8

PUTTING IT TOGETHER

Using the integrated framework for designing the online learning experience may seem overwhelming, with so many concepts, design aspects, principles, and strategies to be put together holistically. In this chapter, we provide an example illustrating a real-world application of the principles and strategies covered in the book using design thinking to create learning experiences. We also provide a summary of the guiding design questions and design strategies for each design aspect in the integrated framework. We conclude with approaches for moving forward in designing the online learning experience.

Using Design Thinking for Creating Learning Experiences

We illustrate the use of design thinking for creating integrated learning experiences. Design thinking includes five phases: empathize with learners, define the learners' needs, create ideas for innovative solutions, prototype, and test.

Empathize With Learners

Empathizing with learners is the foundation of learner-centered and learner experience design. To empathize is to put oneself into the place of the learner who will be interacting with the instructional material or learning tasks. Understanding the perspective of learners is a way to overcome the natural tendency to use oneself as the point of reference and recognize that learners likely do not approach and react to a learning experience like a course designer may assume. Empathy is less about compassion and more about genuine curiosity and interest in the learner experience and a desire to make it better. Establishing empathy requires direct in-person conversations with learners, asking questions, and listening to them to better understand their

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perspective. This can be done informally and quickly through brief interviews with learners. These insights enable course designers to craft experiences that address learner needs from the cognitive, emotional, behavioral, and social dimensions of learning.

Interview Learners

Whether you are creating the course for the first time or converting a face-to-face course to the online environment, interview learners to understand the course's audience, purpose, and content. If you are enhancing an existing course, look at your previous course evaluations and talk with students who took your course earlier. The intent of the interview is to gain first-hand experience in understanding learner goals, motivations, and behaviors associated with the course. Construct questions to uncover emotions that support learning for your interviewees. Figure 8.1 provides tips for conducting interviews.

Define Learners' Needs

Synthesizing insights gained about learners through empathizing enables course designers to create a more accurate mental picture of learners and how they think, feel, and react to a particular learning situation. This imaginary mental profile of learners is often referred to as a *learner persona*. The purpose of the define phase is to use these personas to articulate and frame the design goal and challenges in a learner-centered way. In this phase, synthesize the interviews or conversations, create a learner persona, and provide problem statements.

Synthesize Interviews

Synthesizing interviews will help identify patterns around common behaviors, goals, and concerns about the course. These patterns will help identify opportunity areas and envision an ideal learning experience. They should include patterns found in the interviews—challenges, surprising insights, and strengths of the course.

Create a Learner Persona

After analyzing the patterns identified from the interviews, create a learner persona that portrays a learner in the course. The persona should represent a composite of the patterns across *all* interviews. It should *not* represent a single person. The learner persona should show how learners think, feel, and react to learning in your online course.

Figure 8.1. Tips for conducting interviews.

- Ask why, even if you think you know the answer. Don't assume you know what users are thinking or feeling—sometimes, their answers might surprise you.
- When probing their experiences in the course, ask for positive and negative incidents that impacted their learning.
- Avoid close-ended questions. These questions can be answered with "yes" or "no" or another simple phrase.
- Use open-ended questions to encourage storytelling. Example stem phrases include the following:
  - "How do you . . . ?"
  - "What is it like to . . . ?"
  - "Why do you feel . . . ?"
  - "Can you tell me about a time when . . . ?"
- Organize the questions into the three phases:
  - *Phase One: Set the stage.* Make a personal connection.
    - Tell me a little bit about yourself.
    - How do you like to spend your time?
  - *Phase Two: Capture stories.* Go deep on one or two stories.
    - Tell me when you took the course.
    - Why did you take the course?
    - Were there any issues with the course? Tell me more.

    Probe: activities, challenges, and emotions.
  - *Phase Three: Finish on a high note.*
    - What makes for a really great course experience?
    - If you had a tip or piece of advice for someone taking this course, what would you tell them?

Source. Adapted from Interaction Design Foundation. (n.d.). *Conducting interviews with empathy*. https://public-media.interaction-design.org/pdf/Conducting-an-Interview-with-Empathy.pdf

Provide Problem Statements

Being able to articulate the design challenges focused around learner characteristics guides and sharpens design efforts moving forward. The information from the learner persona should provide clues to the course design challenges and help you create problem statements. The problem statements provide a clear vision or goal for the course design.

Create problem statements by framing your ideas through "How might we?" questions. Adapt questions to allow for a variety of solutions. "How might we?" questions should generate a number of possible answers. If your questions are too broad, narrow them down. Design challenge definitions are

typically stated in a "How can we?" format and are solution-agnostic. The following are examples of definition statements related to the design:

- How can we get learners emotionally engaged in this task so that they seek out additional content from the ___ and ___?
- How can we get learners to immediately apply the concepts in the tutorial to a real-life challenging problem?

The problem statements should incorporate learner needs as actionable problems that will drive the aspects of the course design. Frame the problems as insightful, actionable, unique, narrow, meaningful, and exciting statements. Consider using the following structure to write your problem statements:

_____ needs to _____ because _____		
[Learner]	[leaner's needs]	[insights]

Create Ideas for Innovative Solutions (Ideate)

After developing a clear and comprehensive definition of the learning design goal and challenge, productively generate ideas and approaches to address them. The main focus of the ideate phase is to envision possibilities regarding both the learning goals and learner needs and characteristics. One does not do this alone, and it requires enlisting a few colleagues and learners who understand the challenge to participate in brainstorming. This does not necessarily have to take place at a single instance in time in a meeting room with lots of flip charts in whiteboards. It could be done over an extended period of time over a few meetings.

When brainstorming a range of ideas, it is better to defer judgement on evaluating those ideas and avoid embracing the first seemingly good idea. One unique caveat for ideation in the context of online learning design is possessing at least some understanding of the range of affordances of available technology tools and software but not becoming constrained by them. Involving a learning technologist in the process is most helpful. Ideation is best facilitated by having participants frame ideas in a positive way in the form of "What if?" statements:

- What if the learning activity had elements that felt like a treasure hunt, and clues were to be found in a variety of online resources including YouTube videos?

- What if the introductory text material in the learning activity included a short case scenario with virtual characters with whom learners interact to solve a set of problems related to key concepts?

Ideation often starts with a cloudy idea about how the learning experience should work. Over time ideas begin to crystallize into a more clear and complete image. This usually involves some sketches and models that bring the cloudy idea into a more tangible and concrete form. Words describe the idea and then get translated into pictures or drawings. These then gradually transition into the next phase of prototyping the best ideas.

Prototype

This phase involves taking two or three of the best ideas generated during the ideation phase and putting them into a tangible form. This is often referred to as rapid prototyping. At this phase, candid ideas are translated into a more tangible and concrete form, often crude but something that can be visualized to show others for feedback. In this phase, you create a prototype, obtain feedback, and analyze the feedback.

A prototype is a first draft of an idea or rough mockup of a design solution that course designers test out with real people. Minimal time and resource investment are used to produce a prototype. The best prototyping tool is simply hand drawn sketches using a pencil and paper or a whiteboard. Prototypes should be regarded as throwaways; course designers should be able to easily let go of ideas that don't seem to be meeting all of the criteria. During this stage, iteration is a common action. Prototypes need to be tweaked and refined rapidly and easily. Prototypes should be shown to other people to get initial reactions and feedback.

Identify a learning experience based on a course objective involving multiple design aspects to prototype. For example, you may create a learning experience connected to a higher-order learning objective (complete a pathology analysis):

1. Watch a video with a professional demonstrating how to perform a particular procedure (learner–content interaction)
2. Study a manual regarding policies and procedures for conducting a pathology test (learner–content interaction)
3. Check your knowledge quiz (assessment)
4. Analyze speech patterns using a simulation (learning activity)
5. Complete a form analyzing a patient speech pattern (assessment)

Create Sketches, Models, Scenarios, or Storyboards

Create a prototype of the learning experience using sketches, models, scenarios, or storyboards showing the interconnections of the multiple design aspects. For example, for the video, create a storyboard. For the manual, create a pedagogical wrapper explaining the policies and procedures for conducting a pathology test. For the knowledge quiz, create a rough draft of the quiz questions. For the simulation, create a storyboard for the interactive scenario. For the form, create a pedagogical wrapper for using the assessment form. Create a pedagogical wrapper for the entire integrated learning experience. Then fashion a mockup of the learning experience structure within the learner interface (course website).

Obtain Feedback From Prospective Learners

Review your prototype with the learners you interviewed. You may also consider reaching out to friends and colleagues to review your prototype. Use the factors that influence the learner experience design when getting feedback related to the overall learning experience in Table 8.1. Figure 8.2 provides tips for obtaining learner feedback.

TABLE 8.1
Factors Influencing the Learning Experience Design

Factor	*Description*	*Example*
Useful	Ease of access and/or use.	Is the content useful? Does the content flow well? • Easy for the learners to become familiar with and competent • Easy for the learners to achieve their objective • Easy to recall the design aspect and how to use it on subsequent uses
Usable	Ease of access and/or use. It looks at three components: look, feel, and usability.	Is the content easily understandable? • Easy for the learners to become familiar with and competent on the first contact with the prototype design • Easy for the learners to achieve their objective through using the design aspect • Easy to recall the design aspect and how to use it subsequently if learners must reuse it It is important to analyze the learners' performance and concerns.

TABLE 8.1 (*Continued*)

Factor	*Description*	*Example*
Findable	Ability to easily find the material within the course website.	Can the learner effectively and efficiently locate the material?
Credible	Trust engendered in learners plays a part in the learning experience.	Security (i.e., terms of privacy) and easily accessible course features and policies can help create a sense of credibility for the learner.
Desirable	When the learner can form an emotional bond with the course, people, or learning environment. That means moving beyond usable and useful and on to developing something that creates that bond.	Does prototype design convey an emotional connection with the learner?
Accessible	Providing access to the prototype design by learners with a full range of abilities, including those with disabilities, such as having hearing, visual, or learning impairments.	Can the prototype design be accessed, understood, and used to the greatest extent possible by all people, regardless of their age, size, ability, or disability?
Valuable	Worth and relevance of the prototype design for the learners. The value of the prototype design might influence the learners to complete the online course.	Is the value of prototype design relevant to the learners' work or personal life?

Note. Adapted from Soegaard (2018).

Figure 8.2. Tips for obtaining learner feedback.

If seeking feedback in person:

- Provide any background information about the online course.
- Walk the reviewer through your prototype.
- Find out what resonates and what doesn't and why.
- Ask them to think out loud.
- Be sure to take notes.

If seeking feedback online:

- Provide any background information about the online course.
- Provide a set of questions you want the reviewer to answer.
- Find out what resonates and what doesn't and why.
- Ask the reviewer to record or write the prototype review.

Analyze the Feedback

Use the following questions to make decisions regarding refinements to the prototype design:

- Does the integrated learning experience meet the learner's needs?
- Does the integrated learning experience meet the course goals?
- Does the integrated learning experience meet the requirements in the problem statement?
- Does the material have coherence and flow?

Test

The testing phase involves trying out a more refined version of the prototype with learners at a small scale and getting feedback and advice. This phase can also be done in the form of walkthrough presentations with learners to get their reactions and suggestions. The testing shows where a prototype needs refinement and might even suggest looping back to the empathize mode to better understand learners and ideate a different alternative solution to the problem. Ask colleagues and learners to navigate the online environment from instructor and learner perspectives. In most cases, if adequate prototyping is done and enough feedback gathered to make refinements, the testing phase is a matter of tweaking and ironing out issues in the design of the learning activity and getting it ready to use in a real course context.

Testing is often done with a limited number of individuals to simulate the real-world context in which the actual learning occurs. In some cases,

TABLE 8.2
Test Survey

Criterion	*Strongly Agree*	*Agree*	*Undecided*	*Disagree*	*Strongly Disagree*
The learner interface is cohesive and intuitive.					
The lesson or unit structure is easily navigated.					
The learning activities and tasks infuse interest, curiosity, and challenge.					
Learning materials and tasks align with each other and create a cohesive learning experience.					
Learning materials within the lesson or unit communicate an emotional tone.					
The guided communication conveys an emotional connection.					
Learning tasks incorporate cognitive engagement.					
Assessment-based learning tasks infuse interest, challenge, and curiosity.					
Strengths of the Integrated Learning Experience					
Suggestions for Improvement					