

The Impact of Course Design on Student Learning

Effective course design supports student learning and improves outcomes. Positive impacts on student learning occur when course design is guided by key principles and theories: consistency, usability, findability, cognitive load theory, and chunking.

Consistency

Consistency in web design is the systematic application of similar design elements and structures to create a cohesive user experience. Consistency helps improve usability, reduces user frustration, and is associated with positive user experiences.

When courses are designed with consistency in mind, they benefit students by reducing learnability, or the amount of time it takes to learn how to use the site. When navigation and other site structures are consistent, students can devote their cognitive resources to course content. Students show a preference for consistently organized courses (McMulla et al, 2022; Scutelnicu, 2019). Frustration is reduced and users report more positive experiences. Consistency in a single course site increases student motivation, learning, and retention (Joosten & Cusatis, 2019; Muljana & Luo, 2019). These impacts are increased when there is a baseline level of consistency across courses at an institution (Means et al, 2021; Scutelnicu et al, 2019; Borgemenke et al, 2013).

Using a course template is one of the most powerful actions an instructor can take to support consistency. Courses that use a standard course template see a decrease in student confusion (Burgess et al, 2008) and an increase in completion rates (Mootispaw, 2022). Students generally regard the use of a template to have a positive impact on their learning (Scutelnicu et al, 2019). Course templates also help create learning communities through their consistent structure that creates a sense of familiarity, reduces isolation, and promotes exchange of ideas (Shea et al, 2016; Burgess et al 2008).

Templates benefit instructors as well by creating efficiencies that allow instructors to focus on developing course content and activities rather than site creation, boosting a return on investment (Hunn & Hughes, 2014; Davis, 2018). Templates have been shown to encourage the adoption of online learning best practices and reduce course building frustration (Goomas & Czupryn, 2019; Huun & Hughes, 2014). However, templates must be flexible and adaptable to avoid instructor resistance (Dalziel & Dalziel, 2011; Newberry & Logofatu, 2008).

In addition to using a course template, instructors can apply consistency principles to their courses by using the syllabus template, using Canvas grading tools, and adhering to LMS usage standards set by shared governance.

Usability

Usability is a measure of how easy and effective a product or system is to use. Usable course sites are predictable, easy to navigate, and accessible. They reduce frustration and navigation errors, allowing students to focus on learning course content rather than get lost in poorly designed interfaces.

When courses are designed with usability in mind, they can reduce cognitive load (Fuller, 1995), reduce student errors in accessing content (Penha et al, 2014, Connors, 2013), and reduce frustration, leading to more meaningful engagement and focus on learning tasks (Abu-Dalbouh (2022). Effective usability is generally linked to improved user satisfaction, leading to an enhanced overall learning experience (Yablonski, 2024).

Instructors can apply usability principles to their courses by using a course template, organizing content into a consistent module structure, applying clear and consistent labels, ensuring essential course resources are available from a consistently available navigation menu, incorporating consistent feedback mechanisms such as automatic grading or immediate feedback, and providing links to materials as applicable.

Findability

Findability is the measure of the ease with which information or tools can be found in an interface. Courses with strong findability are organized in a predictable manner, use consistent labels and naming conventions, remove or hide unused tools, and place items in expected locations.

When courses are designed with findability in mind, learning outcomes are improved. Students spend less time looking for materials and information and more time focused on course content. Conversely, poor findability is linked to lower student reports of self-efficacy and motivation (Simunich et al, 2015; Placencia and Muljana, 2019).

Instructors can apply findability principles by organizing materials in a consistent module structure, using consistent labels and naming conventions, hiding unused tools, and placing items in expected locations. For example, placing the syllabus in the Canvas Syllabus tool rather than in the Files improves findability as students expect to find the syllabus in the Syllabus tool. Similarly, applying a consistent structure for all assignments can improve findability. All assignments in a course might be structured with consistent headings such as Purpose, Instructions, Rubric, and Resources to help students easily navigate and find the information they seek.

Instructors can also apply the findability principle by what they choose to leave out of their courses. Removing outdated or duplicated files, curating resources to only include the essentials, and clearly denoting what is required and what is optional can all improve the findability of a course site and improve student learning outcomes.

Cognitive Load Theory

Cognitive Load Theory provides a framework for understanding the limitations of working memory and how instructional materials should be designed to optimize learning (Yablonski, 2024).

When courses are designed with cognitive load theory in mind, extraneous load is reduced, ensuring that students are not overwhelmed by content and can effectively process and retain information (Ong and Tasir, 2015; Kun et al, 2023, Zhao, 2023).

Instructors can reduce extraneous cognitive load by using a course template, organizing content into modules with consistent structures that break content into manageable pieces, and curating course content to remove unnecessary or distracting material.

Chunking

Chunking is the process of organizing complex information into smaller, more manageable pieces so it is easier for learners to understand and retain (Yablonski, 2024).

When courses are designed with the chunking principle in mind, student attention is improved, allowing students to stay focused and process information more effectively (Harris et al, 2021). Chunking also improves navigation and information retention (Rajanen et al, 2021) resulting in clearer learning pathways that reduce confusion and promote engagement (MacKenzie et al, 2017).

Instructors can use the principle of chunking in their courses by breaking content into smaller pieces such as separating content across Canvas pages, using descriptive and meaningful headings, and breaking longer video content into shorter focused segments. The use of modules in Canvas also employs the chunking principle.

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