

Applying User-Centered Design Principles Improved Student Usability of the Canvas Learning Management System

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Introduction

User-centered design (UCD) is an iterative process incorporating users in product evaluation. UCD is rarely used in educational course design, but dependence on educational technologies for virtual instruction elevates the potential benefit of UCD.

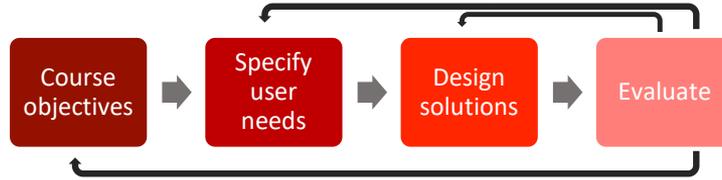
Purpose

This case study is a novel approach to UCD implementation to increase the Doctor of Physical Therapy (DPT) student usability of a Canvas learning management system course.

Methods

A modified heuristic evaluation technique was implemented in a Clinical Medicine course during the fall 2020 semester. Faculty created course design, content, and learning assessments. A Qualtrics survey collected design feedback using open-text and 7-items with Likert-type responses (1=strongly disagree; 5=strongly agree) at the conclusion of each unit. Educational technology staff assisted with Canvas design, incorporating student feedback throughout the semester.

User-Centered Design



Module sample:

Medical Screening Intro & Neoplasm

October 15

Preparation (Pre-work)

- Watch the following recorded lectures
 - [Introduction to Medical Screening](#) (15 minutes) - This presentation describes how medical screening is conducted within a PT examination and conceptualizes the decision making process. [The presentation slides are available](#) e.
 - [Screening for Neoplasm \(Cancer\)](#) (20 minutes) - This presentation describes multiple cancers with musculoskeletal presentations. [The presentation slides are available](#) e.

Material(s) for synchronous session

- [Medical Screening Active Learning Session: Cancer](#) e

Screening for Cardiovascular Conditions

October 20

Preparation (Pre-work)

- Watch the following recorded lecture
 - [Screening for Cardiovascular Conditions](#) (24 minutes) - This presentation describes serious cardiovascular and pulmonary conditions that may be present in patients receiving PT care. [The presentation slides are available](#) e.
- Read: [Hillepass et al. Phys Ther. 2016;96:143-166](#) e This publication is an action-oriented, evidence-based, clinical practice guideline that should be read by all PT/PTAs in practice.
- Complete the [Medical Screening: Cardiovascular](#) individual quiz

Material(s) for synchronous session

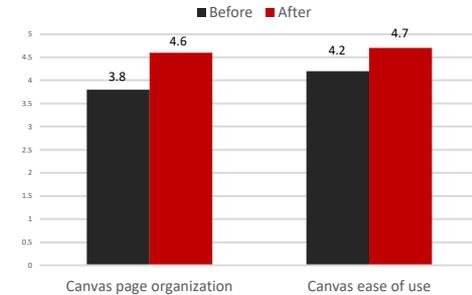
- [Medical Screening Active Learning Session: Cardiovascular Conditions](#) e

Sub-topic headers aligned with naming convention on course summary and syllabus to increase organization

Chunked content with bulleted content breaks and applied naming consistency creates content predictability

Differentiating font by using heading structures draws the attention focus of the user.

Results



Design Process

After evaluating qualitative and quantitative data from student evaluations for Weeks 1 – 4, the instructional designer presented faculty with implementables that were the least disruptive to the learners and learning environment and efficient to apply. Not all students expressed difficulty with the LMS or course design, so careful attention was paid to maintain the look and feel of the first 4 weeks of the course in the remaining weeks of the course (weeks 5 – 16).

Conclusion

Implementing UCD principles when designing the Canvas course improved student usability. These results are extremely applicable to hybrid or virtual instructional methods expecting learners to independently operate educational technology.