

# **Learning to Use a New Tool**

## **To help instructors and students learn new courseware:**

- **Be user-centric**

Use encouraging language to describe your product features in terms of what tasks they will enable users to do.

- **Teach by doing**

Allow users to guide their own tour of the interface with clear navigation so they can always find their way back. Offer just-in-time tips with relevant onboarding information in the moment to prompt users to try new features.

- **Foster trust**

Provide value before making requests. Avoid upfront tutorials and make them optional and always available.

- **Create and celebrate early wins**

Provide a setup wizard for instructors that encourages them to take a few key steps to prepare to optimize student success. Offer students opportunities for low-stakes, easy wins at the beginning to allow them to explore without fear of negatively impacting their grades.

- **Set reasonable expectations**

Onboarding takes time. Instructors feel like they get oversold on the idea that tech will save them time. Ideal onboarding time is 1-2 weeks, and this period can make or break the overall experience.

- **Offer responsive support**

Ensure users know where to go and who to contact if they run into any issues.

# **Customizing for Course Alignment**

## **Courseware may be more easily aligned to instructor practice if:**

- Instructors have control over what students are working on.
- Instructors can integrate it as a teaching tool for in-class work, beyond just assignments and assessments.
- It matches instructor's existing behaviors, processes, and languages (e.g., grading, lesson prep).
- It is flexible to match the instructor's pedagogical approaches, like project-based or competency-based learning.
- The content is searchable and presented visibly in the form of a map or list.
- The content map is presented exactly the same for both instructors and students.
- Instructors can earn the ability to use features for customization by completing training.

# **Organizing Skills and Objectives**

## Help users understand how skills and objectives are organized by:

- **Activating prior knowledge**

Learners store information in sparse knowledge structures and need help weaving it into coherent structures. Students learn new ideas by calling upon things they already know, which helps them interpret new information and store it appropriately.

- **Providing outlines and tables of contents**

This helps instructors and students see how everything in the course fits together. Make it clear to instructors which standards content is mapped to.

- **Clearly communicating learning outcomes**

Students want to know what concrete skills they are mastering. Use short videos to introduce what a student is about to learn, pose a question, and give them objectives that connect to the larger skills or goals. Close content sections with short videos of what skill(s) was just learned and how the objectives were met, and answer the question that was posed at the beginning.

- **Explaining to students how they are learning**

Help students understand how learning science is being applied to what they are doing (e.g., *“You might see a lot of questions repeated. That’s because it takes multiple exposures to the same content before it becomes part of your long-term memory”*).

# **Expectations of Adaptivity**

## **To alleviate confusion around adaptivity:**

- **Set expectations**

Set clear expectations about how your courseware defines adaptivity and which components are adaptive.

- **Show changes**

Show students and instructors how the system is tailoring their learning and feedback to their level of comprehension.

- **Provide training**

Build a module to train instructors and students about how adaptivity works.

- **Add personality**

Give your adaptive learning (AL) a name and personality. Encourage students to “teach the AL” to learn more about them.

# **Creating a Supportive Environment**

## **Frame messages to create a supportive environment:**

- **Create social awareness of others**

People are heavily influenced by the behaviors of their peers. In an online environment where students can't see their classmates and instructors don't know who else is using the same product, use messages about best practices to incentivize productive behavior.

- **Emphasize that challenges are common and improvable**

Early struggles can be perceived as a lack of belonging or potential, making learners feel alone.

- **Highlight interdependence**

Promoting independence can make academic tasks seem more difficult.

- **Establish communication channels**

Faculty members may not have dedicated time for working together on courseware implementation; leverage training opportunities to foster local collaboration. Students who are used to in-person classes may struggle to know where to go for help in an online environment.

# **Availability and Usability**

## **To design for availability and usability:**

- **Provide continued access**

Allow students to access content before, during, and after the course is over.

- **Make material mobile friendly**

Design mobile-friendly courseware and test it with novice mobile users on various devices.

- **Get feedback**

Get feedback from a diverse set of user experience reviewers to ensure maximum usability.

- **Test often**

Test the courseware experience at various bandwidth speeds.

- **Universal compatibility**

Test compatibility across browsers as students may not have control over which browser they use at a library.

# **Framing Messages to Motivate Students**

## **Frame decisions in courseware to incentivize the behavior students should take:**

- **Loss aversion**

Losses hurt about twice as much as gains help. Framing choices as avoiding a loss can motivate students to stick to their goals.

- **Gain and loss framing**

When a decision is presented in terms of gains, people take the sure thing. When framed in terms of losses, people are more likely to take a gamble.

- **Self-efficacy**

Students often attempt only tasks they believe they will be successful in. Authentic, confidence-boosting messages can motivate them to take on more challenging content.

# **Visible Progress Monitoring**

## **Help students monitor progress by:**

- **Providing context**

Give them a clear sense of where they are in the book as they read.

- **Being clear**

Distinguish between percentage completion and performance.

- **Showing achievement towards a goal**

Display time or questions left in each assignment and assessment.

- **Showing checklists**

Provide a map or checklist so that students and instructors know what content has been completed and what is to come.

# Managing Cognitive Load

## Tips for managing cognitive load:

- **Minimize extraneous processing**

Students learn by transferring information from their working memory, where they can hold about four things they're actively thinking about, to their long-term memory, where it's stored for later use. Cluttered or chaotic interfaces with too much, too complex, or irrelevant content overwhelm working memory and distract students from the learning objective.

- **Vary content format**

Too much content in the same format is difficult for students to digest. Use a mix of text, images, videos, and infographics. People perceive things that are close to one another to be more related than things that are farther apart. Look for opportunities to group content for more clarity.

- **Chunk information**

Break up skills into small chunks and provide students with explicit instruction, clear explanation of concepts and skills, and worked examples. This removes the guesswork for those that may not have relevant concepts in their long-term memory. Sequence content and test how long it takes users to go through a section. If it's more than 15-20 minutes, consider ways to further break up the sequence (e.g., mini-quizzes, games, etc.).

- **Monitor understanding**

Embed assessment questions in content. Let students re-answer the questions as many times as they need. Ask Level 1 or 2 Blooms Taxonomy questions in these moments.

- **Gradually increase difficulty**

Keep learners within their zone of proximal development by removing scaffolds as they build mastery. Students should alternate between intentional confusion and engaged concentration, avoiding boredom and frustration.

# **Delivering Useful Feedback**

## **Quality feedback is:**

- **Clear**

Explain where the student is now and be specific in identifying an aspect of their performance that needs improvement. A letter grade or generic comment does not offer a clear path for growth.

- **Concise**

Focus on the top priority issue in that moment. Too much feedback at once can be demotivating. Stick with short sentences and avoid unnecessary words.

- **Timely and actionable**

Show students the effect of their actions right away and allow them to reflect on their thinking and adjust their approach as needed. Feedback provided early and often prevents learners from developing misconceptions.

- **Focused on student actions**

Feedback about the process or strategy the learner used is most effective. Avoid giving feedback about the learner as a person.