DESIGNING INTERPROFESSIONAL ONLINE LEARNING EXPERIENCE FOR FUTURE HEALTHCARE PROFESSIONALS

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The design case details the collaborative work of a design team—three faculty members, one instructional designer, and one educational resource specialist—to create a simulation-based interprofessional education (IPE) experience for future healthcare professionals. Before the COVID-19 pandemic that caused the shutdown of campuses across the country/world, this simulation-based learning experience was always offered in a face-to-face format. Thus, this case highlights the challenges and opportunities of designing this online learning experience within a limited period of time. Further, this case documents what theories or evidence-based practices were instrumental in designing this learning experience, along with the design team's narrative regarding key design decisions and moves. It also includes a design narrative focusing on the description of the design process, such as key design judgments, decisions, and concrete examples of the design process outcome. Lastly, the design case highlights unique design features: Scalability of instruction through accessibility and usability, authenticity, interprofessional collaboration, and reflection. The design was guided by the TEACH (Team Education Advancing Collaboration in Health) core curriculum in the state of Indiana that foregrounds interprofessional practice competencies and teamwork in preparing future healthcare professionals.

Victoria Abramenka-Lachheb is a learning designer, scholar, and educator. She holds a Ph.D. in Instructional Systems Technology with a minor in Human-Computer Interaction from Indiana University. She is passionate about designing authentic and inclusive learning experiences, conducting design research, and improving human learning and performance in diverse contexts. Her research focuses on the intersection of instructional/learning design, human-computer interaction, and UX design.

Jeanne Johnston is a Clinical Professor at the Indiana University School of Public Health. Dr. Johnston's scholarly interest resides in utilizing physical activity to prevent chronic disease, improve function in chronic diseased populations, and improve quality of life across the lifespan. Populations of interest include college students, work sites, master athletes, the older population, and the cancer survivor population. In addition, Dr. Johnston has expertise in physical activity assessment methods and utilizing technology to influence physical activity.

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THE DESIGN TEAM

The design team of *IPE Anchor 4: Integrating Interprofessional Collaboration Skills* included three faculty members, one instructional designer, and one educational resource specialist at Indiana University (IU), as follows:

Dr. Victoria Abramenka-Lachheb —the lead author of this design case—was a Senior Instructional Designer at the IU School of Public Health, Office of Online Education. In the Spring of 2020, I (Victoria) was a doctoral candidate at IU School of Education, studying instructional design in online learning contexts and human-computer interaction. I graduated from IU two years later—in the Spring of 2022—with a Ph.D. in Instructional Systems Technology.

Dr. Jeanne Johnston —a co-author of this design case—is a Clinical Professor at the IU School of Public Health, Department of Kinesiology. In the Spring of 2020, I (Jeanne) was teaching the Professional Development Seminar course for graduate students at the IU School of Public Health. Engaging in the *IPE Anchor 4: Integrating Interprofessional Collaboration Skills* was a requirement for my students to complete/pass the Seminar I was teaching.

Dr. Zachary A. Weber (PharmD) —a co-author of this design case—is the Director of Interprofessional Education and Clinical Professor of Pharmacy Practice for Purdue University College of Pharmacy, the Assistant Dean for Education for the Indiana University Interprofessional Practice and Education Center (IU IPE Center), and an Adjunct Professor of Medicine for Indiana University School of Medicine. In the Spring of 2020, I (Zach) was leading all IPE efforts within the IPE Center.

Throughout this design case, our voices are indicated to represent our individual/distinctive roles (using the *I* personal pronoun) and our collective thinking (using the *We* personal pronoun). Other members of the design team that we (the authors of this design case and most members of the design team) acknowledge their contributions are:

A Faculty and a Director of Evaluation at the IU Interprofessional Practice and Education Center. In the Spring of 2002, *their* role was providing initial input to the design team on what the IEP experience in a face-to-face format looks like and providing feedback once the experience was fully designed and developed online on the Canvas Learning Management System (LMS). They also deployed a questionnaire to the students to evaluate their IEP experience for internal evaluation purposes, not for research.

An Educational Resource Specialist at the IU Interprofessional Practice and Education Center. In Spring 2002, their role was providing students with technical support using Canvas LMS, such as setting up groups, communicating with the students, sharing resources and guidelines, and posting important announcements related to IEP experience for students through Canvas LMS.

The faculty members—listed above by name—directly worked with and at the IPE Center at IU. This center is committed to preparing a workforce across professions through interdisciplinary collaboration and teamwork to improve health outcomes. To this end, the IPE Center collaborates with health and social care programs, including nursing, dentistry, public health, medicine, pharmacy, optometry, and more. They also work directly with instructional designers and educators to design evidence-based, effective, and efficient interprofessional learning experiences.

The next sections provide further details about the interprofessional learning experience. We begin by highlighting its importance for future healthcare professionals and how critical it was for us to provide students with a meaningful and positive learning experience in an online format.

IMPORTANCE OF INTERPROFESSIONAL LEARNING EXPERIENCE

The Centre for the Advancement of Interprofessional Education (CAIPE) and the World Health Organization (WHO) provide definitions of interprofessional education (IPE) and interprofessional practice (IPP). These definitions serve as a basis for contemporary healthcare education and practice, highlighting the need for effective interprofessional teams to accomplish the healthcare quintuple aim. Such quintuple aims include improving population health, enhancing the care experience, reducing costs, and recognizing the growing challenge of burnout (including professional dissatisfaction and exhaustion) among the healthcare workforce (Nundy et al., 2022).

To prepare learners to be collaboration-ready team members when entering practice, many health and social care accreditation bodies require learners to participate in IPE/IPP experiences during their didactic and clinical/practicum/experiential training. By definition, IPE and IPP require collaboration with other health and social care disciplines. At IU, participation in the *IPE Anchors* as part of the Team Education Advancing Collaboration in Health (TEACH) curriculum allows students to learn with, from, and about each other in a manner that supplements the knowledge, skills, and behaviors they acquire during their *uniprofessional* education and training.

THE IPE LEARNING CONTEXT

The design of the IPE experience was part of the TEACH (Team Education Advancing Collaboration in Health) core curriculum that foregrounds interprofessional education, collaborative practice competencies, and teamwork in preparing future health and social care professionals. TEACH is a longitudinal curriculum that is offered to students

from health and social care-related majors (e.g., School of Dentistry, School of Public Health, Health and Human Sciences, Medicine, Nursing, Optometry, School of Social Work, College of Pharmacy, etc.) across the state of Indiana. The TEACH core curriculum includes three phases: Exposure, Immersion, and Entry-to-Practice.

Each phase is aligned with Interprofessional Education Collaborative (IPEC) competency domains of Roles and Responsibilities, Values and/or Ethics for Collaborative Practice, Interprofessional Communication, and Teams and/or Teamwork. Students participate in various IPE experiences during different semesters throughout their programs' plan of study. Specifically, the *IPE Anchor 4: Integrating Interprofessional Collaboration Skills* is a simulation-based experience that is part of the Immersion Phase. It builds upon foundational knowledge, skills, and behaviors introduced during the Exposure phase while preparing learners for real-world IPECP opportunities during the Entry-to-Practice phase.

Exposure Phase: During this phase, students are introduced to the roles and responsibilities of different health and social care professions. They can explore key concepts related to interprofessional education and collaborative practice (IPECP). There are two experiences during this phase, referred to as *Anchor 1: Introducing Interprofessional Collaboration* and *Anchor 2: Developing Interprofessional Collaboration*.

Immersion Phase: During this phase, students have an opportunity to apply knowledge, skills, attitudes, and behaviors learned during the Exposure Phase. Students engage in interactive sessions with standardized patients (an actor playing the part of a patient). Like the Exposure Phase, this phase consists of two main experiences: *Anchor 3: Applying Interprofessional Collaboration* and *Anchor 4: Integrating Interprofessional Collaboration*. Both Anchors are simulation-based IPE experiences.

Entry-to-Practice Phase: This phase's key is exposing students to real-world IPECP opportunities. These experiences occur during existing clinical/practicum/experiential placements, community engagement initiatives, or other authentic projects. This phase focuses on working in real-world settings with fellow health and social care students and professionals. By this phase, students will have completed multiple Anchor experiences during the earlier phases of TEACH, including the simulation-based *Anchor 4: Integrating Interprofessional Collaboration*.

THE DESIGN CONTEXT OF IPE ANCHOR 4: INTEGRATING INTERPROFESSIONAL COLLABORATION SKILLS

Before social distancing and attendance restrictions due to COVID-19, students from different healthcare majors met and participated in *IPE Anchor 4: Integrating Interprofessional Collaboration Skills* face to face. Students would start Anchor 4 with a team huddle to discuss an assigned case (in the form of a scenario), brainstorm potential solutions, and prepare to meet with a standardized patient (a trained actor to play the part of the patient/client). Following the encounter with the standardized patient, student teams would present a recommended plan, participate in a facilitator-led debrief, and complete individual reflections and evaluation of the Anchor. However, during the Spring of 2020, when campuses across the country/world had to be shut down due to the risk of COVID-19, a face-to-face format was no longer an option. These unprecedented situations put the following demands and challenges that we (the authors/design team members) had to navigate throughout the design process:

Absence of face-to-face interactions due to the risk of spreading the infection: At that time, we had no opportunity to interact with anyone else rather than with those living in the same household. Due to the risk of COVID-19, people had to stay home. In some states, they could not leave their houses for weeks. This situation undoubtedly took a toll on the emotional health of many people, including students, who suddenly faced new anxieties about their health, family members, and financial security during turbulent economic times (Diez et al., 2021; Kutza & Cornell, 2021).

Integrating and learning video conferencing technology: Due to the closure of campuses, face-to-face classroom interactions were suddenly no longer an option. Therefore, instructors and students alike had to quickly learn how to use video conferencing tools, such as Zoom™ or Microsoft Teams™, as well as learn new ways to participate in learning activities (e.g., telemedicine, Rohatgi, 2021). Specifically, issues related to privacy and security protocols were of major concern amid emerging cases of so-called *Zoombombing*. It was manifested in widespread disruptions of meetings on Zoom™ by uninvited users (Elmer et al., 2021).

Issues of equity: One of the major equity issues was the digital divide among different students. For example, students experienced inequity in access to technology, which resulted in different learning experiences (Tamika et al., 2021).

In response, we worked together to create a meaningful learning experience in a fully online format. The general goals of *IPE Anchor 4: Integrating Interprofessional Collaboration Skills* are, as follows:

1. Prepare health professions graduates for clinical and community-centered interprofessional practice.
2. Implement evidence-based, effective, efficient interprofessional education, improving individual and population health outcomes.

3. Advance research and scholarship, which grows the body of knowledge and understanding about best practices in interprofessional practice and education.
4. Provide ongoing leadership and professional development to cultivate a shared, active, transparent, and motivated learning community.
5. Share tools and resources to equip and connect faculty, practitioners, staff, students, and community partners.

Thus, the context of designing the *IPE Anchor 4: Integrating Interprofessional Collaboration Skills* was characterized by unprecedented circumstances, both external (e.g., the Covid-19 pandemic) and internal (e.g., re-designing based on the new delivery format, online). Because of that, we had about two to three weeks to reconsider and change the design and the instructional strategy while maintaining a consistent vision for students' learning. With the rapid pivot to an online format due to the fast spread of the COVID-19 pandemic, we had to quickly adapt to new realities and mobilize existing learning and technology resources to be able to provide a positive and meaningful experience in an online format. We also had to ensure consistent learning objectives and competencies that would be achieved during and through the online experience format, compared to what was previously accomplished face-to-face.

Another interesting aspect of the design context of this learning experience was the large scale of the learning experience being offered to ~1500 students across the state of Indiana. The scale of the project presented additional challenges related to ensuring everyone got equitable learning and participation experiences regardless of their program and where they were completing this interprofessional learning experience. An additional consideration was that this learning experience was not a separate short course but rather a professional development event and a learning opportunity that was differently placed in the curriculum of the participating programs. This variability of how the experience was included in the different curricula required us to be flexible with how learners and facilitators would engage with the content. Further, just as this learning experience had an interprofessional nature (e.g., by designing for students from multiple healthcare and social care-related disciplines), we were professionals from multiple disciplines in different IU units: the College of Pharmacy, the IPE Center, and the School of Public Health.

How Has the Context Shaped this Design?

We met multiple times during the 2020 IU Spring break (which was extended to 3 weeks due to campus shutdown). During the first meeting, we met to introduce the project and the IPE Anchor 4 curriculum, discuss how it used to be organized prior to the pandemic, as well as our expectations for the new online format. We agreed that this learning experience needed to be as seamless and engaging as possible

while maintaining a consistent vision and goals for what was achieved during the face-to-face format. We shared the same hope that students would find value in this learning experience and walk away with important skills related to problem-solving, teamwork, and collaboration.

I (Victoria) ensured that I understood the goals of *IPE Anchor 4*, faculty's expectations, and preferences. I thought through design approaches and strategies for delivering this experience in an online format—the key contextual factor that influenced how this learning experience shaped and unfolded. Specifically, I thought it was crucial to follow a microlearning strategy (Hug, 2005; Mohammed et al., 2018; Leong et al., 2020) in chunking the learning experience (Gobet, 2005), as well as heavily rely on the visual experience students would have when engaging with this content online.

Has the Context Influenced the Process in Some Way?

It is important to stress that we had only three weeks to think through how to organize, present, and create the Anchor in a new online format. The new design context was heavily influenced by the timeline of the project and the way I (Victoria) approached this design situation. I did not have enough time to prototype, test, and iterate on the design. I heavily relied on my precedent knowledge of previous design projects, design artifacts, and memories of learning experiences as a student (i.e., experiences that stood out and left me with long-lasting memories). I leveraged artifacts/learning objects that I previously designed and modified to align with the IPE Anchor 4 learning design context.

Working on this design project within a very limited time frame called for a quick and agile design process. We (the authors/design team members) needed to move forward quickly. This involved regular short meetings to review the progress of developing a course site for Anchor 4 on Canvas LMS and quickly preparing instructional resources to be included on the course site. For instance, Jeanne and Zach—two of the faculty members on the design team—brought to the design team a prepared video with a patient (a hired actor played the role of the patient) to describe their conditions and concerns. The video centered on authentic real-life health and social care issues that students needed to analyze and propose a solution to improve a patient's health and quality of life.

ELEMENTS OF THE DESIGN THINKING PROCESS: VICTORIA'S DESIGN VOICE

I (Victoria) felt that that would be helpful to link theory to my design decisions and moves when explaining the rationale for them to a larger group of stakeholders. These theories exist and are explained in some detail (as below). However, my design actions were not originally drawn directly from these theories. The first thoughts that came to me were not

a specific theory to follow but concrete pictures and images of learning experiences that were memorable and impactful. Such memorable and impactful learning experiences did not come only from my personal learning experience as a student but also from prior experience as an instructional designer. I would usually know from stakeholders, such as faculty, areas that students appreciated and found useful and areas that needed more iterations, as faculty would usually share students' feedback with me. Thus, based on this combined experience, I was trying to identify the characteristics of such learning experiences: *Was it because it was relatable to real life? Was it an instructor's delivery and way to explain a specific phenomenon? Was it multimedia used in the course? Or was it all together?* Such analysis and reflection resulted in the characteristics of learning experiences in online courses, such as real-world relevance, teacher and social presence, accessibility, and usability of the learning environments (e.g., course sites and learning resources). Therefore, I did not strictly follow the theories I outline below. I share them to describe the characteristics of this learning experience that resonated with my overall design philosophy in terms of what a good design should look like.

Importantly, I realized that the theories described below could be used to justify the design decisions and moves I implemented. It was important for me to provide such justifications when working with other stakeholders to ensure the validity of my design decisions, specifically in times of uncertainty. During that time, as a designer, I thought that a well-structured, organized, and visually pleasing Canvas course, with accessibility principles in mind, could help make a rapid transition from the face-to-face format to an online format a smooth process. In addition, I thought a coherently structured course site that students could easily navigate and engage with could enhance the learning experience compared to the face-to-face format. At the same time, I remember thinking about how students might miss the element of in-person live interactions when working on a given case.

Authentic Learning Theory

First and foremost, at the core of this interprofessional learning experience was an interprofessional approach to solving healthcare issues. This premise stemmed from previously done research and studies that identify medical errors as the third leading cause of death in the US (Makary & Daniel, 2016). Research has shown that interprofessional teamwork is a key strategy for reducing medical errors. Recognizing this importance, the accreditation standards of many health and social care programs require their students to participate in interprofessional education and collaborative practice training as part of their education. Focusing on collaborative health and healthcare—particularly interprofessional education and collaboration—is a key step in developing collaborative-ready health and social care professionals. The

goal is to have professionals prepared to respond to the range of local health needs (Goh et al., 2013; Lerner et al., 2009; Reeves et al., 2016; Stokols et al., 2008). Therefore, the interprofessional characteristic of this learning experience came from the authentic real-life context.

Further, as I found all design team members focused on the authenticity of the given case scenario that students will engage with, the theory of authentic learning was fundamental in designing learning activities and assessments for this Anchor. While students could not meet with each other, nor the patient, in person, they completed cognitively stimulating learning tasks: individual pre-work, preparation for meeting with other students via videoconference, and collaborating with those students to address the patient's health and social care needs. Most importantly, *cognitive realism of* learning tasks (Herrington et al., 2004) was fundamental in designing learning activities and assessments for this Anchor. The key tasks included a patient's case, health and social situation, context, and resources. The case reflected a real-life situation that students would likely encounter in their future profession. Students had an opportunity to collaborate on a real medical case as if they were working in real life. Thus, they were involved in the real context, interactions, and collaboration that they would do as future health and social care professionals. Students were also given an opportunity to explore and devise their solutions, collaborate and compare solutions with other team members, and access expert knowledge and coaching provided by facilitators. Such elements constitute the authenticity of learning (Brown et al., 1989; Herrington & Oliver, 2000; Herrington et al., 2004; Herrington et al., 2007; Shaffer & Resnik, 1999).

Theories Related to Multimedia Instruction

As I identified usability and accessibility of the learning environment and learning resources as the key elements, I considered certain principles regarding usability based on cognitive theories (Clark & Mayer, 2016). Such principles included words and graphics, stimulating active learning, contiguity principle (placing printed words next to corresponding graphics), modality principle (presenting words as speech instead of on-screen text), and redundancy principle (not adding printed text to a narrated graphic). I also considered the principle of simplicity (simple wording, beginning each assignment with a verb, including only essential tools in the navigation menu, placing tasks within modules to complete), a clear communication process, and additional resources, such as technology resources (Hovde, 2015). In terms of accessibility, I used the fundamental principles based on ADA (the Americans with Disabilities Act), Quality Matters rubrics, web accessibility guidelines, and the framework of Universal Design for Learning principles (CAST, 2010; Quality Matters, 2021; Rabidoux & Rottmann, 2017).
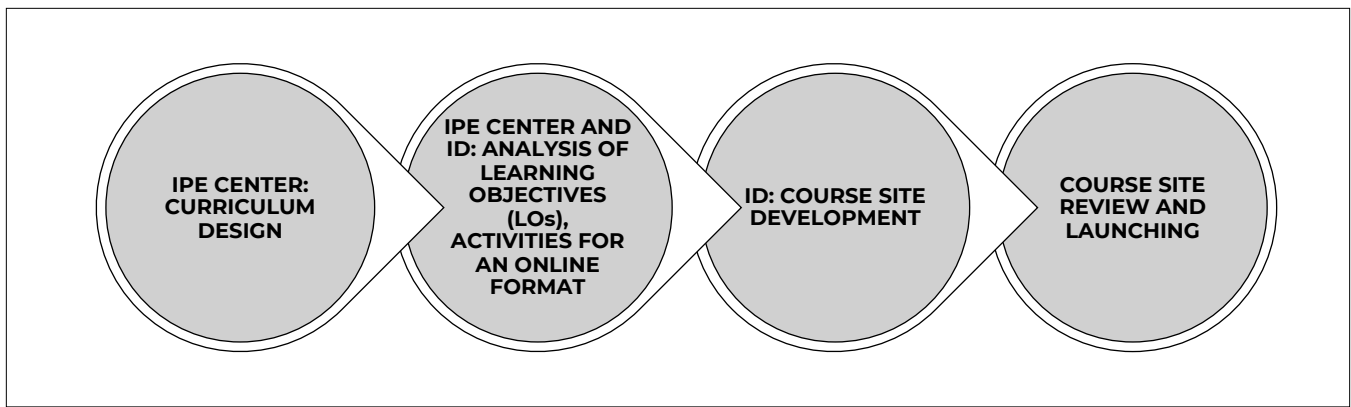
FIGURE 1. Key milestones in the design process.

As a designer, I (Victoria) identified that a teacher's social presence was one of the crucial elements of learning experiences that students would usually appreciate and value. With the design team, I made sure to include different types of interactions (student-content, student-student, and student-instructor (Moore, 1989) for the purpose of social, cognitive, and teaching presence (Garrison et al., 2010). These interactions were both reactive and proactive (Hong et al., 2014). I designed clear navigation elements to help students go through the course site, such as clickable buttons to review the content, limited control of video lectures or audio presentations, and quizzes with generic feedback (reactive interactions). Students could also collaborate, reflect, and actively participate in the learning process using technologies (proactive interactions) through virtual huddles and online brainstorming sessions.

Design Judgments and Precedent Knowledge

Theories were not the only guiding principles during the design process. The design team's pedagogical beliefs (Ertmer et al., 2012), values, and design judgments (Nelson & Stolterman, 2014) also played a role in the design process. For instance, I relied heavily on previous experiences to develop the Canvas course site. The value of precedent knowledge is the ability to make sound design judgments based on the holistic analysis of a given design situation. Previous experiences allowed me to be flexible and agile when working on the design of this Anchor.

DESIGN AND DEVELOPMENT PROCESS

The design process included the following four components. The visual (see Figure 1) by no means implies that we (the authors/design team members) followed a linear and rigid process. Rather, we share this figure to emphasize the key milestones in the design process. The narrative below describes in detail what we completed at each stage and what design decisions we made.

IPE Center: Curriculum Design

Before working with me (Victoria) to re-design a face-to-face Anchor into an online experience, the faculty members (Jeanne, Zach, and others) from the IPE Center had already worked on the curriculum. We (Jeanne and Zach) already had the learning content, activities, and assessments for the first meeting. To best relate to the new COVID-19 realities of the time, the faculty members contextualized the patient case to real-life COVID-19 considerations. In addition, students collaboratively on this case with other students, which enabled them to experience the interprofessional nature and interdisciplinary approach to solving complex health issues.

IPE Center And ID: Analysis Of Learning Objectives (LOs), Activities For An Online Format

My (Victoria) role was to ensure the chosen activities and assessments were suitable for the online delivery and aligned with the learning objectives (LOs). The key goal was not to modify LOs to simplify assessments because of the online format. I worked with the design team to ensure students would receive the same quality learning experience in an online format as what they would have had face-to-face. Maintaining a high standard for meaningful learning was a priority for the whole design team so that students were able to get the most out of their learning experience during these unprecedented times.

My role included building an online course site to deliver the Anchor. In this context, I had to tackle certain challenges associated with a new online format for the Anchor and the fact that this course was offered to a large group of students, roughly 1,500 students across different campuses, institutions, and health and social care programs would participate. Such challenges included (a) Creating groups using available functionalities within Canvas LMS in a way that students from different schools could collaborate; (b) Ensuring students could find their facilitators and contact them in the case of questions or clarification; (c) Ensuring facilitators could easily find their assigned team of students and track their progress; (d) Creating an easily navigable learning space

that would foster collaboration; and (e) Ensuring students would seamlessly go through the content, find all the necessary information, and would be able to get the most out of this learning experience.

There were more questions than answers, considering that the COVID-19 pandemic was new and stressful for everyone involved. What helped in such situations was clear communication with all parties involved in the design process, a clear plan of action, and design decisions based on the uniqueness and peculiarities of a given learning context. I worked with the design team on checking all the options available within the LMS. I shared my expertise and experience using functionalities for collaborative learning. Because it was the first time offered online, and the design team was limited by a tight timeline, we (the authors/members of the design team) had to make a leap of faith in what we designed and our plan moving forward with the online format.

ID: Course Site Development

I (Victoria) was responsible for building the Anchor 4 course site on Canvas LMS. Considering the short turnaround time of the project, I referred to evidence-based practices for multimedia instruction design and guidelines for building online learning modules/courses (Clark & Mayer, 2016). My rationale was to use something readily available that had been proven effective and efficient for this type of course development. I found it beneficial to think beyond the provided best practices or guidelines by relying on my previous knowledge and experience designing online courses. I was also able to take inspiration from reviewing previous examples from other designers in my unit. It also helped me form new design ideas, such as necessary visuals and additional navigation elements within the course site, based on synthesizing design projects and ideas I explored. While designing those elements, such

as visual elements, I felt confident it was suitable. It just felt right.

Course Site Review And Launching

Once I (Victoria) built the course site, I met with the design team and reviewed the site. We (the authors/design team members) also looked at the course site independently and tested it using the "Test View" functionality. Our review resulted in several edits to the content, such as adding additional instructions for completing the required learning activities. After exchanging feedback, I (Victoria) made all the necessary changes, and the course was officially launched.

EXPERIENTIAL DESCRIPTION OF THE DESIGN

To start their learning experience, the students would first be expected to carefully read the course's home page (see Figure 2). The home page of the course laid out the structure of the Anchor interprofessional learning experience, a description of the importance of this experience, as well as expectations and requirements. The design intent was to make this page as clear and easy as possible to navigate. Further, the home page was intended to provide a professional look and feel to make it look inviting so that students would want to stay on the page and find all the necessary information.

From the home page, students would learn more about their next steps. First, they would learn that they would first need to revise the previously completed Anchors ('Canvas Pre-Work'). Specifically, students would review the information about interprofessional collaboration in general, why it is important, as well as application of it in real-life situations. Students would build the prerequisite knowledge prior to engaging in collaborative work on the real-life case scenario.

FIGURE 2. The home page of IPE Anchor 4: Integrating Interprofessional Collaboration Skills.

From each module ('Canvas Pre-Work'), students would review the key information needed to proceed with the given real-life case. For instance, from *Anchor 1: Introducing Interprofessional Collaboration,* students would review why interprofessional collaboration is important to improve health outcomes and reduce medical error and that all health care should be collaborative. From *Anchor 2: Developing Interprofessional Collaboration*, students would review the importance of communication, variables of communication (e.g., professional training, profession/field, personal experiences, setting, culture, language, and situations), and characteristics of effective communication. From *Anchor 3: Applying Interprofessional Collaboration,* students would review important concepts such as ethics in healthcare and motivational interviewing. While working on *Anchor 4: Integrating Interprofessional Collaboration*, students would integrate their knowledge about effective communication, ethics, and interprofessional collaboration while working on a given real-life case scenario (see Figure 3).

In this Anchor, they would participate in a virtual huddle where they would have the opportunity to analyze the given case scenario and issues described in it from multiple perspectives (see Figure 4, next page).

Afterward, students would engage in reflective practice around their learning experience through completing the Debrief Questions Worksheet. Finally, students would complete an evaluation to share their experiences, perspectives, and thoughts on how this interprofessional went for them, what they learned, and what they would suggest improving.

Introduction

Now that you have reviewed content from the previous three interprofessional learning experiences and reviewed Anchor 4 content, you should *integrate* what you have learned into this experience.

In this module, you will re-familiarize yourself with Mr. Doe (a familiar face from Anchor 1), and learn more about Mr. Doe's current health situation amidst COVID-19. Each of these components will prepare you to work collaboratively with your team and provide Mr. Doe with the best possible care and considerations. Then, you and your team will meet online to incorporate your skills in this one case, follow-up with John Doe.

Learning Objectives

Upon successful completion of this module, you will be able to:

- Use effective communication tools and techniques to facilitate improved team function.
- Engage other professionals appropriate to the specific practice situation to participate in shared patient-, client-, community- and population-focused problem solving.
- Communicate information with patients, families, community members and health team members in a manner that is understandable, avoiding discipline-specific terminology when possible.
- Reflect on how learning is applicable to future practice.

FIGURE 3. Overview of the "Anchor 4 Integrating Interprofessional Collaboration".

Virtual Team Huddle

📢 Introduction

After viewing the video from Mr. Doe (section: COVID-19 Pandemic and Mr. Doe's Case Summary), to comply with current social distancing regulations, the healthcare team members must huddle as a telehealth-based group to discuss the patient/client and identify next best steps to support their care.

You will now participate as a team member in a virtual team huddle (via the virtual tool of your choice) to discuss Mr. Doe's concerns. Based on available professions, each group might have a slightly different composition in terms of participating health professions. Nonetheless, your interprofessional team should assess Mr. Doe's situation, using his perspective, the interprofessional team's perspective, as well as from the lens of each profession represented in in your team. You will work with your team to schedule a date and time to meet synchronously using the virtual tool of your choice (Zoom, Google Hangouts, FaceTime, Skype, WebEx, Canvas, etc.).

🎯 Goals

During your virtual team huddle **your goal is to work together to provide team care for Mr. Doe today to accomplish the following:**

- Discuss team members concerns for Mr. Doe. Prioritize his health challenges identified by your team.
- Identify health assets -- What kind of resources or tools does Mr. Doe have available to help address his health needs considering the recent COVID-19 regulations? Consider things available to him at home, in his community, and via distancing connection (i.e. someone he might be able to connect with via videoconference, etc.).
- Take first steps to address Mr. Doe's primary health needs. *Please note: it is not acceptable to only make a series of referrals as your primary action. Make sure you consider all COVID-19 regulations.*

FIGURE 4. Overview of the virtual huddle.

CRITICAL DECISIONS IN THE DESIGN OF THE ONLINE LEARNING EXPERIENCE

This section highlights our (the authors/design team members) critical decisions regarding the learning content, including learning activities and assessments, as well as major critical design decisions that I (Victoria) make.

Our key decision was to maintain the quality of learning offered in the prior face-to-face experience while focusing on authenticity and collaborative work. We manifested the authentic nature of the Anchor through the case scenario, which reflected real-life realities in healthcare. For example, the case scenario was situated in the context of the most prevalent health and social issues. Just like healthcare professionals in real clinical settings, students assessed the given case scenario holistically. They do so by looking at a patient's medical history and evaluating resources available to the patient in their community, the patient's culture, lifestyle, and habits. We supplemented the realistic consideration of the patient's health and social care needs with the authenticity of the collaborative work that mirrored what is done in a real-world practice setting. We provided students with the opportunity to reflect on their learning experiences and lessons learned, which is an important component of authentic learning (Herrington et al., 2004; Herrington et al., 2007; Herrington et al., 2010).

It is important to note that we did not only require students to work collaboratively on a given case scenario; they also reflected on their learning experience. Such reflection was crucial to give an opportunity to each student to think through and share what they learned from this experience and what it meant to them personally and professionally.

This helped to bring student perspectives into the learning process and allowed them to share their voice. Each design situation like this during COVID-19 also served as a great opportunity for everyone to reflect on it and think about sustainable and equitable solutions.

We made other design decisions related to the design of the course site itself. Specifically, we focused on accessibility and usability. I (Victoria) assumed a primary role in meeting these considerations. For instance, I created additional graphics, such as navigation shorts and progress bars. In the next section, I explain such decisions and provide concrete examples of such design decisions.

ACCESSIBILITY: CONSISTENT, LOGICAL, AND EFFICIENT NAVIGATION

This learning experience was for ~1500 students from different programs, campuses, and institutions across the state of Indiana. To make sure this learning experience was accessible and seamless for this large group of students, I (Victoria) decided to follow evidence-based practices related to accessibility and usability (Clark & Mayer, 2016; Hovde, 2015), such as (a) To use appropriate header hierarchy to indicate separate group of content (see Figure 5); (b) To organize materials into coherent structure through grouping related content (see Figure 6); (c) To use modality principle

FIGURE 5. Example of a page with the use of appropriate header hierarchy (H2, H3, etc.) to indicate separate group of content.

FIGURE 6. Example of a page where content is organized into coherent structure through grouping related content.

FIGURE 7. Example of the modality principle (presenting words as speech instead of on-screen text).

Requirements

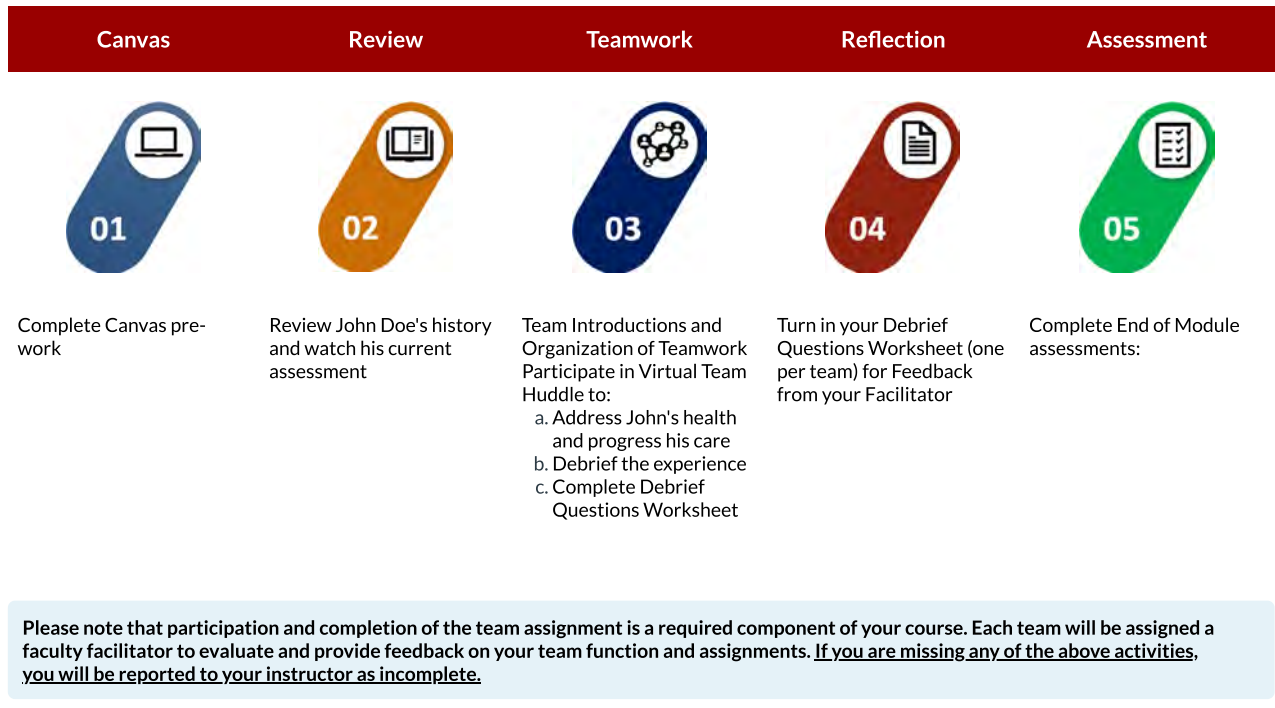To receive full credit for Anchor 4, you must complete each of the following components:

Canvas	Review	Teamwork	Reflection	Assessment
01	02	03	04	05
Complete Canvas pre-work	Review John Doe's history and watch his current assessment	Team Introductions and Organization of Teamwork Participate in Virtual Team Huddle to: a. Address John's health and progress his care b. Debrief the experience c. Complete Debrief Questions Worksheet	Turn in your Debrief Questions Worksheet (one per team) for Feedback from your Facilitator	Complete End of Module assessments:

Please note that participation and completion of the team assignment is a required component of your course. Each team will be assigned a faculty facilitator to evaluate and provide feedback on your team function and assignments. **If you are missing any of the above activities, you will be reported to your instructor as incomplete.**

FIGURE 8. A visual that summarized the key requirements and milestones.

Anchor 2 Review

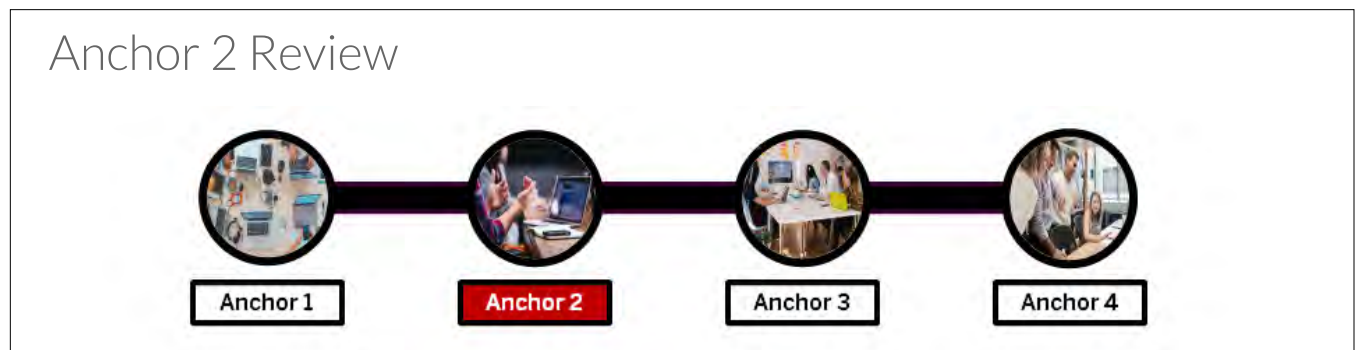Anchor 1   Anchor 2   Anchor 3   Anchor 4

FIGURE 9. An Example of the Progress Bar Visual.

(presenting words as speech instead of on-screen text; see Figure 7).

I also relied on my design judgments (Nelson & Stolterman, 2014), which I formed based on my precedent knowledge (Boling, 2021). This is a design knowledge I formed as a result of my professional and personal experiences. My design decisions included the reliance on designing additional visual elements that also served as hard scaffolds (Brush & Saye, 2002) to orient students through their learning process. For instance, I decided to create an additional visual that summarized the key requirements and milestones of the Anchor (see Figure 8). Students could always refer to this visual to

see what this learning experience would involve and refer to it to see where they were completing the required tasks. At the same time, I tried not to make the course site too heavy on visuals and media for accessibility and equity purposes. As students worked from different physical locations, I had to be mindful of potential internet connectivity issues they might encounter, as images or videos might take a long time to load.

Similarly, I decided to design and incorporate additional visuals that looked like progress bars (see Figure 9). This design decision came from my experience taking other training courses and finding it helpful to see at what stage she

Key Takeaways

- Communication is key for health care professionals when working with other health professionals or with their patients
- Many variables, including values, culture, and communication style affect communication
- Team huddles, check-back, CUS, and two-challenges rule are communication tools

FIGURE 10. An example of content summary (e.g., key takeaways).

What is Effective Communication and What Affects It?

This section includes the following topics.

List of Topics

- **Variables that affect Communication**
- **Characteristics of Effective Communication**
- **Barriers to Effective Communication**
- **Communication Tools**
- **Communicating with Your Patients/Clients**

Variables that Affect Communication

Values: Beliefs about what is important that determine how we live our lives:

Core values: : Personal principles that guide our decision-making

Core values? How exactly are core values different? Values come from families, friends, organizations that you affiliate with, personal life experiences, etc. Core values are specific and are involved in your day-to-day, situational decisions on just about everything. For example, core values could include relationships, wealth, power, autonomy, integrity, professionalism, collaboration, honesty, knowledge, creativity, tolerance, teamwork, spirituality, self-expression and problem solving.

Other Variables that Affect Communication

Not only are our values an underlying theme in how and what you communicate, but there are several other variables you should consider as well.

- Professional Training
- Profession/Field
- Personal experiences
- Setting
- Culture
- Language
- Situations

Back to list of topics

FIGURE 11. An example of a page with additional navigation elements.

was as a learner. This allowed me to consider this learning experience through the lens of a learner and imagine how it would feel if someone took this online course for the first time. Thus, I decided to include this visual to give students a visual clue of where they were in their learning process. I also thought it would be helpful to include a quick summary of the content (see Figure 10) to help students understand key concepts and ideas. This design idea came from my previous teaching and learning experiences—reiterating the key points proved helpful in retaining key information.

Some pages turned out to be lengthy due to the amount of content students needed to review before working on the case scenario. When asking myself the question, "*How would I feel going through this content if I were a student of this course?*" I decided it would be helpful to add additional navigation elements to allow students to quickly go to different parts of the page. Figure 11 shows an example of additional navigation elements.

SURPRISES, OBSTACLES, AND CHANGES OF DIRECTIONS

The design process was not without its challenges and obstacles. One of the obvious challenges and obstacles simultaneously was that we (the authors/design team members) had to design this interprofessional learning experience in a new format within a short time in times of uncertainty. None of us had any point of reference as far as designing such learning experiences during the times of the pandemic. It was an uncharted territory for all of us. While we did not bring it up during the design meetings, it was

obvious that we all experienced a certain level of difficulty and/or anxiety processing and living the experience of living during the world pandemic. In retrospect, it could have been a different experience post-pandemic when we did not have the pressure of time and dealing with the unknown for our health and the health of our loved ones. This left us with no option to test and review the Anchor 4 activities and the course site in more detail. We could have potentially missed areas that would have been important to consider, such as the way the case scenario was written, activities that were given prior to the case scenario, and to what extent the case scenario considered the dimensions of diversity, equity, and inclusion. Due to time constraints, we could not test the course site itself to rule out potential difficulties accessing or participating in learning activities, as not all students had equal access to high-speed internet and activities. For the same reason, we could have thought through alternative ways in which students could participate in team huddles, perhaps through a combination of synchronous and asynchronous discussions. At that time, those who had experience only taking face-to-face classes had to quickly master the technical side of using new video conferencing technology, as well as etiquette that was important during synchronous meetings (e.g., the importance of muting the microphone to eliminate background noise, be considerate what was shown in the background, etc.).

There was a risk that not every student could actively participate in team huddles for the reasons of accessing high-speed and high-quality internet and appropriate space to participate in meetings. Failure to participate in the required team huddles or fully participate in team huddles would mean that students missed out on the essential part of this interprofessional learning experience. There were no reports that such a situation occurred, and students felt left out due to their inability to access and participate in this learning. However, we cannot deny that it could have potentially happened and led to a design failure of this interprofessional learning experience. If designing such learning experiences online again, we would ensure more flexibility in scheduling team huddles and ease and convenience of participation.

The course site on the Canvas LMS itself incorporated different visual elements. I (Victoria) created some of them using front-end coding, such as HTML and CSS, and some were visuals/images I created specifically for this project. At that time, visuals seemed to be one of the best ways to help students navigate the course site and ensure proper navigability and usability. However, in retrospect, given how many students were using the LMS due to pivoting to an online format and internet connectivity issues that could result from it, I would try to find alternative ways to highlight important sections of the content and navigation elements, as visuals could take a significant amount of time to load. It could have been an unpleasant experience if students could

not load visuals that were critical in navigating the course site and finding necessary resources.

THE UNIQUE FEATURES OF THE DESIGN PROJECT

With all the obstacles and challenges resulting from time constraints and uncertainty of living during the pandemic, this design project also had unique and interesting features. The most interesting aspect of this design project was its interprofessional nature. The design of this learning experience involved interprofessional collaboration among students and among us (the authors of this design case and most members of the design team). To make this experience successful, we collaborated across diverse healthcare disciplines and fields, including instructional design and education. The process of sharing our diverse expertise and ideas across diverse professions led to creating this experience worthy of an interprofessional student audience. For instance, I (Victoria) was fascinated by the realism and authenticity of the real-life case scenario and how the faculty members framed it. It was very interesting that students were not just given a case scenario to read through but were able to watch a video of a patient (played by a hired actor) who shared their story, health, and social issues firsthand. This design strategy humanized the story and gave a voice to a type of patient these learners will consistently encounter in their professional practice.

It was also fascinating to us (the authors of this design case and most design team members) that we created an entire learning experience in an online format within such a short period. We designed through challenges and unknowns, notably the realities of a large-scale online learning experience in a pandemic setting. We relied heavily on our varied expertise and experiences, going with our gut feeling or what would be a quality learning experience for the students. While we did not have to change our overall course of action, we did iterate on the learning content and structure to ensure clarity. We had to trust our process and the resources we had in place at that time. For the next semesters (i.e., Fall 2020 and Spring 2021) the IPE Center team again offered the Anchor in the online format, suggesting that our design decisions in Spring 2020 led to a quality and sustainable learning experience.

CONCLUSION

Interprofessional education is beneficial for preparing future health and social care professionals and for health and social care education itself. While this process was done to prepare future health and social care professionals, the strategies that proved successful in this approach could also be used in other fields. In this design case, we illustrated our design outcomes as an interprofessional team that prepared future collaborative-ready health and social care professionals. The

design case drew special attention to the design decisions and moves while pivoting to an online format at the onset of the COVID-19 pandemic. The design case also aimed to document the challenges and obstacles of the design process during that time.

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