

The course design modifications were based on several factors, including ensuring the authentic learning elements aligned with literature. Various sources were reviewed to ensure the inclusion of characteristics of authentic activities (Bektas 2019; Herrington and Oliver 2000; Herrington et al. 2003; Knobloch 2003; Lave and Wenger 1991; Lombardi

Table 1 Previous Course Assignments to Create Online Module

Project Assignment Name	Format	Assignment Requirements
Elearning Project Proposal	Paper	Identify online module topic, target audience, learning objectives
Elearning Paper Prototype	Paper - Design Document	All planned module instructional content, assessments, identified technologies for delivery, storyboard, and sitemap
Elearning Module and Final Report	Online Module (E-Authoring, LMS, Etc.) and Paper	Fully developed digital module in online location and final reflection report

2007; Reeves et al. 2002), key components of authentic learning (Maina 2004), and criteria of authentic learning (Renzulli et al. 2004), as well as the main themes across supporting authentic learning (Rule 2006).

In addition to reviewing the literature for best practices for authentic learning, the redesign required balancing students' needs when completing course requirements with real project needs. Therefore, in addition to the course design modifications, the instructor needed to provide some flexibility to allow for considerations for real-life projects in an academic course. For example, the instructor needed to consider some clients may not be available to meet weekly, project deadlines for the course assignments may be misaligned with a client's needs, and clients may change a project's requirements. Therefore, in addition to changes to the course instructional content, the instructor needed to provide scaffolding when necessary, as well as flexibility across course requirements and real-life project needs.

Course Assignments The three assignments included: (1) A project proposal, (2) a paper prototype, and (3) a final report with a fully developed and tested digital module (see Table 1). Though these were initially three assignments, due to their size, they were modified and divided into four assignments (i.e., Elearning Proposal, Elearning Design and Development Part 1 and Part 2, Elearning Module and Final Report).
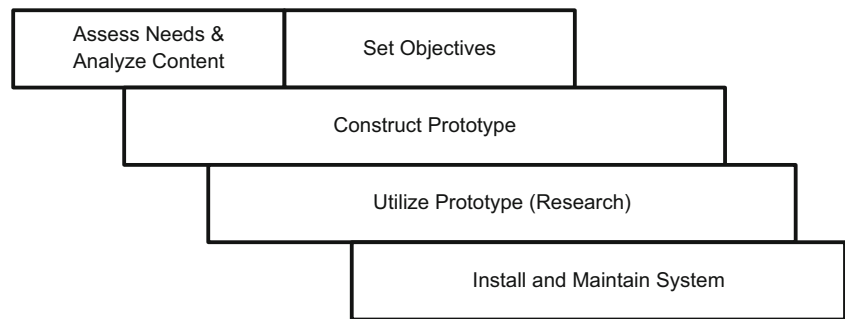
Further, some of the digital module development was moved to weekly class discussion activities and weekly meetings with clients. These modifications reflect the many smaller increments of the design and development process in the ID industry when working with stakeholders. They also create more opportunities for feedback from clients, users, and the community of learners in the course, and formatting of project components across assignment needs and client's project development needs (see Table 2). The students were encouraged to use a rapid prototyping design and development process to allow for agile design and development decisions. Rapid prototyping for ID, initially introduced by Tripp and Bichelmeyer (1990), is a design model that has a layered approach (see Fig. 1), in which designers start earlier than other models on the design and development of their instructional product and combine the design, development, and evaluation stages. The iterative process inherent in rapid prototyping better-enabled students to experience the complex lifecycle of real-world design and development projects.

ELearning Proposal. Considering the initial stage of analysis and beginning the design, the proposal portion of the assignment (ELearning Proposal) was completed through a draft proposal design process that occurred both in the course and with the students' clients. Having one proposal due without opportunities for feedback and modifications led to several issues: (a) Students were not aware of issues in their proposal,

Table 2 Revised Course Assignments

Project Name	Assignment Format	Assignment Content
Elearning Module Proposal	Paper	Idea, goal, target audience, learner characteristics, learning objectives; potential technologies for delivery
Elearning Module Design and Development Plan - Part 1	Paper or digital (Online Storyboard and sitemap software)	Storyboard & sitemap
Elearning Module Design and Development Plan - Part 2	Paper and digital (online storyboard and sitemap software, and module content)	Online module instructional content (on paper or digital)
Elearning Module and Final Report	Online Module (E-Authoring, LMS, Etc.) and Paper	Fully online module and final report including reflection

Fig. 1 Events of the Rapid Prototyping Model Based on Tripp and Bichelmeyer (1990), Modified for the Course

Assess Needs & Analyze Content	Set Objectives

Construct Prototype

Utilize Prototype (Research)

Install and Maintain System

(b) students were not meeting regularly to plan with their client until after the proposal was reviewed by the instructor, and (c) students were not starting on their projects until after the middle of the third week of the 8-week course. By having the students discuss drafts of their proposal with their client, and also with their peers in the weekly online discussions during the first two weeks of the course, students were encouraged to start on their proposals earlier and receive feedback from their peers, their instructor, and their client.

During the proposal phase of the students' projects, students worked with a client to gather information on their client's and/or user's needs, expectations, and limitations, and present potential design ideas and solutions to the client. While each student had a different project, they had comparable deliverables and were all developing an online module. However, the students' and clients' roles differed among projects. For some projects, the client was the SME, in other cases, the student received the content from SMEs, and sometimes the student was both the SME and the online module developer for their clients. Also, the client was sometimes the product user.

ELearning Project Design and Development (Part 1 and Part 2). The second assignment required students to present all the design plans on paper, including a low fidelity storyboard, a sitemap, and all instructional content. The instructor recognized that going from a proposal to a large development planning document, without the iterative design decisions that often occur during a design and development process, was not reflective of authentic design and development projects. Often IDs meet with stakeholders as they are starting the design and then again during the design and product development process to ensure they are on track. The jump from the proposal assignment to a fully designed module on paper did not reflect the process that often occurs in real-life. Therefore, the second assignment (ELearning Paper Prototype) was divided into two assignments (i.e., Elearning Project Design and Development Part 1 and Elearning Project Design and Development Part 2) and the students' design decisions extended from their beginning proposal assignments into their design and development assignments. This required that students begin the design process earlier than previously in the course and request feedback from the client throughout the designing process.

The learning process and the experience of working on a real-world project can provide novice design students with an opportunity to reflect on their process, their successes, and their challenges. Therefore, the final assignment for the course, the final report, and fully developed online digital module (Elearning Module and Final Report) was modified slightly, with the final report requirements adjusted to include thought-provoking questions on their experience working through a design project.

Course Activities and Assignment Scaffolds The course activities (e.g., asynchronous weekly discussions, assigned readings and videos, guest speaker presentations during the first four weeks of the 8-week course) and resources were reviewed and modified to focus on the needs of learners related to working on a real-world project.

Weekly discussions. The weekly discussions were modified to provide students with collaborative discussion opportunities. During most weeks in the course, students were provided an opportunity to present a portion of their elearning modules for feedback and to request ideas and resources. In addition, as part of their discussion activities, students shared their design decisions and experiences, reflected on their successes during the design process, and presented any challenges they were contending with. These modifications allowed students to receive support, encouragement, and needed resources from their learning community.

Course readings, videos, and guest speakers. The course readings, videos, and guest speakers were reviewed and revised to ensure students had scaffolding on topics relevant to a rapid design and development process and managing a project. Guest speakers were invited to discuss topics relevant to design decisions and challenges during the design process. These topics included how to filter through a plethora of available technologies to select the best fit for the specific project and strategies for collaborating and working with subject matter experts.

To scaffold student learning, the assignment instructions and requirements were modified to ensure students were considering the tasks they needed to complete when working on a real-world project with a client or user, and course activities and resources were provided (see Table 3). For example, for the

Table 3 Course Assignments, Scaffolds, Activities, and Resources

Assignment - Project Name	Activities	Scaffolds Course Activity	Resources
Elearning Module Proposal	Identify the client or users they would be working with, and other potential stakeholders, the topic and need	Course Peer Feedback Discussion	ID/Client Feedback Form
	Complete a designer and client feedback form during each interaction and follow-up communication to the client to ensure they agreed on decisions		ID/Client Feedback Form
	Describe how they planned to interact and receive consistent feedback from their client,	Project Gantt Chart	Communication Plan Agreement
	Describe any tools or resources	Course Peer Feedback Discussion	ID/Client Feedback Form
	• their client, user, or other stakeholders would like them the use or will be providing	Guest Speakers - Technology Tools and IDs	Course Peer Feedback Discussion
	• they propose using		
	Plan their design and development process including	Project Gantt Chart	
	the time to learn technologies (and if needed instructional content)		
Elearning Module Design and Development Plan - Part 1 and 2	Meet with their client or user, preferably weekly, to ensure proposed design on paper and developing digital prototype, meets client's/user's needs	Course Reflection Discussion	ID/Client Feedback Form
	Create a design plan including instructional content and learning environment design and technologies	Course Peer Feedback Discussion	ID/Client Feedback Form
	Align their instructional plans with best-practice instructional principles.		Course Peer Feedback Discussion
			Merrill's 5 Star Rating
			E-Learning Evaluation Form

Elearning Module Proposal, students were asked to identify the client or users they would be working with, other potential stakeholders, and the topic and need. To assist them, they were provided an opportunity to propose their initial ideas in a course discussion forum for feedback and provided an ID/Client feedback form to use when meeting with a potential client to discuss a project they might work on in the course.

ID Model - Rapid Prototyping Students were taught foundational ID models (i.e., ADDIE) in their initial program courses. However, by the time they took this course, (taught mid-way through the program), they had not been introduced to or researched many other ID models commonly used in industry and had not applied an ID model when working with a client or user. So, many students were trying to use the ADDIE model in a very accelerated format to do their course project. To better fit the accelerated nature of the course, and the authentic learning occurring with the course activities and assignments, the instructor introduced and encouraged students to use a rapid prototyping model. Rapid prototyping for ID is a design model in which designers start earlier than other models on the design and development of their instructional product and combine the design, development, and evaluation stages (Tripp and Bichelmeyer 1990). The design and development process with rapid prototyping allows for early design and development and encourages planned formative evaluation and feedback throughout the process, allowing for design changes throughout the process. As students were working on real-world projects in this course with an actual client or user, the iterative and consistent formative evaluation and feedback (from their clients, their peers, and the instructor) were important aspects of their design process and learning experience.

Course Content Alignment with Authentic Learning

The course content was previously focused on the completion of specific tasks without the authentic learning components. Through modifying the course to provide an authentic learning experience, the course content was aligned with authentic learning principles (see Table 4).

Discussion and Results

Instructional design is not always a clean, linear process; in fact, it is often nonlinear. IDers must manage competing interests, limited resources, and changing expectations. This is not something that can be taught through a course reading. The only way to gain an appreciation for this type of work is through experience. An authentic learning experience begins with a certain potential for success, challenges, or failure. All these elements were built into the course in such a way as to let

Table 4 Authentic Learning Design Principles and Learning Objectives

Element of Authentic Learning	Course Examples
Real-world significance	• Students locate a client or a user to design and develop needed online learning/training
	• The instruction will address a real-world need
Complex and ill-defined problem and tasks requiring sustained investigation (Ill-defined problems and tasks)	• Create an online instructional module for a real-world need to address an ill-defined problem
	• Students determine the tasks that need to be completed for the project (e.g. - complete learner analysis, identify delivery technology, regular feedback sessions with the client or user)
Practice in a real context (Real-world practice)	• Design and develop instruction within the parameters of a real-world design and development task, with real stakeholders
	• Students design, develop, and test the module based on the specific needs of the stakeholder(s)
Allow competing solutions and diversity of outcome (Competing solutions)	• Students are flexible and open to different outcomes when working on the real-world project
Interdisciplinary perspective	• Working with stakeholders and a learning community (in the online course discussions) with different backgrounds, students receive feedback and suggestions
	• Interactive guest speakers on real-world topics and projects
	• Students design an elearning module on a topic they are most likely not an expert in allowing for changes and additions based on feedback received
Ongoing collaboration in the learning process in the classroom and the real-world context (Collaboration)	• Weekly collaborative online group discussions with class learning community with discuss topics addressed as a group, with individual feedback provided
	• Iterative stakeholder formative evaluation and feedback sessions
Opportunity for reflection on learning during and after the learning (Reflection)	• Online discussion reflection activities for several weeks in the course
	• Final assignment reflection on the design, development and testing process
Seamlessly integrated assessment in the learning process (Integrated assessments)	• Create design plans and module prototype components for their stakeholder(s), while also submitting for plans and prototype components as assignments for the course
Create a polished product (Polished product)	• Students complete the design, development, and testing of the module during the course producing a finished project for their stakeholder

students experience the true ID process and develop a variety of skills to improve their competencies as an IDer.

Students were time-bound by the accelerated course (8 weeks), and they had to efficiently move through the various analysis and design, development, and evaluation stages while working with an external client. And much like the work of a real-world IDer, they realized there are compressed schedules and competing interests that require a certain level of negotiation, management, and flexibility (Kim 2015; Stefaniak 2015; Sugar and Moore 2015). By introducing an external client, the course experience mirrored the real-world work of an IDer, as each of the clients had a problem that needed to be solved, providing the ill-defined problem necessary in which to situate an authentic learning experience (Britt et al. 2015; Herrington et al. 2004). Through working with their external client, they learned some of the key interpersonal skills that are essential for IDers (Kang and Ritzhaupt 2015; Sugar et al. 2011; Wakefield et al. 2012). They also learned decision-making and collaboration skills and created a final product that would impact a real-world situation or problem.

To help scaffold the students' design and learning process while working with a client, the instructor added resources

and activities to the course such as fillable forms students provided to their clients, peers, and potential elearning module users to provide feedback on their product design, class discussions where students conversed about their design process successes and challenges, and courses readings on working with clients. The instructor also encouraged students to self-reflect throughout the design and development process in course discussions and their final report as these types of reflective exercises are key components within an authentic learning experience as they provide another learning opportunity for students (Britt et al. 2015).

Multiple sections of the redesigned course have been offered twice a year for three years. With each time the course was taught, the instructor requested student feedback on their learning and adjunct instructor feedback on their teaching experiences. Further modifications were made to the course based on the experience of the lead instructor who is the course designer, other instructors' experiences when teaching the course, and student experiences.

The most significant changes to the course include: (1) modifying the design process to make it more authentic, such that students would receive additional feedback at earlier stages, which is reflective of what they would receive in the real-world; (2) the inclusion of a client; and (3) increasing student support through scaffolding their design and learning process during a real-life project.

The online course delivery increased the opportunity to provide support and scaffolding. Students had opportunities to share their module components and discuss their successes and challenges in the weekly course discussions and other course activities. Many students reported that having the opportunity to share their module in the online course discussions, as well as discussing their various successes and challenges helped them as they received constructive feedback, as well as support from their peers and instructor. By receiving feedback early and at multiple points in the design process from their client, instructor, and peers, students could respond to the feedback and weave it into future iterations, thus potential project-crippling errors were often addressed early before they were potentially carried into subsequent design stages. This change better mirrors the work that students would encounter in the real-world when they were doing project check-ins with their client, SME, or team members.

Ultimately the design changes were successful, based on the students' and instructor's positive experiences. Following the course redesign, most students noted that they felt much more confident in their knowledge and skills to design and develop elearning instructional content for a client, and most students appreciated the opportunity to design a project for a real-world need and with an actual client or users. When asked at the end of the course about their confidence in their design and development abilities, one student wrote:

I appreciated the experience of working directly with a real client. It was extremely motivating to work with the target learners and their supervisor to build the best possible design. I enjoyed collaborating with them on the interpreting the raw content and goals into a cohesive design. I also tried to implement their feedback wherever possible. This experience gave me more confidence to create a prototype more efficiently and effectively. I feel like I can apply the skills I learned to future projects.

Another student wrote that their experiences when producing their web-based prototype for their client helped them understand the design and development process and they felt they could repeat this in the future.

In addition to working with a client, the authentic learning opportunities in this course allowed students to experience and work through many of the challenges they would face as an IDer once graduated. Students reported that their experience of working through the challenges of their project would help them to figure out solutions for projects in their careers.

The students also reported appreciating having a tangible and useful product as a result of the experience. Other students commented on their increase in confidence because of their learning experience. One student wrote, "I definitely feel like this course has helped me become more confident in my abilities in these areas. Starting completely from scratch to having a full working digital module was pretty incredible. Even though I know there are still areas for improvement, I am much more confident in my abilities to figure things out".

There were also some challenges. For example, some students lacked access to potential clients or users for the design of their project, as they may not have been working while attending school. This led to a modification to the assignment's requirements allowing students to seek a project that was needed with a friend or relative. In one case, a student mentioned they wanted to design a module to teach others to sew, but the student did not know anyone for whom they could design it. Another student in the graduate program, but who was not in the course, offered to be their module content user as they wanted to learn to sew. In another case, the student developed a module for their mother to teach her about composting. As the course modifications led to students designing a project with an actual client or user, a variety of resources were added to the experience.

Conclusion and Future Research

In this paper, we highlighted a course redesign that included integrating authentic learning opportunities for graduate-level instructional designers. These changes, which included encouraging students to work with a real client, the inclusion

of a rapid-prototyping design process, and additional design checkpoints for additional feedback, allowed for a more realistic learning experience for the students to prepare them for their future careers as ID practitioners. Completing a real-world project with clients as a part of an academic course can be challenging and this can be exacerbated when the course is taught online. However, such learning opportunities can be managed through an online course by leveraging the collaborative potential of online learning environments, providing resources, and scaffolding specific to the tasks, and offering flexibility as needed.

A limitation of this case study is that the redesign focused on the modification of one course. The experiences and findings from this case study contribute to the scholarship on integrating authentic learning opportunities in online courses. To further the contribution, more research is needed with different courses and programs. Additionally, researchers and practitioners should continue to explore the most effective ways to prepare learners so that post-graduation graduates can immediately contribute to their workplaces. Future research should address the need for additional examples of the design considerations for providing authentic learning opportunities in real-life contexts in online courses. Exploring additional frameworks or models for providing authentic learning in online courses is also needed, as these will also provide practitioners with approaches for their course. Researchers and practitioners may also want to the success of the transfer of knowledge, skills, professional approaches, and attitudes from authentic learning experiences and the relationship between course performance and specific course scaffolds, such as instructional design models or design frameworks.

Compliance with Ethical Standards

Conflict of Interest   The authors declare that they have no conflict of interest.

Human Rights and Informed Consent   The author received consent from participants in this study and an IRB proposal was completed with Purdue University.

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